

THE ISLAMIC REPUBLIC OF PAKISTAN

# THE FEASIBILITY STUDY ON UPPER KURANG RIVER IRRIGATION PROJECT

## ANNEX



JUNE, 1988

JAPAN INTERNATIONAL COOPERATION AGENCY

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ON  
UPPER KURANG RIVER  
IRRIGATION PROJECT**

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**ANNEX A. TOPOGRAPHIC SURVEY**



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## ANNEX A. TOPOGRAPHICAL SURVEY

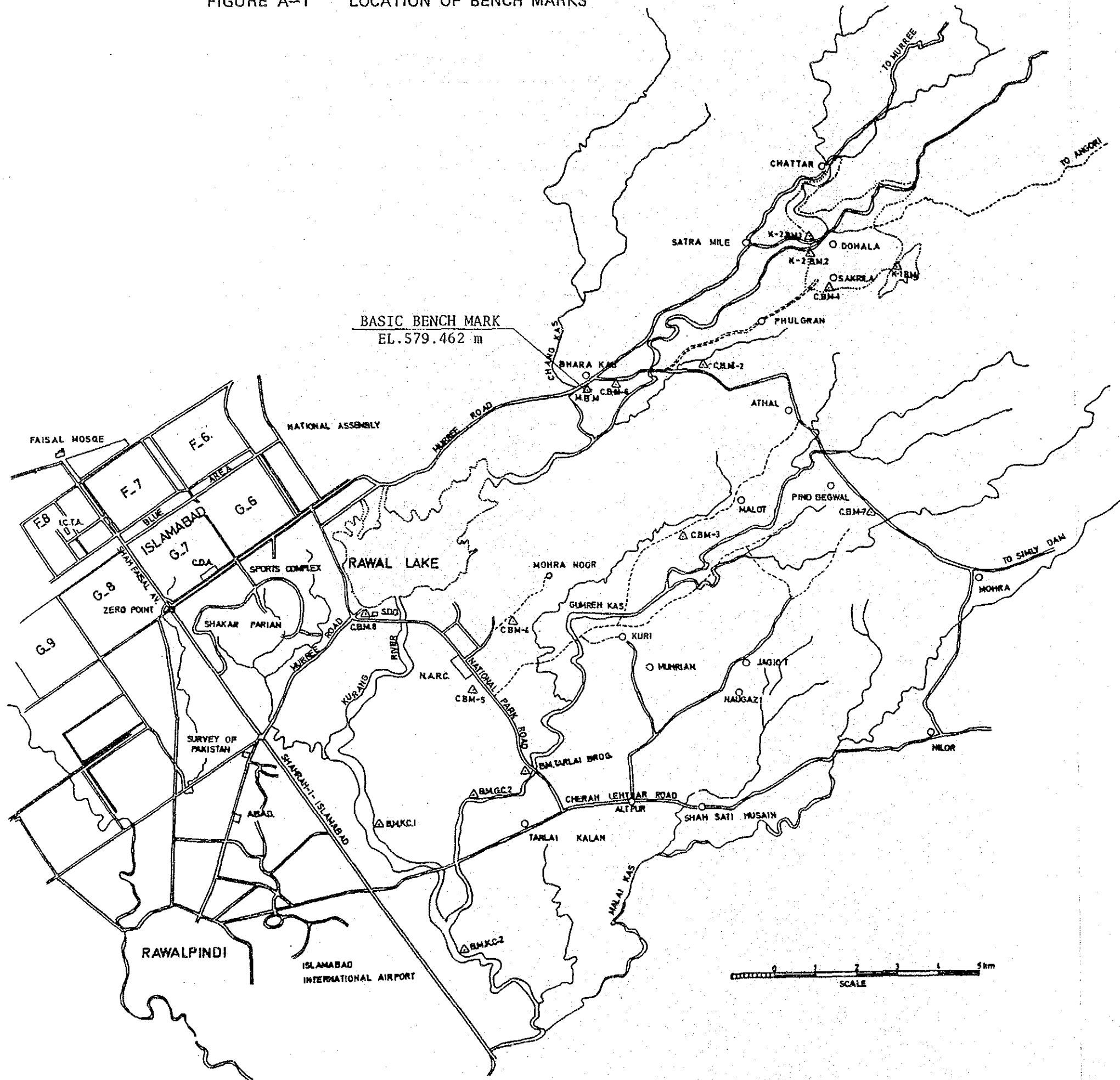
For obtaining topographic maps required for the design of dam, diversion dam, irrigation canal and on-farm facilities, the following topographic survey was carried out by the local surveyor under the conditions of contract concluded at the middle of August, 1987.

- Establishment of Concrete-Made Station Marker ..... 7 Nos.
- Establishment of Bench Mark ..... 14 Nos.
- Topographic Map, K-2 Reservoir Area (S = 1:5,000) ... about 420 ha
- Topographic Map, Main Damsite (S = 1:1,000) ..... about 45 ha
- Profile on Axis of Main dam (S = 1:500) ..... about 900 m
- Topographic Map, 3 Diversion Damsites (S = 1:500) ... about 7 ha
- Profile on Axis of 3 Diversion Dams (S = 200) ..... about 450 m
- Profile on Centerline of Irrigation Canal ..... about 35 km  
(Scale Horizontal 1:4,000)  
(Scale Vertical 1:500)
- Topographic Map, Two Sample Areas for Design of  
On-Farm Facilities (S = 1:1,000) ..... about 80 ha

The location of the bench marks is shown in Figure A-1. The records of the bench marks are as shown in Table A-1 to A-14. The locations of the concrete-made station markers are as follows;

- K-2 Dam ..... 2 Nos.
- Beginning Portion of Main Canal ..... 2 Nos.
- Kc-1 Diversion Dam ..... 1 No. (Bench Mark 1 No.)
- Kc-2 Diversion Dam ..... 1 No. (Bench Mark 1 No.)
- Gc-2 Diversion Dam ..... 1 No. (Bench mark 1 No.)

FIGURE A-1 LOCATION OF BENCH MARKS



BASIC BENCH MARK  
EL. 579.462 m

BENCH MARK NO.	ELEVATION
K-1 BM	649.443 m
K-2 BM-1	631.866 m
K-2 BM-2	654.415 m
C-BM-1	647.725 m
C-BM-2	608.131 m
C-BM-3	539.996 m
C-BM-4	509.506 m
C-BM-5	515.717 m
C-BM-6	578.874 m
C-BM-7	573.745 m
C-BM-8	526.218 m
BM-GC-2	486.638 m
BM-KC-1	488.284 m
BM-KC-2	480.699 m



TABLE A-1 RECORD OF BENCH MARK K-1 BM

BENCH MARK NO.	K-1. BM
ELEVATION (m)	649.443 m
LOCATION	This BM is situated in the middle of valley at K-1 damsite. The location of the BM is shown on the topographic map (Scale 1/5,000) of reservoir area.
ESTABLISHED BY :	Zafar
DATE :	August 27, 1987

PHOTO PICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK

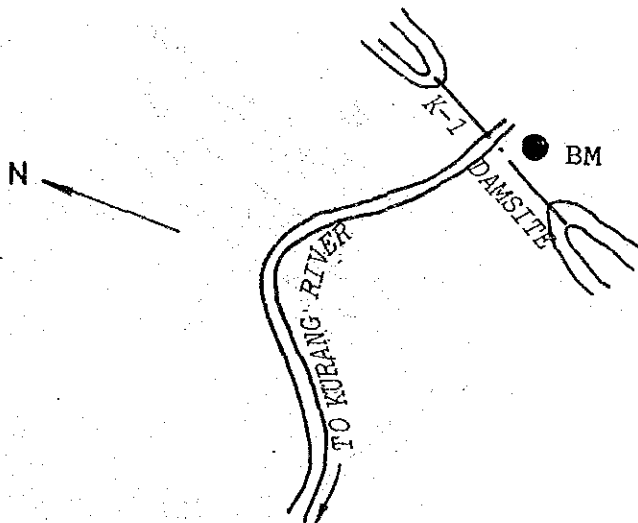




TABLE A-2 RECORD OF BENCH MARK K-2 BM-1

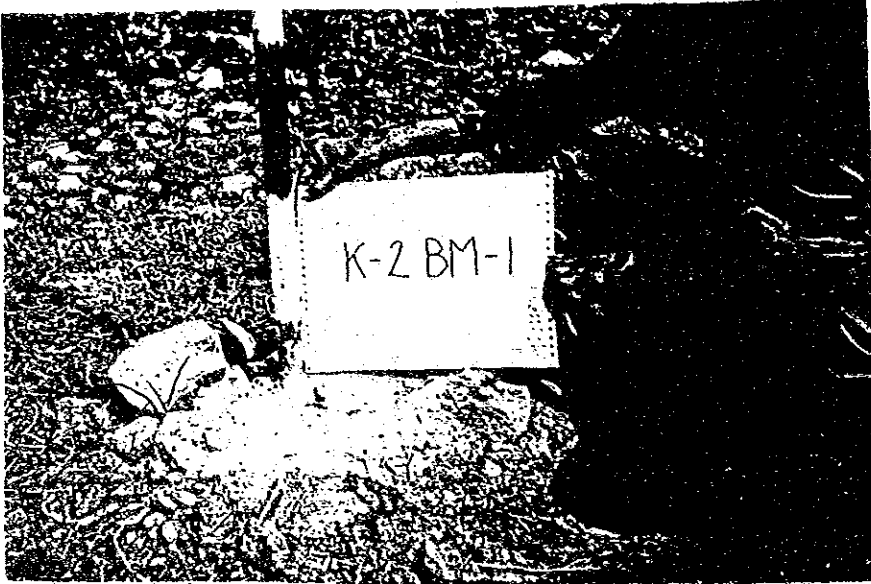
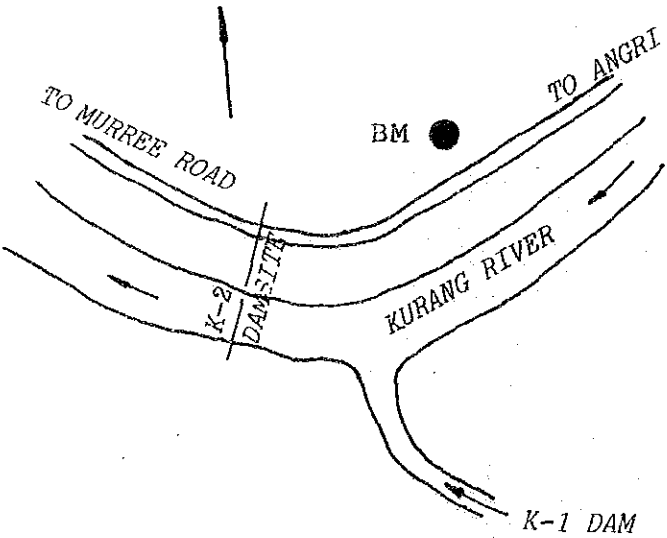
BENCH MARK NO	K-2. BM-1
ELEVATION (m)	631.866 m
LOCATION	This BM is situated on right abutment at a distance of about 200 M upstream from K-2 dam axis. The location of the BM is shown on the topographic map (Scale 1/1000) of K-2 damsite.
ESTABLISHED BY : Zafar <span style="float: right;">DATE : August 27, 1987</span>	
PHOTO PICTURE OF BENCH MARK	
	
LOCATION MAP OF BENCH MARK	
	

TABLE A-3 RECORD OF BENCH MARK K-2 BM-2

BENCH MARK NO.	K-2. BM-2	
ELEVATION (m)	654.415 m	
LOCATION	This BM is situated on left aboutment of K-2 damsite. The location of the BM is shown on the topographic map (1/1000) of K-2 damsite.	
ESTABLISHED BY :	Zafar	DATE: August 31, 1987

PHOTOPICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK

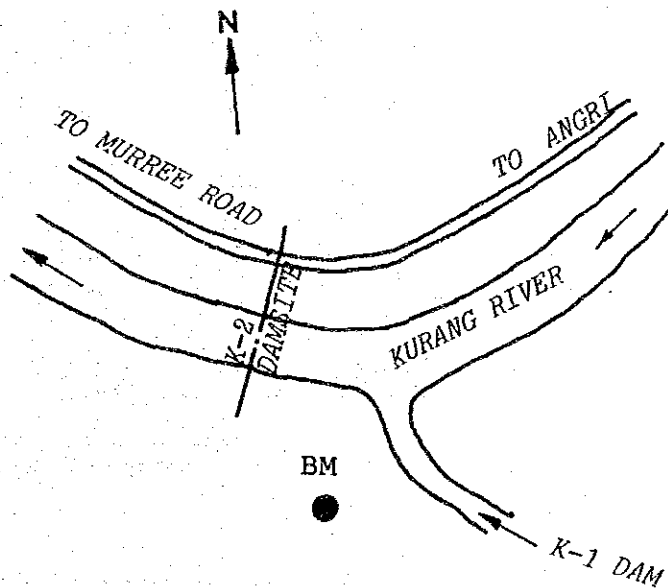
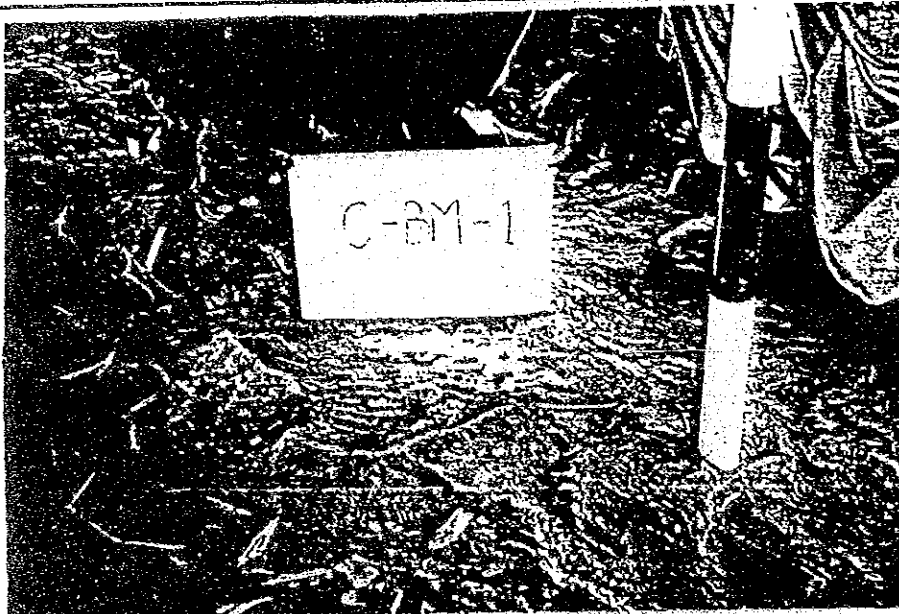


TABLE A-4 RECORD OF BENCH MARK C-BM-1

BENCH MARK NO	C-BM-1
ELEVATION (m)	647.725 m
LOCATION	This BM is situated under big mango tree in Sakrila village. The location of the BM is shown on the topographic map (Scale 1/5,000) of reservoir area.
ESTABLISHED BY :	Zafar
DATE :	August 30, 1987

PHOTO PICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK

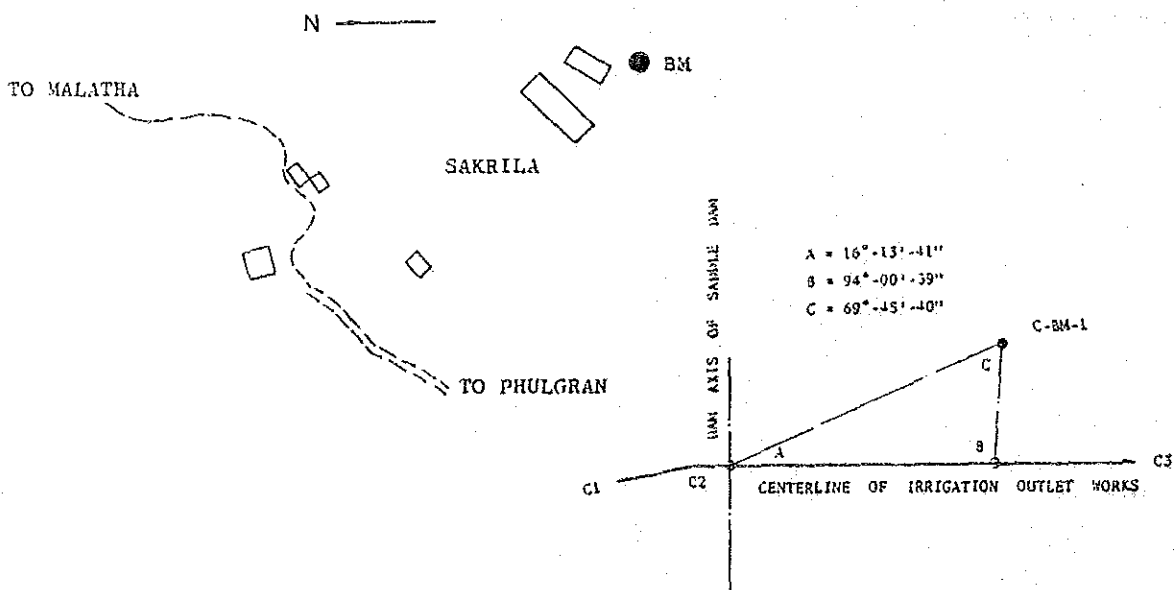


TABLE A-5 RECORD OF BENCH MARK C-BM-2

BENCH MARK NO.	C-BM-2
ELEVATION (m)	608.131 m
LOCATION	This BM is situated at a distance of 3½ KM from Murree Road towards Simly Dam along Bharakao-Simly Dam Road.

ESTABLISHED BY : Zafar

DATE : August 30, 1987

PHOTO PICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK

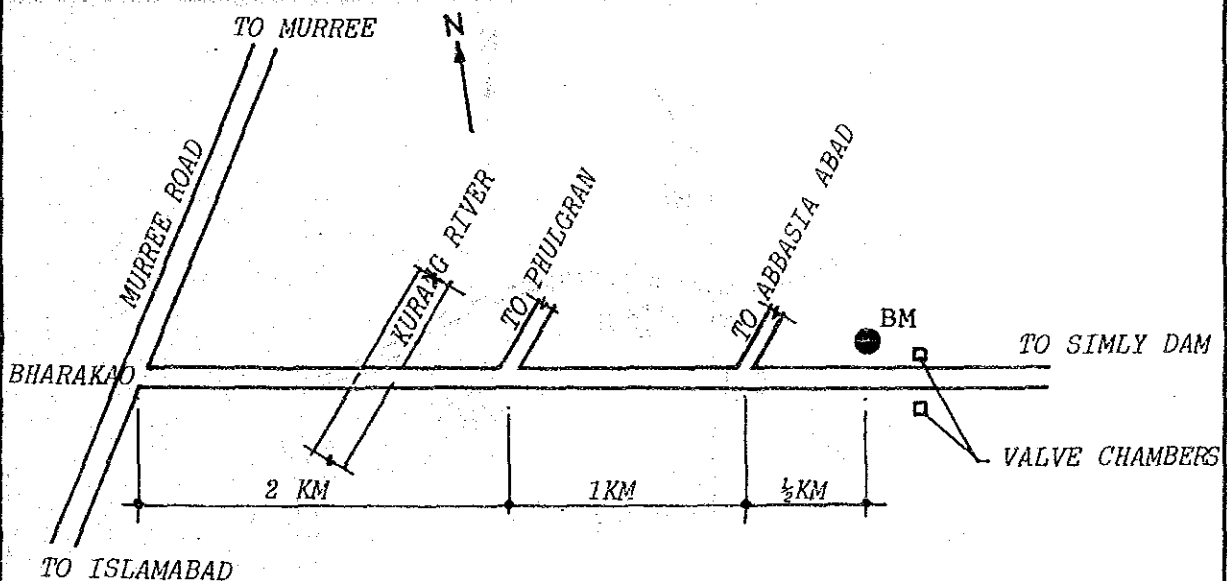
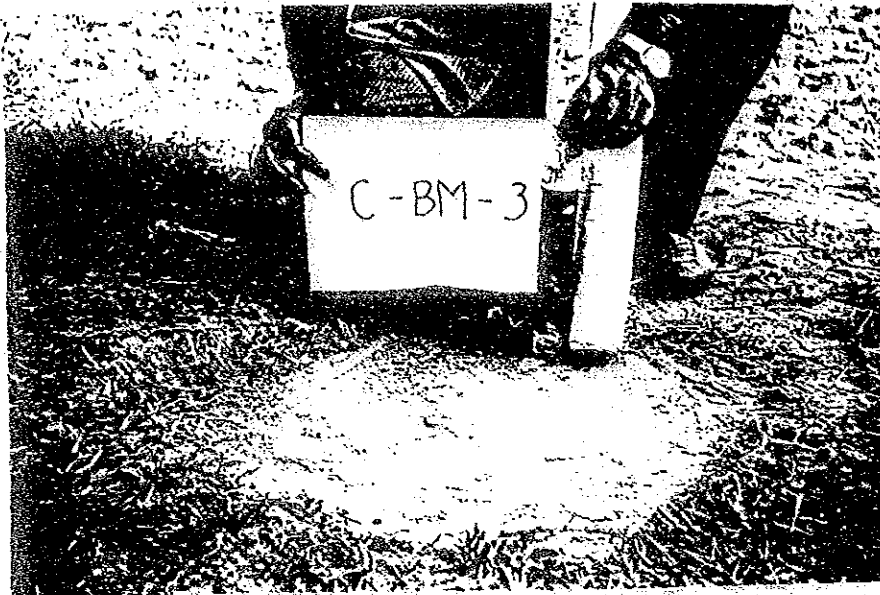


TABLE A-6 RECORD OF BENCH MARK C-BM-3

BENCH MARK NO.	C-BM-3
ELEVATION (m)	539.996. m
LOCATION	This BM is situated on boundary of Kuri-Malot villages near grave yard of Dhok Balagh. The Centre of Malot Village is 2KM far from this BM and that of Kuri Village is located at a distance of 4 KM from this BM.
ESTABLISHED BY :	Zafar
DATE :	August 31, 1987

PHOTO PICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK

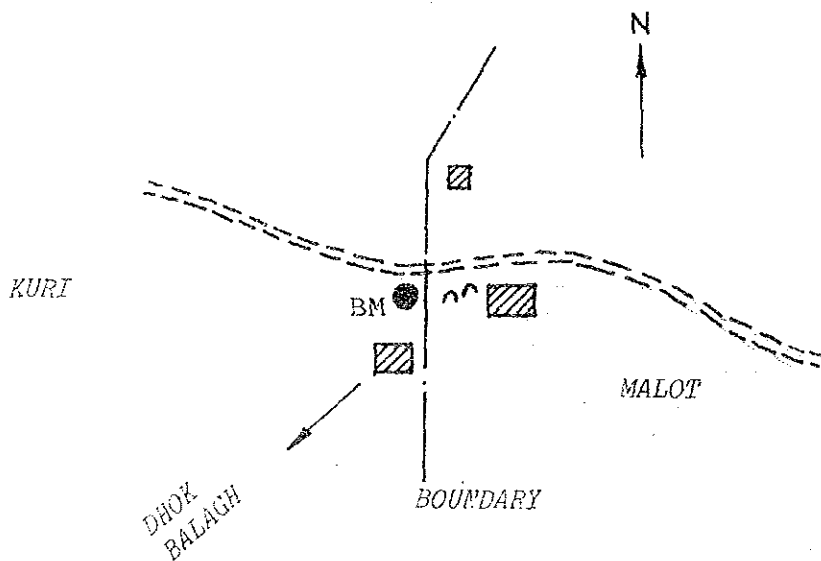


TABLE A-7 RECORD OF BENCH MARK C-BM-4

BENCH MARK NO.	C-BM-4
ELEVATION (m)	509.506m
LOCATION	This BM is situated about 2 KM north of National Park Road, 200M North East of horse farm and 1 KM South West of Mohra Nur Village along the unpaved road.
ESTABLISHED BY :	Zafar
DATE :	August 30, 1987

PHOTO PICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK

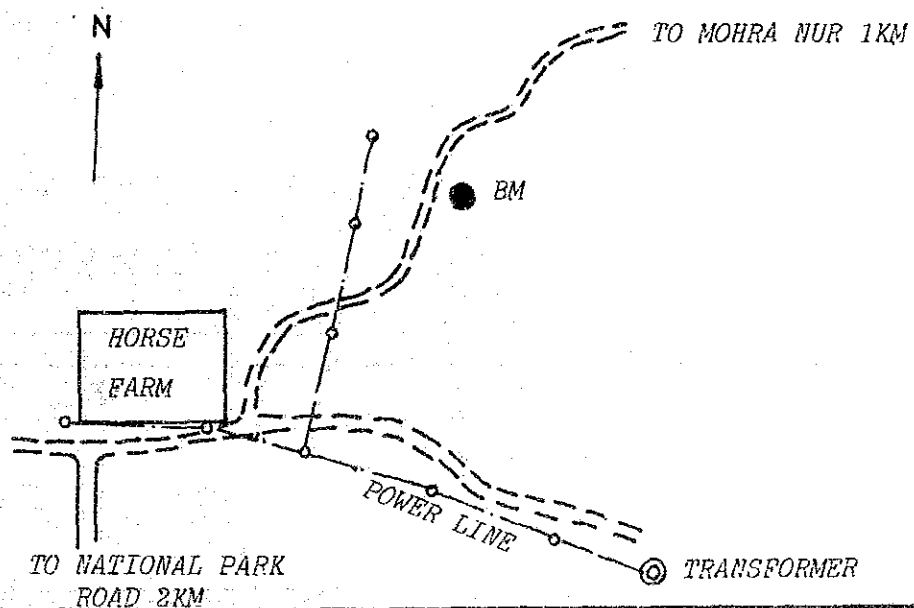


TABLE A-8 RECORD OF BENCH MARK C-BM-5

BENCH MARK NO	C-BM-5
ELEVATION (m)	515.717 m
LOCATION	This BM is situated near National Centre of Rural Development Office at a distance of 2KM from Rawal Dam along National Park Road.
ESTABLISHED BY :	Zafar
DATE :	August 30, 1987

PHOTO PICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK

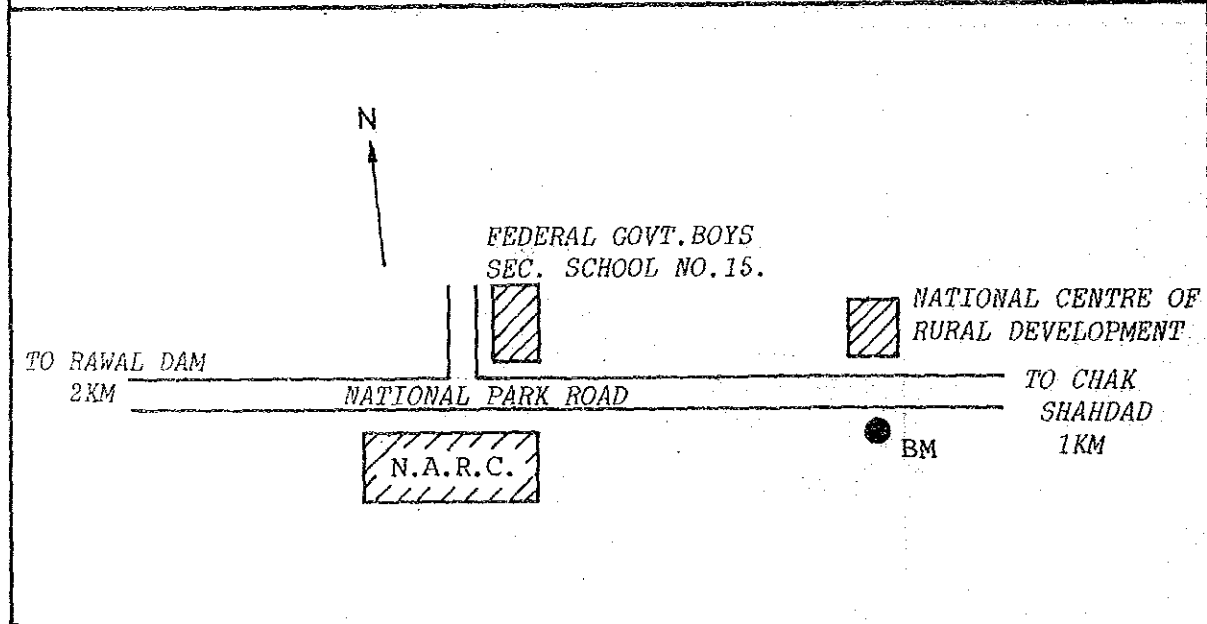


TABLE A-9 RECORD OF BENCH MARK C-BM-6

BENCH MARK NO.	C-BM- 6
ELEVATION (m)	578.874 m
LOCATION:	This BM is situated in the compound of Bharakao Markaz (Rural Development Centre - Bharakao).

ESTABLISHED BY : ZAFAR Date: August 31, 1987

PHOTOPICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK

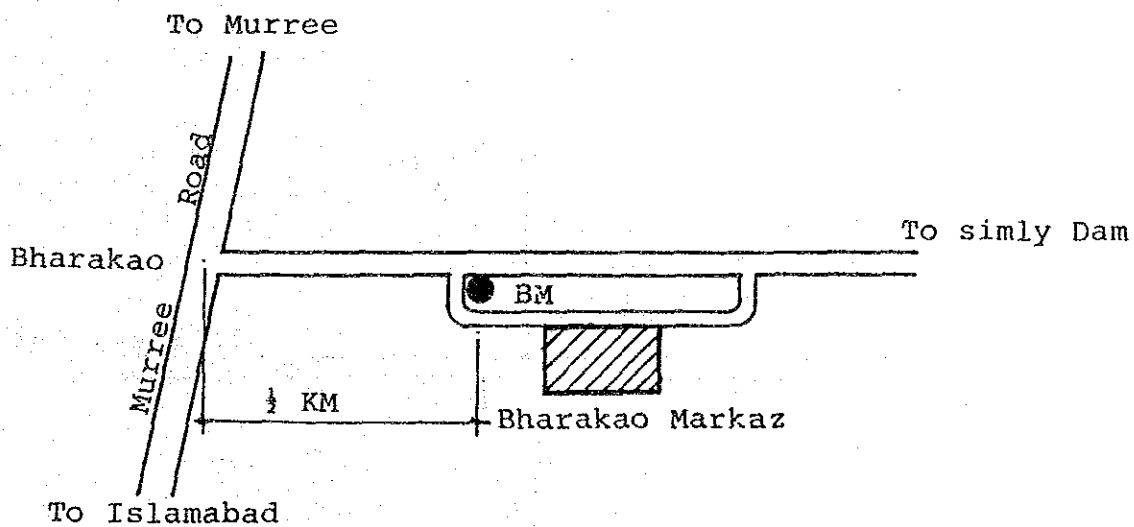




TABLE A-10 RECORD OF BENCH MARK C-BM-7

BENCH MARK NO	C-BM-7
ELEVATION (m)	573.745 m
LOCATION	This BM is situated at a distance of 1KM towards West from Pind Begwal Village where is about 8KM far from Murree Road along Bharakao - Simly Dam Road.
ESTABLISHED BY : Zafar DATE: August 27, 1987	
PHOTO PICTURE OF BENCH MARK	
LOCATION MAP OF BENCH MARK	

TABLE A-11 RECORD OF BENCH MARK C-BM-8

BENCH MARK NO.	C-BM-8
ELEVATION (m)	526.218 m
LOCATION	This BM is situated at a distance of 1 KM from Rawal Dam; in the southern corner of triangle from where four important roads lead to Rawal Dam, Chak Shehzad, Bhara Kau and Rawalpindi.
ESTABLISHED BY: Zafar	DATE: September 20, 1987

PHOTO PICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK

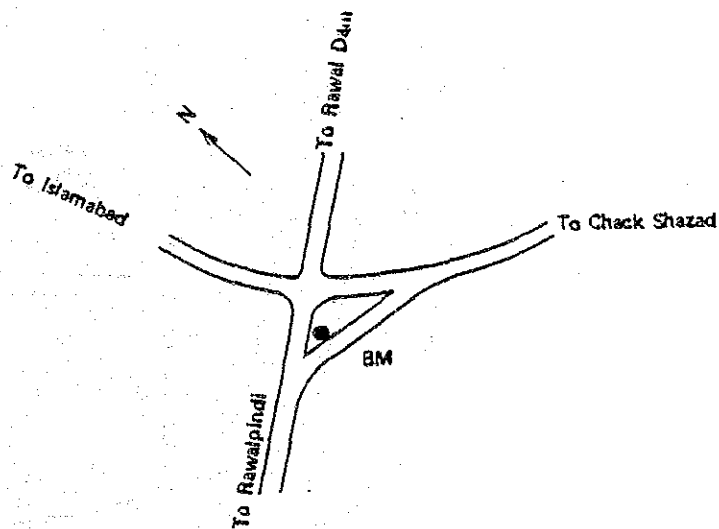


TABLE A-12 RECORD OF BENCH MARK BM-GC-2

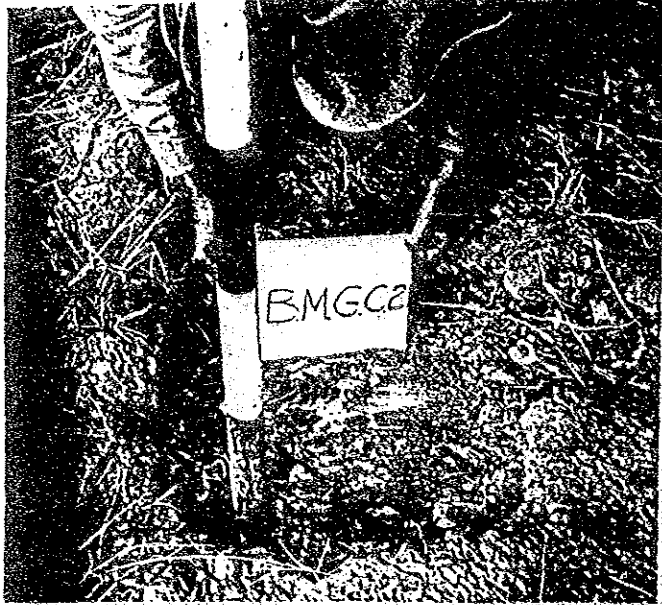
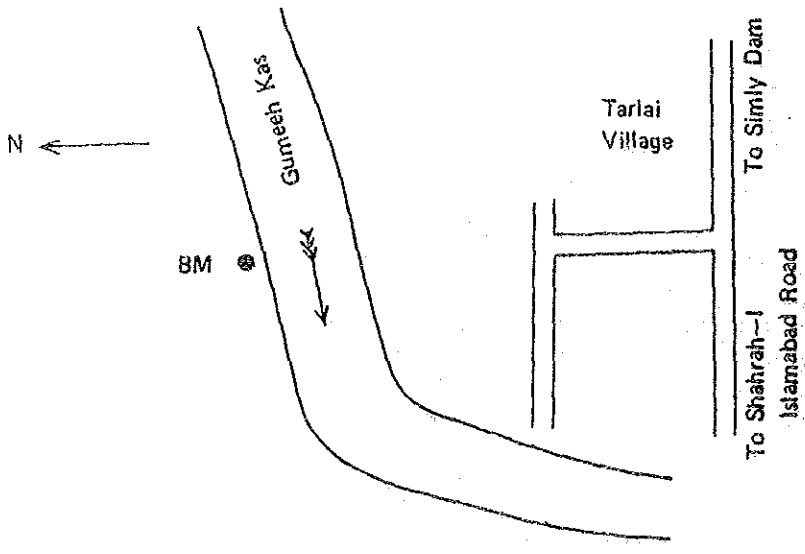
BENCH MARK NO.	BM-GC-2
ELEVATION (m)	486.638 m
LOCATION	This BM is situated on the Northern edge of Gumreh Kas at a distance of 2 KM from Tarlai village from where road leads to Islamabad Airport (4 KM away) and Simly Dam as well as Chak Shehzad.
ESTABLISHED BY: Zafar	DATE: September 18, 1987
PHOTO PICTURE OF BENCH MARK	
	
LOCATION MAP OF BENCH MARK	
	

TABLE A-13 RECORD OF BENCH MARK BM-KC-1

BENCH MARK NO.	BM-Kc-1
ELEVATION (m)	488.284 m
LOCATION	This BM is situated at a distance of 1 KM from Shahrah-i-Islamabad on the Eastern edge of Kurang River. Islamabad is at a distance of 8 KM towards North from the branch road inter-section and Air Port is 6 KM towards South.

ESTABLISHED BY: Zafar

DATE: September 19, 1987

PHOTO PICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK

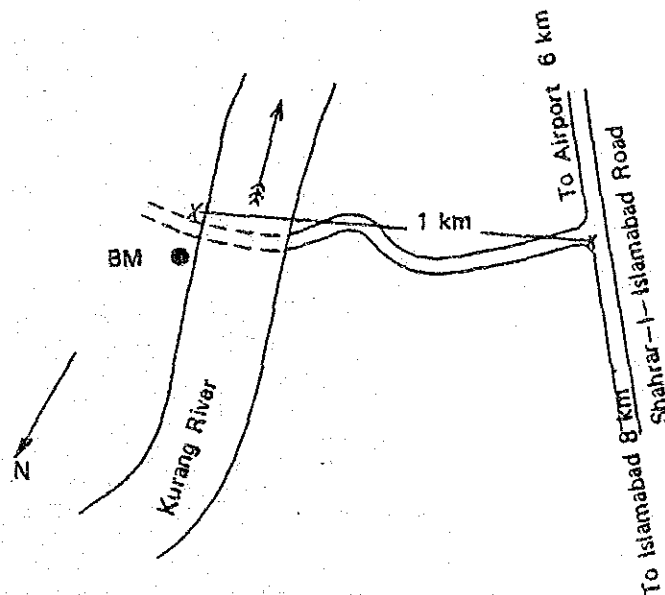


TABLE A-14 RECORD OF BENCH MARK BM-KC-2

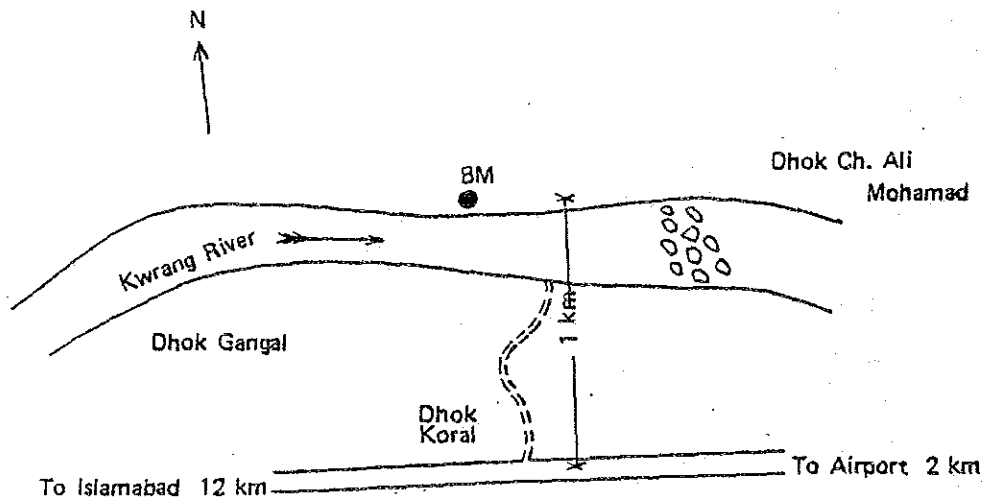
BENCH MARK NO.	BM-KC-2
ELEVATION (m)	480.699 m
LOCATION	This BM is situated a distance of 1 KM from Shahrah-i-Islamabad on the Northern edge of Kurang River. Dhok Ch. Ali Mohd is about 300. Meters from the BM while Dhok Gangal is 1/2 KM towards West.

ESTABLISHED BY: Zafar DATE: September 20, 1987

PHOTO PICTURE OF BENCH MARK



LOCATION MAP OF BENCH MARK



**ANNEX B. METEOROLOGY AND HYDROLOGY**



## ANNEX B. METEOROLOGY AND HYDROLOGY

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## CHAPTER I. COLLECTED METEOROLOGICAL AND HYDROLOGICAL DATA

### 1.1. Meteorological Data

Following meteorological data observed at Chaklala and Murree are collected in the project:

- Temperature
- Relative Humidity
- Wind Speed
- Sunshine Hours

Table B-1 to Table B-7 tabulate these collected data on the monthly basis, and their location are shown in Figure B-1.

FIGURE B-1. LOCATION MAP OF METEOROLOGICAL STATIONS

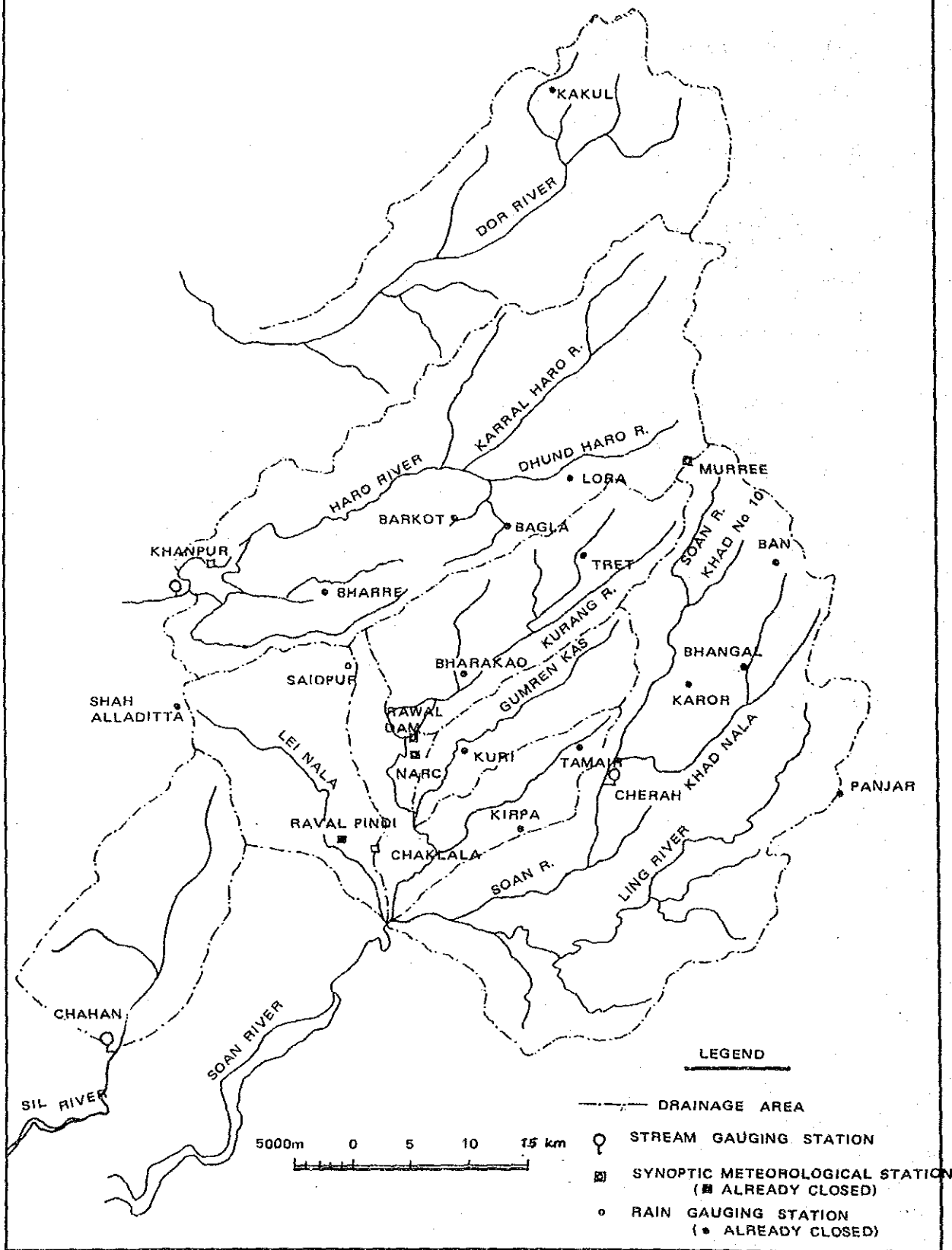


Table B-1. Mean Monthly Temperature at Chaklala

(Unit: °C)

YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	ANNUAL
1954	8.7	12.2	16.7	22.9	29.8	32.3	30.6	29.8	27.8	20.5	15.6	10.8	21.5
1955	9.7	13.5	18.8	21.8	26.1	33.4	31.2	29.2	26.6	22.3	17.1	12.2	21.8
1956	10.3	13.8	17.0	23.4	32.2	30.6	27.7	27.2	29.2	21.6	15.6	11.4	21.7
1957	10.3	10.8	15.7	19.6	25.0	30.4	32.2	29.1	27.1	22.1	15.9	11.7	20.8
1958	11.5	12.9	17.7	25.3	27.6	32.4	30.5	28.7	27.1	22.9	16.6	12.2	22.1
1959	9.8	10.8	18.3	23.1	28.3	33.3	28.9	29.4	28.2	24.5	15.6	11.2	21.8
1960	9.6	15.7	16.2	20.9	28.5	33.2	30.6	29.7	27.9	23.5	16.0	11.7	22.0
1961	10.3	10.3	17.3	21.5	28.8	32.8	29.9	29.8	28.5	22.3	14.3	9.9	21.3
1962	9.8	12.9	17.5	23.7	28.2	32.4	31.3	29.2	26.6	22.1	15.5	10.8	21.7
1963	10.3	14.9	16.7	22.1	25.9	33.8	32.4	29.1	27.1	24.6	16.8	12.2	22.2
1964	7.5	12.3	18.8	23.6	26.9	31.3	29.5	30.2	27.6	22.8	15.5	11.4	21.5
1965	11.3	11.6	17.0	19.4	25.4	31.3	30.7	28.5	28.1	24.1	17.3	10.1	21.2
1966	11.3	14.7	17.2	21.5	25.4	31.7	30.3	29.5	26.5	22.3	15.6	10.6	21.4
1967	9.7	14.2	16.6	21.7	26.9	32.8	30.8	28.4	28.2	21.7	15.7	11.2	21.5
1968	8.6	10.7	17.6	23.6	26.8	33.1	30.8	28.2	29.4	22.2	15.5	11.2	21.5
1969	9.6	12.2	19.4	21.7	26.0	31.8	31.1	29.2	27.1	22.8	16.7	12.1	21.6
1970	10.1	13.1	16.7	24.8	29.5	31.9	30.2	28.4	26.7	23.5	15.7	11.8	21.9
1971	9.4	12.8	18.4	24.1	28.1	30.1	28.1	28.1	25.5	22.2	16.4	-	-
1972	10.6	9.7	17.2	21.1	26.9	31.1	31.4	29.4	26.2	21.8	17.0	10.9	21.7
1973	9.5	12.3	16.6	24.1	29.2	31.7	29.3	30.9	27.3	21.7	16.4	10.9	21.5
1974	9.4	10.7	20.9	25.2	28.1	30.3	29.0	29.1	27.4	21.7	16.3	10.1	21.5
1975	10.3	11.3	16.0	23.1	27.9	30.7	28.9	28.9	28.5	26.7	23.6	15.5	22.6
1976	10.9	11.8	15.9	21.7	28.0	30.6	29.9	26.6	26.7	22.3	16.7	11.3	21.0
1977	9.5	12.7	19.9	23.3	26.3	30.1	28.0	28.3	27.4	23.3	17.9	12.5	21.6
1978	9.3	12.3	15.5	23.7	31.1	32.3	28.1	27.7	27.1	22.7	15.9	12.4	21.5
1979	10.7	12.3	15.1	24.2	25.7	31.1	29.9	28.3	26.1	23.3	17.5	12.5	21.4
1980	10.4	12.5	15.5	24.3	29.8	31.1	29.0	28.7	26.8	23.1	16.9	12.5	21.7
1981	10.3	10.7	16.3	23.3	28.1	30.7	29.3	28.5	26.6	23.1	16.0	11.6	21.1
1982	10.6	10.6	14.4	21.7	25.1	29.9	30.7	28.1	27.1	22.9	16.5	11.5	20.8
1983	10.1	11.9	15.4	19.3	26.1	29.5	29.1	28.8	28.2	21.5	16.9	11.6	20.7
1984	9.8	10.5	19.4	22.5	30.4	32.7	28.1	28.7	25.8	21.8	16.3	11.0	21.4
1985	10.2	13.9	19.8	23.9	28.8	32.4	29.4	28.9	27.8	21.5	16.5	12.4	22.1
1986	10.0	11.9	15.7	22.0	26.0	29.2	29.5	28.3	26.8	22.6	17.5	11.5	20.9
MEAN	10.0	12.3	17.2	22.7	27.7	31.6	29.9	28.8	27.3	22.6	16.5	11.6	21.5

Table B-2 Mean Monthly Relative Humidity at Chaklala

YEAR	(Unit: %)												
	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	ANNUAL
1954	81.0	85.0	58.0	54.0	48.0	40.0	63.0	69.0	69.0	59.0	57.0	62.0	62.1
1955	62.0	60.0	63.0	39.0	40.0	51.0	78.0	70.0	70.0	61.0	54.0	73.0	57.4
1956	72.0	55.0	75.0	52.0	30.0	79.0	81.0	64.0	64.0	73.0	66.0	68.0	63.8
1957	82.0	72.0	69.0	65.0	52.0	40.0	49.0	58.0	58.0	61.0	77.0	85.0	65.3
1958	78.0	63.0	69.0	47.0	31.0	27.0	68.0	72.0	72.0	60.0	61.0	82.0	60.7
1959	83.0	78.0	65.0	53.0	43.0	38.0	73.0	83.0	83.0	69.0	80.0	77.0	68.5
1960	76.0	63.0	80.0	54.0	36.0	31.0	70.0	78.0	67.0	51.0	50.0	58.0	59.5
1961	72.0	73.0	59.0	58.0	37.0	38.0	71.0	75.0	78.0	64.0	72.0	74.0	64.3
1962	71.0	76.0	66.0	52.0	35.0	35.0	58.0	70.0	70.0	61.0	61.0	71.0	58.8
1963	66.0	63.0	68.0	61.0	46.0	34.0	54.0	53.0	67.0	51.0	71.0	71.0	60.4
1964	81.0	70.0	60.0	53.0	40.0	36.0	65.0	73.0	67.0	46.0	48.0	68.0	58.9
1965	66.0	75.0	62.0	69.0	51.0	36.0	58.0	63.0	54.0	55.0	66.0	61.0	59.7
1966	57.0	68.0	67.0	60.0	37.0	43.0	60.0	73.0	76.0	60.0	58.0	61.0	60.0
1967	61.0	62.0	63.0	53.0	37.0	34.0	67.0	77.0	68.0	59.0	65.0	74.0	60.0
1968	79.0	76.0	66.0	50.0	41.0	32.0	57.0	73.0	61.0	74.0	82.0	65.0	63.0
1969	69.0	71.0	61.0	53.0	43.0	31.0	58.0	73.0	64.0	65.0	70.0	66.0	60.3
1970	65.0	67.0	65.0	41.0	32.0	42.0	61.0	78.0	76.0	66.0	66.0	65.0	60.3
1971	65.0	61.0	53.0	51.0	45.0	65.0	72.0	79.0	69.0	63.0	70.0	74.0	63.9
1972	70.0	67.0	67.0	56.0	40.0	41.0	57.0	65.0	63.0	59.0	65.0	77.0	60.6
1973	73.0	68.0	61.0	49.0	35.0	53.0	75.0	80.0	75.0	68.0	66.0	71.0	64.5
1974	67.0	69.0	56.0	43.0	37.0	42.0	64.0	72.0	63.0	54.0	50.0	75.0	57.7
1975	66.0	68.0	63.0	49.0	38.0	41.0	69.0	78.0	75.0	60.0	58.0	64.0	60.8
1976	70.0	76.0	68.0	57.0	40.0	42.0	70.0	79.0	73.0	67.0	67.0	66.0	64.6
1977	69.0	71.0	49.0	58.0	48.0	50.0	76.0	77.0	74.0	71.0	72.0	73.0	65.7
1978	66.0	68.0	67.0	51.0	30.0	46.0	81.0	82.0	74.0	71.0	74.0	73.0	65.3
1979	74.0	73.0	69.0	58.0	45.0	47.0	70.0	77.0	69.0	66.0	70.0	75.0	66.1
1980	73.0	73.0	74.0	51.0	36.0	49.0	76.0	74.0	71.0	68.0	72.0	75.0	66.0
1981	79.0	76.0	72.0	56.0	53.0	45.0	76.0	81.0	72.0	69.0	71.0	66.0	68.0
1982	72.0	76.0	75.0	62.0	61.0	49.0	57.0	81.0	67.0	71.0	79.0	81.0	69.3
1983	76.0	72.0	70.0	70.0	58.0	49.0	68.0	83.0	75.0	74.0	70.0	70.0	69.6
1984	56.0	54.0	50.0	52.0	34.0	43.0	71.0	76.0	65.0	52.0	65.0	65.0	56.9
1985	67.0	50.0	43.0	44.0	33.0	31.0	69.0	75.0	66.0	64.0	66.0	76.0	57.0
1986	69.0	72.0	64.0	48.0	40.0	43.0	66.0	71.0	59.0	67.0	68.0	73.0	61.7
MEAN	70.7	68.8	64.1	53.6	41.0	41.3	66.1	74.7	68.9	63.0	66.5	70.8	62.5

Table B-3. Mean Monthly Wind Speed at Chakiala

YEAR	(Unit: knots)												
	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	ANNUAL
1954	4.2	4.2	5.0	6.4	6.3	6.7	5.7	5.3	3.6	3.5	3.2	2.7	4.7
1955	3.3	4.8	6.1	5.9	6.5	5.4	5.8	5.7	3.3	3.5	3.7	2.8	4.7
1956	2.8	4.1	4.7	5.0	5.7	5.2	5.3	3.2	3.3	1.1	2.9	3.3	3.9
1957	4.1	6.0	5.6	7.0	5.4	5.2	5.3	4.5	4.3	4.6	3.6	3.0	4.9
1958	3.1	4.3	5.3	6.4	7.1	5.8	5.8	4.7	4.1	4.0	3.0	2.5	4.7
1959	3.2	4.6	5.0	4.2	6.5	5.8	4.1	4.2	3.3	2.3	2.1	2.4	4.0
1960	2.3	4.0	5.1	6.0	5.6	5.3	6.1	4.9	3.9	3.5	3.9	3.8	4.5
1961	4.5	5.2	5.7	6.2	5.5	5.2	5.1	4.0	3.2	3.5	3.0	2.8	4.5
1962	3.8	3.9	4.6	5.8	6.6	5.1	5.9	4.2	3.7	3.5	4.0	3.1	4.5
1963	2.9	4.3	5.3	5.0	5.9	5.3	6.0	3.2	3.6	2.7	2.9	3.1	4.2
1964	3.1	3.4	4.5	4.7	4.2	4.5	5.1	3.5	3.2	2.5	2.0	3.0	3.6
1965	2.8	3.6	4.4	4.4	4.4	4.0	4.6	3.7	3.5	3.1	2.4	2.5	3.6
1966	2.2	3.4	4.2	4.7	4.3	4.4	3.8	3.2	2.4	1.9	1.9	2.6	3.2
1967	3.2	5.9	5.7	5.8	3.8	5.0	5.3	3.7	3.6	2.0	2.8	3.0	4.1
1968	3.7	3.7	4.0	3.6	4.3	3.9	4.0	3.0	2.2	2.6	2.2	2.5	3.3
1969	2.3	3.2	3.5	3.6	3.7	3.5	3.5	2.7	2.0	2.5	1.7	1.3	2.8
1970	2.0	3.5	4.5	3.9	4.1	4.6	3.9	2.9	2.0	1.9	1.3	2.2	3.1
1971	1.6	3.6	3.0	2.6	2.7	2.6	1.5	1.1	0.6	0.5	-	-	-
1972	1.6	2.6	2.8	2.0	2.6	1.6	1.2	1.0	1.3	0.7	0.5	0.8	1.6
1973	1.1	1.7	2.0	1.5	1.5	0.9	0.6	0.5	0.2	0.2	0.2	0.4	0.9
1974	1.0	1.6	1.7	1.8	2.3	2.1	1.8	1.4	0.8	0.3	0.4	0.8	1.3
1975	1.2	1.5	2.4	1.4	1.7	2.0	1.5	1.3	0.7	0.5	0.3	0.8	1.3
1976	0.8	1.5	2.1	1.6	1.5	1.7	1.5	1.1	0.5	0.3	0.1	0.6	1.1
1977	1.2	1.3	1.3	1.1	1.0	1.1	0.9	0.6	0.4	0.3	0.1	0.1	0.8
1978	0.5	1.2	1.3	0.3	0.7	1.1	0.4	0.1	0.2	0.1	0.3	0.2	0.5
1979	0.6	1.0	1.4	1.0	1.1	1.0	1.2	1.5	0.3	0.1	0.1	0.2	0.7
1980	0.9	1.3	1.7	0.5	1.0	1.6	0.8	0.6	0.3	0.5	0.5	0.6	0.9
1981	1.2	1.6	1.9	1.9	1.8	1.4	1.3	0.6	0.4	0.5	0.3	0.4	1.1
1982	1.5	1.4	1.7	1.3	1.1	0.8	1.3	0.6	0.4	0.3	0.4	0.6	0.9
1983	0.9	1.1	1.9	1.6	0.8	1.3	0.8	0.4	0.3	0.2	0.1	0.5	0.8
1984	0.8	1.7	1.6	1.1	0.9	1.6	1.4	1.3	1.2	0.8	1.1	1.4	1.2
1985	1.5	2.0	2.1	2.0	2.4	2.2	2.1	1.2	0.8	0.9	0.5	1.1	1.6
1986	0.9	1.8	1.8	1.7	1.5	1.8	1.3	0.9	0.4	0.5	0.1	0.4	1.1
MEAN	2.2	3.0	3.4	3.4	3.5	3.4	3.1	2.4	2.0	1.7	1.6	1.7	2.6



Table B-4. Mean Monthly Sunshine Hours at Chaklala

YEAR	(Unit: hrs/day)												
	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	ANNUAL
1957	-	-	6.5	7.0	8.2	11.2	10.4	8.7	9.5	8.5	6.9	6.8	-
1958	5.8	8.7	7.1	9.2	8.9	10.6	9.0	9.1	8.3	9.7	8.4	5.4	8.3
1959	6.4	7.1	7.4	9.3	8.8	11.4	8.4	9.2	7.6	8.7	6.8	7.1	8.2
1960	6.9	8.7	5.6	8.4	12.1	11.3	9.1	8.1	9.1	10.1	8.6	7.1	8.8
1961	6.8	7.4	7.5	8.7	10.8	10.3	8.0	9.4	8.4	8.8	7.9	7.3	8.4
1962	6.8	7.4	6.9	8.2	10.7	11.1	9.8	9.0	8.4	9.6	8.6	7.0	8.6
1963	9.0	8.8	5.4	7.4	9.8	11.0	10.0	9.1	9.5	9.7	7.5	8.1	8.8
1964	6.1	6.5	7.1	8.3	10.9	9.8	9.9	9.2	8.2	10.4	9.0	6.9	8.5
1965	5.8	6.0	6.6	6.8	9.5	11.0	-	-	-	8.7	7.7	8.2	-
1966	8.4	5.4	6.4	7.3	10.5	9.3	9.3	9.9	7.7	8.8	10.0	7.7	8.4
1967	7.9	5.8	6.7	8.3	11.3	8.9	8.4	8.5	8.1	8.3	6.9	4.4	7.8
1968	4.9	7.1	7.1	9.8	8.8	11.4	8.9	7.9	9.0	8.2	8.1	5.8	8.1
1969	5.9	6.4	8.1	7.4	9.3	10.5	8.5	7.9	8.1	8.2	8.3	7.4	8.0
1970	6.5	7.6	5.8	10.4	10.5	9.6	9.9	8.2	9.0	9.1	9.3	7.6	8.5
1971	6.9	7.0	8.3	8.9	10.0	8.4	7.1	7.7	8.4	9.2	7.9	-	-
1972	5.0	7.3	6.3	8.1	9.0	9.8	8.9	8.4	8.8	9.0	8.5	6.3	7.9
1973	6.0	6.0	5.5	8.4	9.2	7.6	7.1	7.1	7.8	9.7	9.1	7.1	7.5
1974	5.8	6.3	6.6	8.4	8.9	10.6	8.3	-	8.3	9.6	8.7	5.0	-
1975	-	7.4	7.8	7.9	10.5	10.9	9.4	7.5	8.8	10.4	9.7	6.4	-
1976	5.4	-	-	9.1	10.8	11.3	6.6	7.2	8.3	9.1	9.1	6.8	-
1977	4.4	9.0	9.5	7.5	10.2	10.5	8.2	8.4	9.2	8.4	7.9	6.4	8.3
1978	6.4	6.9	7.1	9.1	10.7	9.0	6.1	7.1	9.4	9.1	7.2	7.7	8.0
1979	6.4	5.7	6.5	8.5	9.4	11.7	8.0	8.9	9.6	9.6	8.8	5.6	8.2
1980	7.1	6.0	5.6	9.8	11.2	10.4	8.6	9.9	8.4	8.9	8.1	6.6	8.4
1981	5.3	5.8	6.0	9.4	10.6	8.9	7.6	8.4	9.6	9.1	8.1	7.8	8.0
1982	6.3	5.4	8.6	9.5	10.8	10.0	7.5	9.5	8.7	6.5	-	-	-
1983	6.3	5.4	5.4	8.6	9.5	10.8	10.0	7.5	9.5	8.7	6.5	4.8	7.7
1984	6.8	5.4	6.4	7.6	11.1	9.2	8.0	6.6	8.7	9.9	7.4	4.7	7.7
1985	4.9	8.7	6.8	8.5	10.5	-	7.3	8.4	9.9	9.0	8.4	4.2	-
1986	7.6	5.9	6.1	9.1	11.3	9.9	7.4	7.8	8.6	8.1	6.3	4.9	7.8
MEAN	6.4	6.8	6.8	8.5	10.1	10.2	8.5	8.5	8.6	9.0	8.1	6.5	8.2

Table B-5. Mean Monthly Temperature at Murree

YEAR	(Unit: °C)												
	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	ANNUAL
1954	1.5	3.4	8.7	14.5	20.2	21.6	19.9	19.4	17.8	12.3	8.9	5.6	
1955	2.8	6.3	9.3	11.7	15.2	22.3	20.1	18.1	17.4	13.9	11.7	5.6	
1956	2.6	5.9	7.6	14.1	22.5	20.8	18.1	17.8	17.7	13.3	10.2	4.6	
1957	1.4	2.8	6.7	10.4	15.2	19.6	21.3	18.8	17.2	13.4	8.7	4.9	
1958	5.3	5.0	9.1	15.2	17.0	21.8	19.8	18.7	17.5	13.8	10.0	6.5	
1959	-0.9	1.9	9.4	14.7	16.7	21.8	18.9	18.9	17.3	14.2	8.2	5.1	
1960	2.5	8.3	5.6	11.3	18.2	22.3	19.4	19.2	17.5	14.4	8.7	7.1	
1961	2.8	0.4	7.8	11.8	17.6	20.7	19.3	18.8	17.5	13.1	7.1	3.5	
1962	3.6	4.3	8.0	13.2	17.3	21.1	20.2	18.6	15.9	13.3	7.9	4.9	
1963	5.4	7.1	7.4	12.2	16.4	21.9	20.8	19.1	16.9	14.7	9.0	6.9	
1964	-0.3	4.2	10.2	13.7	16.4	20.3	18.7	19.0	16.8	14.6	9.3	5.6	
1965	4.5	2.4	7.1	9.3	15.7	21.1	19.3	17.6	20.2	14.7	10.3	5.7	
1966	6.8	6.3	8.1	11.3	17.8	20.7	19.4	18.5	16.1	13.1	9.5	6.1	
1967	3.3	5.6	6.9	11.8	16.2	21.9	19.6	18.2	17.5	12.9	6.6	4.6	
1968	1.7	2.1	8.7	13.7	15.4	22.2	19.4	18.1	18.7	12.8	9.2	4.7	
1969	2.9	3.6	11.9	12.5	16.3	21.6	20.4	19.3	17.6	13.9	10.3	8.2	
1970	-	-	-	-	-	21.8	20.4	19.1	17.3	14.9	10.7	7.3	
1971	-	-	-	17.9	19.5	18.9	18.3	17.4	15.3	14.8	10.8	9.4	
1972	-	-	-	-	21.1	18.6	17.5	15.6	11.3	10.5	4.3	-	
1973	-0.8	2.3	7.0	13.9	17.5	20.5	18.8	18.2	17.3	13.2	10.7	4.7	
1974	2.3	1.3	8.9	15.7	17.7	19.1	18.2	18.1	17.4	15.7	11.2	3.5	
1975	2.7	2.9	7.9	13.9	17.5	19.4	17.7	17.9	16.8	16.1	10.5	7.1	
1976	4.5	3.2	6.7	12.9	17.7	20.0	18.9	17.0	16.8	14.7	11.9	6.1	
1977	2.9	5.9	13.2	12.8	15.1	18.7	18.0	18.1	14.4	14.5	11.3	6.1	
1978	2.4	3.2	5.4	14.5	20.9	21.5	17.9	18.4	16.7	15.5	9.1	9.3	
1979	5.1	3.6	6.0	15.0	14.5	20.8	18.9	17.9	16.1	15.7	10.1	6.2	
1980	3.0	3.9	5.9	15.5	19.5	20.1	18.3	18.3	16.9	14.7	10.6	7.9	
1981	2.9	4.5	6.5	14.5	17.9	20.3	18.4	17.9	17.2	14.0	10.3	6.7	
1982	3.9	1.1	4.8	11.9	14.7	21.1	19.9	18.2	16.9	13.9	9.7	4.9	
1983	3.7	2.3	5.9	10.0	15.3	18.5	17.8	18.5	17.5	13.7	11.9	6.2	
1984	3.3	1.7	11.5	13.1	21.7	21.7	17.8	18.4	16.1	15.3	10.1	5.7	
1985	3.3	7.9	11.2	13.8	18.3	21.4	18.5	18.5	17.1	14.5	10.9	6.9	
1986	4.8	4.3	6.5	12.8	15.4	19.9	18.6	18.4	16.9	13.7	10.5	5.7	
MEAN	3.0	4.0	8.0	13.2	17.4	20.7	19.0	18.3	16.9	14.1	9.7	6.0	12.5

Table B-6. Mean Monthly Relative Humidity at Murree

YEAR	(Unit: %)												
	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	ANNUAL
1954	69	80	58	41	41	43	69	76	72	48	48	47	
1955	69	47	61	39	48	36	69	95	83	48	40	52	
1956	70	53	65	48	33	54	91	88	77	65	41	56	
1957	75	59	65	61	52	50	65	82	64	59	56	63	
1958	53	55	49	45	50	38	86	81	79	55	49	53	
1959	61	65	52	47	49	47	85	91	91	67	64	55	
1960	57	44	68	47	36	33	80	88	68	48	48	43	
1961	64	67	50	35	43	51	85	85	83	55	54	56	
1962	57	63	57	50	39	40	71	83	77	53	51	51	
1963	41	46	56	56	45	49	68	83	69	55	61	46	
1964	73	62	45	47	38	44	78	87	76	43	54	62	
1965	61	68	58	62	45	39	70	78	57	58	55	48	
1966	42	62	55	54	36	56	72	84	73	59	59	54	
1967	54	55	55	52	43	44	83	86	75	55	45	61	
1968	76	70	64	45	51	48	80	83	63	63	55	58	
1969	63	64	47	51	49	39	71	81	66	62	45	40	
1970	-	-	-	-	-	56	74	90	79	60	45	41	
1971	-	-	-	-	47	72	80	84	56	44	60	42	
1972	-	-	-	-	-	-	48	69	81	83	43	46	
1973	69	61	59	42	45	65	88	92	81	55	32	58	
1974	65	72	51	44	43	46	48	85	67	32	38	63	
1975	66	66	47	42	40	51	81	89	77	46	35	40	
1976	57	63	68	49	41	46	86	90	76	50	52	43	
1977	51	49	38	59	49	60	94	90	78	61	32	53	
1978	65	69	70	45	36	54	93	93	79	47	43	35	
1979	53	67	60	48	47	44	85	78	65	50	55	53	
1980	62	67	67	44	33	56	88	78	65	48	51	39	
1981	69	65	69	41	49	43	86	83	68	48	45	37	
1982	57	78	70	58	63	51	70	71	62	42	65	68	
1983	64	73	71	70	66	56	77	89	83	51	55	51	
1984	55	63	50	53	33	60	88	92	76	30	52	58	
1985	66	39	42	54	36	39	86	86	82	55	49	63	
1986	57	65	68	53	50	55	86	85	72	71	60	66	
MEAN	61.4	61.9	57.8	49.4	44.4	48.9	78.2	84.7	73.3	53.4	49.0	51.5	59.5

Table B-7. Mean Monthly Wind Speed at Murree

YEAR	(Unit: knots)												
	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	ANNUAL
1954	5.3	9.0	7.6	6.7	5.5	5.3	4.7	3.2	3.1	4.5	5.4	5.9	
1955	6.9	4.7	3.8	7.2	7.8	6.3	4.6	4.3	4.3	4.5	4.2	6.0	
1956	8.2	8.6	10.2	6.3	7.3	5.9	5.5	5.0	4.9	6.6	5.7	6.8	
1957	8.5	7.8	8.3	7.9	7.0	6.3	4.8	5.0	4.8	7.4	7.0	6.4	
1958	5.9	5.3	7.0	6.0	7.7	6.5	4.6	4.5	5.1	4.5	5.6	7.1	
1959	9.2	4.4	5.8	7.4	10.0	5.7	4.8	5.1	4.7	5.1	6.7	7.7	
1960	5.9	5.3	9.2	8.2	6.7	5.3	5.3	3.7	4.7	4.3	4.7	7.2	
1961	7.9	5.8	7.1	8.0	6.2	5.6	4.5	4.7	4.8	5.3	5.6	5.5	
1962	5.5	6.5	6.8	7.3	6.7	6.7	5.6	4.4	4.4	4.5	6.3	8.4	
1963	4.6	5.0	8.7	7.6	7.4	4.7	5.1	4.3	4.9	5.1	6.0	7.0	
1964	7.4	7.2	6.9	7.6	6.6	6.6	5.3	3.7	4.5	3.9	4.4	8.9	
1965	7.2	7.8	7.7	9.1	6.5	-	-	4.5	5.2	4.6	5.5	6.8	
1966	3.8	7.7	8.5	7.2	6.1	4.4	4.0	3.6	3.4	3.1	4.9	5.1	
1967	5.9	5.5	6.4	6.1	5.4	3.4	2.4	2.6	3.4	4.7	2.9	6.3	
1968	5.5	4.4	-	-	7.8	5.0	4.1	3.4	3.9	3.8	4.1	7.5	
1969	6.2	4.6	4.8	6.6	6.7	4.9	3.8	3.8	4.0	4.4	4.3	3.5	
1970	-	-	-	-	-	4.4	3.5	3.2	4.2	5.0	3.9	5.8	
1971	-	-	-	-	5.5	4.1	3.8	3.4	3.9	4.3	4.8	4.9	
1972	-	-	-	-	-	4.1	2.7	2.3	2.4	4.3	4.2	6.7	
1973	7.5	6.1	5.8	6.0	4.6	2.4	2.6	3.1	2.2	3.3	3.3	5.6	
1974	5.7	7.2	4.7	4.9	-	-	1.4	1.8	2.5	2.2	2.5	2.4	
1975	2.7	3.4	4.7	3.9	3.2	2.9	1.4	1.6	1.9	2.5	2.7	2.7	
1976	2.4	2.7	2.9	2.7	2.9	3.3	1.5	1.6	1.6	2.7	2.2	2.6	
1977	3.8	3.4	3.8	3.6	3.7	2.0	1.8	2.2	2.2	3.2	2.5	2.0	
1978	2.8	2.6	3.1	2.7	1.9	1.6	-	-	-	-	3.3	3.0	
1979	2.9	3.2	3.5	3.5	3.6	3.1	2.3	2.8	2.8	2.4	2.5	2.2	
1980	2.7	3.2	3.0	3.0	3.4	2.9	1.9	2.0	2.0	2.6	2.2	2.5	
1981	1.8	2.5	2.7	3.3	3.0	3.2	1.9	2.7	2.7	2.5	2.0	2.5	
1982	2.7	2.1	2.6	2.3	2.3	2.4	2.3	1.7	1.0	1.8	1.8	2.9	
1983	2.3	2.7	3.0	2.9	3.1	3.3	3.0	2.5	2.5	3.3	3.0	2.0	
1984	2.5	2.9	2.8	2.7	3.2	2.4	1.7	1.5	2.3	2.2	2.1	2.2	
1985	1.6	2.4	2.3	2.8	3.6	3.0	2.2	2.1	2.5	2.8	3.1	3.8	
1986	3.3	3.3	3.5	3.5	4.0	3.4	2.0	1.9	2.1	2.8	3.0	2.6	
MEAN	5.0	4.9	5.4	5.4	5.3	4.2	3.4	3.2	3.4	3.9	4.0	4.9	4.4

## 1.2. Rainfall Data

Rainfall data of 22 observation stations available in the vicinity of Study Area are collected, and they are tabulated in Table B-8 to Table B-30. Location and duration of available data are shown in Figure B-1 and Figure B-2.



TABLE B-8. MONTHLY RAINFALL AT BAN STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	*****	13.2	3.3	3.3	175.3	*****
1953	48.0	72.6	80.3	99.1	24.4	31.7	*****	335.8	131.6	52.3	3.3	29.2	*****
1954	198.9	238.8	153.9	16.5	*****	36.6	237.7	224.5	107.9	121.7	18.8	0.0	*****
1955	40.4	0.0	134.4	46.7	93.0	14.5	438.9	718.1	128.3	33.3	0.0	33.0	1680.5
1956	45.7	59.2	272.5	62.7	12.4	163.1	486.9	609.1	82.0	0.0	0.0	45.2	1859.0
1957	231.6	48.5	181.1	148.1	79.8	30.2	151.9	145.8	86.4	235.5	113.5	108.2	1560.6
1958	13.7	9.7	159.8	19.3	36.6	15.7	307.8	570.7	184.7	61.2	4.3	412.0	1793.5
1959	161.5	82.0	107.7	36.1	103.1	73.2	626.4	494.3	431.8	112.0	144.5	50.5	2423.2
1960	10.4	0.0	227.1	74.7	34.3	34.3	367.3	304.8	29.7	18.0	0.0	97.8	1198.4
1961	190.2	17.3	85.9	318.5	34.5	109.0	347.2	444.5	247.4	92.7	63.2	21.6	1972.1
1962	29.0	130.3	111.8	*****	*****	93.5	317.5	209.8	38.4	*****	*****	*****	*****
1963	0.0	128.3	120.4	101.1	55.4	49.5	260.1	326.4	159.3	22.9	42.7	49.8	1315.7
1964	163.8	60.5	37.8	99.3	46.2	18.5	418.1	324.6	164.6	0.0	6.9	21.3	1361.7
1965	98.8	77.0	130.0	365.0	220.7	38.6	226.1	182.4	38.1	37.6	25.4	18.8	1458.5
1966	0.0	234.4	206.8	72.6	49.8	85.6	316.0	318.0	76.2	115.6	0.0	2.8	1477.8
1967	0.0	127.5	293.1	126.0	71.6	309.9	208.5	361.9	307.1	68.6	37.3	192.5	2104.1
1968	3.6	54.1	87.9	54.4	45.5	63.2	280.4	456.4	21.6	102.6	44.7	44.4	1258.8
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	77.2	83.8	149.4	109.3	64.8	72.8	332.7	376.7	132.2	67.3	31.8	81.4	1649.5
MAX	231.6	238.8	293.1	365.0	220.7	309.9	626.4	718.1	431.8	235.5	144.5	412.0	2423.2
MIN	0.0	0.0	37.8	16.5	12.4	13.7	151.9	145.8	13.2	0.0	0.0	0.0	1198.4

TABLE B-9. MONTHLY RAINFALL AT BAGLA STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	164.3	84.1	7.6	4.6	15.2	*****
1953	279.4	157.5	46.5	71.9	26.4	*****	421.9	*****	253.7	96.5	0.0	*****	*****
1954	172.2	544.8	226.1	49.5	53.3	41.4	209.5	221.0	148.6	109.2	8.9	0.0	1784.6
1955	26.2	0.0	152.4	49.5	88.9	45.7	371.9	664.7	123.7	40.1	0.0	9.4	1572.5
1956	0.0	39.9	407.7	148.6	0.0	143.5	484.4	309.6	54.6	70.1	0.0	22.1	1680.5
1957	112.0	22.9	222.2	157.0	138.4	124.7	133.6	191.5	73.4	142.0	144.8	115.3	1577.8
1958	26.9	29.7	151.1	48.8	47.8	10.7	262.9	467.9	80.5	73.2	12.7	371.6	1583.7
1959	85.1	161.5	143.8	77.5	160.3	56.4	320.8	231.9	85.9	29.2	143.5	56.9	1552.7
1960	11.2	17.8	220.5	126.0	33.0	34.5	323.1	114.3	45.2	36.8	0.0	104.1	1066.5
1961	107.4	82.8	107.7	352.0	79.0	110.7	468.9	280.7	387.6	166.4	128.3	31.0	2302.5
1962	36.8	73.9	200.2	59.7	99.1	139.7	369.6	404.4	174.5	15.7	101.3	138.4	1813.3
1963	0.0	120.6	302.3	372.6	120.4	155.4	763.8	353.6	156.0	50.3	218.4	129.5	2742.9
1964	301.2	139.7	123.2	338.3	130.8	144.3	587.5	338.3	394.0	0.0	0.0	69.8	2567.2
1965	117.6	146.8	325.1	509.0	373.9	124.5	546.6	346.5	141.0	86.4	146.3	5.1	2868.7
1966	0.0	450.1	369.3	345.9	203.2	86.9	508.0	242.3	230.6	306.1	0.0	12.7	2755.1
1967	2.0	591.6	504.4	261.4	212.1	66.5	250.7	160.8	213.6	76.2	19.0	106.9	2465.3
1968	102.9	190.5	118.6	68.1	97.8	91.9	227.8	139.2	33.0	98.3	63.5	99.1	1330.7
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	86.3	173.1	226.3	189.7	116.5	91.8	390.7	289.4	157.6	82.6	58.3	80.5	1977.6
MAX	301.2	591.6	504.4	509.0	373.9	155.4	763.8	664.7	394.0	306.1	218.4	371.6	2868.7
MIN	0.0	0.0	46.5	48.8	0.0	10.7	133.6	114.3	33.0	0.0	0.0	0.0	1066.5



MONTHLY RAINFALL AT BARKOT STATION

TABLE B-10.

YEAR	(UNIT:MM)												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	99.2	113.5	115.2	26.3	31.2	80.7	330.0	223.5	58.9	2.4	3.2	17.6	1101.7
1953	136.5	53.3	44.8	94.5	59.9	44.0	265.0	217.0	158.2	41.3	1.7	29.8	1146.0
1954	205.6	175.1	121.1	37.9	47.9	44.9	268.1	204.5	191.2	90.6	13.3	4.9	1405.1
1955	27.9	5.3	112.9	42.8	68.9	60.3	325.1	608.7	97.0	35.0	0.0	51.7	1495.6
1956	66.6	28.1	189.2	73.6	0.9	148.9	485.4	403.9	64.3	100.9	1.0	62.3	1625.1
1957	192.6	34.4	169.5	204.7	102.6	57.5	159.1	217.1	61.7	182.6	123.0	66.7	1571.8
1958	22.8	20.1	120.8	52.5	37.9	12.3	251.2	412.8	103.7	54.5	5.2	193.2	1287.0
1959	74.8	128.3	98.0	97.0	156.9	158.5	443.3	186.7	237.6	56.6	83.0	36.7	1717.4
1960	88.7	5.7	145.1	63.4	35.7	29.0	342.0	207.5	95.1	9.8	5.1	38.0	1065.1
1961	119.8	91.7	56.8	214.1	61.6	73.1	280.1	266.5	239.3	76.9	63.9	20.3	1564.1
1962	16.9	83.3	110.8	94.2	65.9	70.9	239.0	198.0	128.6	11.3	41.5	167.1	1227.5
1963	0.0	103.3	188.9	54.4	56.6	20.8	204.5	339.8	202.0	18.8	50.5	72.4	1312.0
1964	338.0	38.2	60.3	68.4	55.3	44.6	350.1	258.9	93.3	0.0	5.3	15.0	1327.4
1965	45.9	166.2	153.1	358.5	143.0	37.6	140.6	212.4	5.2	41.7	27.5	28.0	1359.7
1966	0.0	263.7	118.5	85.9	87.3	99.0	196.5	154.7	187.2	82.3	0.0	34.3	1309.4
1967	0.0	229.0	293.4	69.7	71.4	18.3	186.0	206.9	111.8	29.6	21.6	251.2	1488.9
1968	161.0	158.3	82.0	40.4	28.5	32.8	217.8	282.2	14.0	46.3	53.0	123.9	1240.2
1969	18.8	164.7	79.6	53.6	58.2	36.5	166.2	194.0	140.7	162.9	12.2	0.0	1087.4
1970	111.3	97.3	130.6	9.0	10.4	59.2	173.1	419.9	343.8	66.2	0.0	21.1	1441.9
1971	26.9	141.8	11.5	101.5	8.7	317.3	183.3	249.2	44.0	13.5	2.0	20.6	1120.3
1972	173.4	80.1	216.1	112.3	69.3	36.7	113.1	124.4	84.5	101.0	64.2	83.0	1258.1
1973	114.2	100.9	112.0	41.0	76.6	86.6	182.6	449.4	64.3	32.5	0.0	46.2	1306.3
1974	54.8	95.9	19.5	30.4	39.0	58.4	185.0	178.9	73.4	0.0	0.0	50.8	786.1
1975	46.2	151.5	104.4	49.2	75.2	49.3	246.6	451.5	139.7	0.0	22.6	8.1	1344.3
1976	154.8	251.1	155.5	96.4	25.9	68.3	471.6	540.3	169.0	66.8	0.0	4.6	2004.3
1977	179.3	30.7	37.8	191.8	112.3	176.9	473.8	338.4	62.8	101.0	81.5	38.9	1825.2
1978	93.3	44.6	156.1	17.3	53.4	106.7	562.5	210.1	145.8	9.2	49.8	6.1	1454.9
1979	115.5	188.5	279.2	51.7	46.3	45.3	212.9	308.5	32.7	11.7	9.4	46.5	1387.6
1980	106.8	135.1	167.8	19.1	18.6	253.6	278.9	223.8	116.0	37.2	2.7	0.0	1403.1
1981	185.4	104.0	246.1	107.1	156.1	76.3	362.9	89.2	89.4	31.8	65.7	61.2	1451.0
1982	192.1	119.5	221.7	164.8	101.4	66.7	163.7	267.6	14.4	48.0	2.5	6.4	1292.4
1983	246.3	46.3	142.5	143.8	69.3	48.5	203.7	273.3	64.6	45.2	2.5	6.4	1292.4
1984	3.0	242.5	76.1	93.0	36.6	146.0	213.4	356.0	103.5	2.1	28.7	33.6	1334.5
1985	96.6	22.4	50.9	62.6	39.1	57.9	307.5	342.7	120.6	73.4	16.2	106.4	1296.3
1986	41.7	77.4	328.9	102.3	79.2	123.8	256.8	400.2	94.5	98.9	84.3	86.2	1774.2
MEAN	101.6	108.3	134.8	89.3	61.9	80.8	269.7	288.0	112.9	50.9	28.3	53.4	1380.0
MAX	338.0	263.7	328.9	358.5	156.1	317.3	562.5	668.7	343.8	182.6	123.0	251.2	2004.3
MIN	0.0	5.3	11.5	9.0	0.9	12.3	113.1	89.2	5.2	0.0	0.0	0.0	786.1

TABLE B-11. MONTHLY RAINFALL AT BHANGAL STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	*****	15.2	12.7	2.5	25.4	*****
1953	142.5	54.4	47.5	94.7	10.7	23.9	480.8	244.6	71.6	33.0	0.0	35.1	1238.8
1954	286.8	200.2	152.7	9.9	*****	37.8	*****	308.9	154.9	82.5	6.3	0.0	*****
1955	50.0	44.4	62.5	59.7	74.7	56.4	381.0	368.8	161.5	54.6	0.0	30.5	1344.2
1956	92.0	195.6	278.9	86.4	10.2	174.8	526.3	807.2	176.8	81.3	0.0	119.4	2549.4
1957	492.0	184.9	306.1	227.6	84.3	139.7	276.9	198.9	10.2	356.9	180.3	188.0	2645.7
1958	35.1	67.3	238.8	88.4	118.1	111.8	541.0	302.3	151.1	45.7	9.7	204.5	1915.6
1959	251.5	263.9	309.9	51.6	99.1	160.0	707.6	410.7	387.3	242.6	219.7	71.1	3175.0
1960	129.5	10.2	351.0	58.4	12.7	38.1	445.5	395.7	129.5	0.0	0.0	45.7	1616.5
1961	295.1	157.7	105.4	241.6	36.8	85.1	283.0	358.1	307.3	61.0	87.6	34.5	2053.3
1962	38.1	122.7	135.9	57.7	92.7	77.5	303.3	294.4	0.0	0.0	125.0	132.1	1379.2
1963	0.0	101.6	137.7	82.0	9.1	58.4	271.8	275.6	242.6	11.7	75.4	127.0	1392.9
1964	208.3	48.5	87.6	208.8	193.0	61.0	611.4	388.6	217.2	0.0	33.0	198.1	2255.5
1965	129.5	214.6	251.5	452.1	219.7	87.6	213.4	339.1	38.1	0.0	65.8	81.3	2092.7
1966	0.0	295.1	209.5	161.3	86.4	121.9	411.5	296.2	289.6	271.8	0.0	33.0	2176.3
1967	0.0	222.2	439.4	130.0	63.5	43.9	208.0	426.2	134.1	50.8	12.7	246.4	1977.4
1968	128.3	117.3	104.6	77.5	45.7	63.5	146.0	248.9	25.4	135.9	81.3	96.8	1271.3
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	142.5	143.8	201.2	130.5	77.1	83.8	387.2	354.0	147.8	84.7	52.9	98.2	1938.8
MAX	492.0	295.1	439.4	452.1	219.7	174.8	707.6	807.2	387.3	356.9	219.7	246.4	3175.0
MIN	0.0	10.2	47.5	9.9	9.1	23.9	146.0	198.9	0.0	0.0	0.0	0.0	1238.8

TABLE B-12.

MONTHLY RAINFALL AT BHARAKAO STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	359.2	18.8	10.9	0.0	0.0	*****
1953	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1954	*****	122.2	29.2	0.8	25.9	3.8	182.9	294.1	15.0	66.5	0.0	0.0	*****
1955	*****	19.6	0.0	85.6	44.4	3.8	149.1	453.4	160.0	21.3	0.0	14.2	987.0
1956	*****	43.7	133.9	10.7	0.0	114.0	418.1	565.9	82.0	26.2	0.0	63.0	1501.1
1957	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1958	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1959	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1960	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1961	*****	137.7	63.2	*****	23.9	19.3	*****	303.3	252.5	30.7	54.9	16.0	*****
1962	*****	7.1	48.0	117.1	23.6	39.1	230.9	330.5	62.2	6.9	29.7	82.8	1027.4
1963	*****	0.0	56.9	114.6	53.1	12.2	264.7	397.8	211.3	4.8	39.9	55.6	1241.6
1964	*****	165.4	*****	*****	51.8	10.2	389.1	*****	*****	*****	*****	*****	*****
1965	*****	0.0	*****	*****	43.7	31.0	243.1	*****	*****	*****	0.0	0.0	*****
1966	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1967	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1968	*****	*****	*****	*****	*****	*****	242.3	476.8	1.0	0.5	*****	*****	*****
1969	*****	0.0	8.1	2.3	5.1	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	53.3	47.7	81.4	44.6	30.6	29.2	265.0	397.6	100.4	21.0	15.6	29.0	1189.3
MAX	165.4	122.2	133.9	185.9	51.8	114.0	418.1	565.9	252.5	66.5	54.9	82.8	1501.1
MIN	0.0	0.0	8.1	0.8	0.0	3.8	149.1	294.1	1.0	0.5	0.0	0.0	987.0

MONTHLY RAINFALL AT BHARRE STATION

TABLE B-13.

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1953	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1954	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1955	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1956	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1957	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1958	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1959	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1960	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1961	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1962	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1963	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1964	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1965	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1966	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1967	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1968	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	87.8	107.3	127.6	105.5	42.8	35.0	296.9	271.2	139.4	48.3	35.1	86.6	1305.8
MAX	225.8	204.5	228.6	347.0	138.7	119.4	550.7	467.9	409.4	204.5	142.2	309.1	2150.6
MIN	0.0	0.0	35.1	38.1	0.0	0.0	90.9	165.1	21.6	0.0	0.0	0.0	1071.9

TABLE B-14. MONTHLY RAINFALL AT CHAKLALA STATION

YEAR	(UNIT:MM)												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	51.8	101.1	67.7	4.3	17.1	115.6	262.6	281.2	31.7	3.3	0.0	2.8	939.2
1953	101.4	37.6	13.0	28.4	31.8	3.5	437.9	184.0	25.7	24.6	0.0	14.5	902.4
1954	167.0	130.8	39.3	10.8	17.0	12.8	163.2	189.9	128.0	79.8	3.0	11.5	953.1
1955	16.3	1.3	58.7	28.0	35.3	9.4	134.1	265.0	175.9	11.9	0.0	18.6	754.8
1956	34.9	74.4	88.2	14.2	0.0	118.2	261.8	330.0	76.4	18.2	0.0	6.8	1023.1
1957	158.7	34.5	90.6	104.2	60.6	48.6	33.1	247.9	27.1	95.1	53.8	82.7	1016.9
1958	9.2	6.5	95.0	14.2	3.5	12.2	257.2	188.4	131.9	6.6	13.0	115.3	853.0
1959	97.0	89.1	44.7	26.2	74.6	21.9	536.4	242.7	280.9	48.0	91.2	26.2	1378.9
1960	87.2	0.0	90.4	39.2	4.4	7.3	204.0	202.9	79.0	11.2	0.0	37.4	763.0
1961	145.2	43.5	21.1	124.7	12.7	25.7	246.6	154.7	279.8	39.1	43.7	8.7	1145.5
1962	13.7	53.1	68.6	25.8	23.8	52.4	199.0	421.7	78.0	5.1	26.7	82.1	1050.0
1963	0.0	43.0	73.7	57.6	51.6	8.8	220.5	336.1	92.6	0.0	47.3	44.3	975.5
1964	143.3	13.6	20.6	44.1	45.7	24.7	263.7	91.9	47.0	0.0	1.8	12.5	708.9
1965	58.7	92.8	91.0	210.0	115.3	20.6	111.0	119.1	13.5	11.0	25.7	10.7	859.4
1966	0.0	165.3	80.1	52.8	61.1	101.8	164.1	193.6	87.6	39.0	0.0	14.0	959.4
1967	0.0	66.5	134.9	38.8	23.1	18.5	261.7	342.5	57.0	19.8	3.6	152.4	1118.8
1968	69.3	81.6	64.4	36.6	49.7	14.3	249.6	401.5	20.8	36.8	45.7	44.4	1114.7
1969	2.8	62.6	54.4	35.3	55.9	15.0	85.4	274.3	50.2	95.7	6.3	0.0	737.9
1970	72.4	79.5	78.5	12.0	16.3	37.8	189.0	325.2	171.9	24.9	1.0	7.9	1016.4
1971	21.6	56.7	11.2	79.0	26.9	239.0	170.0	389.7	75.7	1.3	12.2	8.2	1091.5
1972	72.6	48.2	108.1	67.7	19.1	51.8	38.9	81.5	113.8	74.2	18.7	73.4	768.0
1973	62.7	80.4	75.7	24.5	52.1	111.2	369.9	403.4	93.5	14.3	3.6	19.3	1310.6
1974	12.9	21.2	35.8	15.9	27.0	99.8	477.9	210.1	56.8	0.0	0.0	5.8	990.1
1975	39.2	59.0	63.6	42.7	33.1	18.0	235.7	391.3	153.6	0.0	0.0	1.0	1042.0
1976	115.9	208.4	117.3	65.0	3.0	33.3	366.9	442.5	202.5	40.1	0.0	20.7	1595.9
1977	72.2	15.2	12.9	54.6	61.0	142.9	618.1	254.4	38.3	19.3	23.3	20.7	1332.9
1978	6.3	32.0	100.1	23.3	14.3	139.8	258.9	496.9	171.7	62.7	70.2	4.1	1380.3
1979	65.2	102.3	147.1	14.1	40.7	28.8	118.5	231.0	97.6	17.3	36.0	22.6	921.2
1980	92.8	93.4	125.8	15.6	23.6	80.0	309.8	189.7	86.2	36.6	14.6	16.0	1084.1
1981	159.8	73.4	176.5	131.6	109.6	19.4	580.2	338.3	131.3	10.0	5.0	0.0	1735.1
1982	74.4	87.5	173.2	191.0	99.2	18.9	159.1	625.2	40.5	25.7	83.0	24.3	1601.8
1983	131.3	51.5	80.7	264.7	26.2	49.4	258.3	582.2	193.3	74.0	2.5	0.0	1713.8
1984	0.0	113.4	75.3	39.6	10.0	202.9	306.2	251.2	150.6	0.0	3.6	16.4	1149.2
1985	54.0	4.5	47.0	0.0	47.4	8.1	456.6	220.4	37.7	55.7	10.7	143.8	1085.9
1986	12.2	149.1	112.6	66.3	29.9	91.8	85.5	166.9	73.0	57.6	40.3	46.2	931.4
MEAN	62.3	67.8	78.2	57.2	37.8	57.3	254.0	287.6	101.5	30.3	19.6	32.2	1085.8
MAX	167.0	208.4	176.5	264.7	115.3	239.0	618.1	625.2	280.9	95.7	91.2	152.4	1735.1
MIN	0.0	0.0	11.2	0.0	0.0	3.5	33.1	81.5	13.5	0.0	0.0	0.0	708.9

TABLE B-15. MONTHLY RAINFALL AT KAKUL STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	71.5	63.0	48.1	92.7	33.0	79.4	332.7	202.5	41.2	47.5	6.2	28.7	1046.5
1953	77.1	163.2	92.0	25.5	36.3	7.4	109.3	227.9	224.2	61.7	18.0	0.0	1042.6
1954	16.3	1.3	145.1	70.1	92.7	4.3	338.8	484.5	105.4	19.3	0.0	48.9	1326.7
1955	43.5	44.1	199.1	98.0	6.1	33.0	395.9	208.1	21.3	60.2	3.1	38.5	1150.9
1956	166.4	82.6	116.7	216.0	118.4	42.5	89.1	171.8	50.2	180.4	115.6	96.4	1446.1
1957	42.4	18.3	135.2	20.5	33.3	36.6	224.0	267.1	95.5	92.4	25.4	186.2	1176.9
1958	82.5	155.6	75.4	61.5	109.7	63.4	463.7	193.7	156.4	32.3	111.8	41.1	1547.1
1959	58.1	7.2	140.9	136.1	42.1	13.5	311.4	209.0	46.8	15.5	6.6	42.2	1029.4
1960	122.1	74.2	73.8	254.1	109.6	47.3	233.9	231.6	190.1	50.3	94.7	34.5	1536.2
1961	12.4	79.3	151.4	81.0	79.2	39.6	290.7	271.7	102.1	7.9	21.2	87.3	1223.8
1962	0.0	76.7	166.2	116.9	96.8	29.9	171.3	202.1	124.9	22.4	92.5	0.0	1099.7
1963	171.2	52.0	63.8	105.8	50.1	10.5	344.7	151.3	204.8	6.2	3.1	63.9	1227.4
1964	52.9	216.9	140.5	247.5	112.8	37.1	135.1	129.5	58.1	29.5	45.4	15.6	1238.7
1965	0.0	165.5	14.3	107.7	112.8	98.0	219.9	262.6	128.5	134.8	0.0	50.3	1294.4
1966	3.1	191.3	156.6	140.5	85.2	31.0	246.0	153.2	104.0	37.8	56.3	129.2	1287.9
1967	109.1	82.7	67.6	58.2	92.7	86.9	245.7	297.0	4.8	81.3	22.3	0.0	1114.3
1968	38.2	132.4	98.8	75.4	83.2	20.6	183.4	208.8	78.4	172.8	0.0	18.1	1128.6
1969	69.9	104.7	145.4	59.8	36.5	55.9	160.3	244.8	150.7	82.5	0.0	23.4	1228.3
1970	20.6	213.0	16.6	106.3	28.5	374.9	151.9	232.9	39.8	4.9	15.5	90.3	1293.1
1971	113.6	112.9	140.3	98.9	36.1	51.5	85.4	322.1	88.4	91.9	1.3	23.2	1486.2
1972	114.3	97.5	145.3	64.0	89.2	195.3	253.8	373.2	85.4	43.7	1.3	79.0	1148.4
1973	33.9	116.4	61.6	35.9	103.2	80.3	276.8	254.7	105.3	1.3	0.0	22.6	1492.0
1974	62.8	148.4	124.6	149.7	84.8	115.9	315.7	358.4	97.4	78.3	0.0	10.7	1573.2
1975	110.5	194.5	183.1	82.4	64.9	136.2	312.3	300.6	100.4	100.3	31.8	59.8	1596.6
1976	123.2	40.9	35.6	223.7	164.8	144.5	494.6	291.1	153.8	7.4	84.8	6.3	1613.5
1977	77.1	70.8	199.5	52.1	51.5	144.5	494.6	291.1	153.8	36.8	52.1	25.2	1210.8
1978	85.5	100.1	170.5	160.5	69.6	34.6	242.6	183.7	49.6	78.2	33.1	42.1	1315.8
1979	75.8	145.0	140.6	11.3	11.2	287.5	238.6	193.4	59.0	78.2	17.7	8.6	1308.0
1980	91.8	39.6	208.2	175.4	98.6	62.2	222.5	254.5	55.6	73.3	66.3	64.7	1422.8
1981	74.8	173.3	188.4	129.5	142.3	23.0	191.8	312.7	7.7	48.3	17.7	8.6	1359.9
1982	91.8	39.6	208.2	175.4	99.1	62.2	272.0	254.4	55.6	75.3	50.1	54.3	1393.5
1983	2.6	103.7	144.4	152.2	13.2	65.8	277.3	352.2	171.1	6.6	17.5	186.8	1239.2
1984	62.8	21.2	57.9	190.4	63.0	12.2	362.4	218.9	111.6	37.5	50.1	186.8	1239.2
1985	19.0	84.4	235.7	128.2	66.2	100.7	274.8	286.2	28.3	140.8	123.2	147.6	1635.1
1986	67.6	100.4	126.2	111.9	73.9	76.7	258.6	251.8	95.1	57.7	35.8	53.7	1309.1
MEAN	171.2	216.9	235.7	254.1	164.8	374.9	494.6	484.5	224.2	180.4	123.2	186.8	1635.1
MAX	0.0	1.3	14.3	11.3	6.1	4.3	85.4	129.5	4.8	1.0	0.0	0.0	1029.4
MIN													

TABLE B-16. MONTHLY RAINFALL AT KAROR STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	*****	31.5	10.2	6.3	27.9	*****
1953	116.3	41.9	63.0	29.5	24.6	5.6	220.7	124.5	55.9	52.1	14.0	35.6	783.6
1954	141.2	193.3	69.1	13.0	22.4	16.0	67.3	87.1	121.9	99.1	11.9	0.0	842.3
1955	43.0	0.0	69.3	43.2	40.6	17.8	80.5	135.1	*****	*****	0.0	28.2	*****
1956	43.9	24.6	181.9	56.1	0.0	135.4	190.0	468.9	75.7	49.5	0.0	43.2	1269.2
1957	189.7	29.2	130.6	128.0	62.2	39.4	83.1	217.7	22.4	188.0	104.4	93.7	1288.3
1958	0.0	9.7	99.1	14.7	22.9	14.5	362.2	338.1	98.0	73.7	8.6	224.0	1265.4
1959	101.3	310.1	68.1	40.1	62.7	31.5	532.6	276.4	285.7	80.0	101.3	41.7	1931.7
1960	77.7	0.0	109.5	51.1	0.0	38.6	347.2	265.2	85.3	20.3	0.0	50.8	1045.7
1961	192.8	74.9	31.0	206.0	18.0	19.8	534.2	358.4	204.2	49.3	47.0	13.7	1749.3
1962	11.7	72.1	108.2	18.3	20.3	39.4	221.0	317.0	115.8	14.7	74.9	61.0	1074.4
1963	0.0	72.9	141.5	62.2	41.4	16.3	290.6	241.6	219.7	13.0	4.3	42.2	1145.5
1964	64.5	28.7	18.3	70.6	31.2	21.1	591.8	160.0	179.3	0.0	5.1	28.7	1199.4
1965	134.1	155.4	124.7	261.9	140.5	17.5	371.6	156.2	34.8	45.5	22.9	21.6	1466.7
1966	0.0	271.8	183.6	123.2	72.1	179.8	367.5	315.7	183.9	80.0	0.0	23.4	1801.1
1967	0.0	91.7	265.2	104.4	64.8	*****	244.9	240.3	79.2	20.3	0.0	194.6	*****
1968	103.6	67.1	57.4	35.6	16.0	74.4	229.4	253.0	0.0	55.1	393.7	45.2	1330.5
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	74.4	90.2	107.5	78.6	40.0	44.5	295.9	247.2	109.5	53.2	46.7	57.4	1300.9
MAX	192.8	310.1	265.2	261.9	140.5	179.8	591.8	468.9	285.7	188.0	393.7	224.0	1931.7
MIN	0.0	0.0	18.3	13.0	0.0	5.6	67.3	87.1	0.0	0.0	0.0	0.0	783.6

MONTHLY RAINFALL AT KHANPUR STATION

TABLE B-17.

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1953	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1954	6.9	19.3	40.4	45.2	46.5	19.3	36.3	324.1	44.7	65.0	1.8	6.3	832.9
1955	72.9	72.9	131.8	45.2	0.0	31.0	156.3	372.6	3.3	23.1	0.0	15.0	1039.6
1956	164.8	28.2	101.6	110.0	29.0	15.2	163.6	118.6	46.7	174.2	82.3	86.1	1120.4
1958	0.8	4.1	105.7	10.9	0.0	0.0	120.4	202.9	75.4	18.3	1.3	339.1	878.8
1959	118.4	126.0	18.5	26.7	56.1	29.5	383.8	160.5	431.8	58.7	151.1	48.3	1609.3
1960	53.6	0.0	114.8	67.1	0.0	0.0	244.6	131.6	51.1	0.0	0.0	35.6	698.2
1961	130.8	45.7	15.2	91.9	1.3	20.6	407.7	228.3	410.2	19.0	73.9	16.0	1460.8
1962	0.0	19.0	92.7	12.7	2.5	4.6	209.0	184.7	71.4	0.0	17.8	58.9	673.4
1963	0.0	95.2	80.5	54.4	91.7	0.0	85.1	260.6	85.1	0.0	26.7	41.9	821.2
1964	115.8	8.9	1.3	0.0	7.1	0.0	224.8	187.2	148.8	0.0	0.0	2.8	696.7
1965	35.6	189.2	164.6	258.1	97.0	25.4	50.8	186.7	12.7	12.7	10.2	7.6	1050.5
1966	0.0	*****	94.0	50.8	61.0	102.9	177.8	177.8	101.6	0.0	0.0	0.0	*****
1967	0.0	6.3	0.0	*****	0.0	0.0	32.0	55.9	0.0	*****	11.4	19.6	*****
1968	3.8	107.7	84.6	19.0	38.1	0.0	142.2	189.2	0.0	70.1	29.7	2.5	657.4
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	11.4	66.8	28.7	92.7	71.9	180.3	375.4	434.6	125.0	6.3	0.0	22.6	1415.8
1972	99.8	30.7	103.4	56.1	13.2	48.8	41.7	76.7	110.2	0.0	24.6	55.9	661.2
1973	37.3	136.4	117.1	17.0	124.5	91.4	364.5	515.6	141.0	0.0	0.0	21.6	1566.4
1974	30.5	80.5	14.0	58.4	2.5	92.7	217.2	363.2	147.3	0.0	0.0	86.1	1092.5
1975	11.4	144.0	125.0	50.0	55.9	29.2	143.5	406.4	171.4	0.0	19.0	*****	*****
1976	114.3	228.3	213.9	121.9	22.9	80.5	249.4	643.9	148.6	114.3	0.0	0.0	1938.0
1977	209.5	30.5	0.0	154.7	41.9	195.6	685.8	396.2	71.6	111.8	73.7	44.7	2016.0
1978	74.9	57.1	227.3	8.1	0.0	82.5	285.7	542.3	48.3	18.3	48.3	0.0	1392.9
1979	72.9	130.8	175.3	6.3	28.4	0.0	158.7	137.2	95.2	0.0	9.4	17.8	832.1
1980	65.8	97.8	150.8	7.6	0.0	36.1	166.9	281.4	45.7	38.1	0.0	55.9	926.1
1981	66.0	53.3	134.6	53.3	43.2	0.0	329.9	368.3	33.0	25.4	15.2	0.0	1122.4
1982	48.3	76.2	154.4	22.9	48.5	0.0	101.9	167.6	0.0	15.5	73.7	1.3	709.9
1983	106.7	97.5	177.8	202.9	12.7	0.0	183.9	335.8	144.8	17.8	0.0	0.0	1279.9
1984	0.0	48.3	142.2	88.9	0.0	61.0	315.2	500.4	104.1	*****	*****	*****	*****
1985	4.8	0.5	0.5	1.8	15.2	0.0	348.5	541.0	68.6	73.7	43.2	202.2	1300.0
1986	25.4	96.0	147.3	12.7	0.0	25.4	175.3	282.2	45.7	0.0	43.2	0.0	853.2
MEAN	56.1	70.2	97.9	59.7	30.4	37.8	219.9	291.7	103.4	30.7	24.4	42.0	1101.8
MAX	209.5	228.3	227.3	258.1	124.5	195.6	685.8	643.9	431.8	174.2	151.1	339.1	2016.0
MIN	0.0	0.0	0.0	0.0	0.0	0.0	32.0	55.9	0.0	0.0	0.0	0.0	657.4



TABLE B-18. MONTHLY RAINFALL AT KIRPA STATION

YEAR	(UNIT:MM)												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	*****	10.4	1.3	3.8	4.8	*****
1953	84.3	31.7	6.3	49.5	17.0	7.6	392.2	211.8	29.5	14.7	7.6	10.4	862.8
1954	149.9	118.4	49.8	9.1	55.4	*****	98.3	308.6	109.7	8.6	12.2	0.0	*****
1955	110.0	0.0	99.1	22.1	34.3	0.0	51.6	399.3	106.9	15.2	0.0	3.6	842.0
1956	34.3	71.1	141.0	22.1	13.5	106.7	241.8	293.6	39.6	42.9	0.0	5.6	1012.2
1957	152.1	21.8	83.8	87.4	37.8	47.8	66.8	117.1	29.7	99.3	53.6	84.1	881.4
1958	3.0	1.0	92.5	8.1	0.0	7.4	201.2	206.2	108.7	34.3	0.0	30.5	692.9
1959	123.4	156.0	45.0	30.5	56.9	18.5	508.0	232.7	261.1	68.3	99.3	43.9	1643.6
1960	87.1	0.0	137.2	58.2	10.2	30.0	215.6	272.8	69.8	0.0	0.0	24.6	905.5
1961	123.4	43.2	33.0	175.0	0.0	15.2	177.3	153.4	217.4	22.1	39.6	6.6	1006.3
1962	9.4	50.8	72.6	27.9	19.8	174.8	*****	348.2	71.1	17.8	31.7	36.8	*****
1963	0.0	47.0	94.5	119.6	43.9	11.4	267.2	322.1	151.6	0.0	44.2	46.5	1148.1
1964	184.7	16.5	22.9	43.9	42.2	16.0	348.2	225.8	95.5	0.0	0.0	5.1	1000.8
1965	35.6	123.2	76.2	334.8	162.1	22.9	156.0	176.5	38.6	5.8	16.0	9.1	1156.7
1966	0.0	177.0	76.7	36.3	41.9	71.1	144.3	160.0	69.6	28.4	0.0	*****	*****
1967	0.0	107.4	98.8	71.9	12.7	254.3	186.7	53.3	*****	16.5	3.8	123.7	*****
1968	75.7	0.0	50.3	22.4	*****	*****	346.5	389.1	*****	36.8	36.1	63.2	*****
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	73.3	60.3	73.7	69.9	36.5	56.0	226.8	241.9	94.0	24.2	20.5	31.2	1013.9
MAX	184.7	177.0	141.0	334.8	162.1	254.3	508.0	399.3	261.1	99.3	99.3	123.7	1643.6
MIN	0.0	0.0	6.3	8.1	0.0	0.0	51.6	53.3	10.4	0.0	0.0	0.0	692.9

TABLE B-19. MONTHLY RAINFALL AT KURI STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	0.0	52.3	13.7	2.5	4.1	*****
1953	91.9	37.8	3.8	54.9	18.0	8.1	509.3	210.6	54.4	0.0	0.5	17.0	1006.3
1954	179.6	119.6	47.8	11.2	18.5	26.4	170.9	255.0	175.3	93.5	3.0	0.0	1100.8
1955	17.8	12.5	92.2	32.8	42.7	0.0	115.6	348.5	99.6	21.3	0.0	13.2	786.1
1956	39.6	48.5	124.2	24.1	1.0	123.4	328.4	107.9	107.9	21.3	0.0	42.4	1174.5
1957	159.5	32.8	116.6	75.9	35.3	22.1	31.0	144.0	168.1	91.4	83.1	116.3	1076.2
1958	3.0	7.1	67.1	8.9	2.3	16.5	177.3	313.7	136.4	14.7	4.1	122.2	873.3
1959	97.5	121.2	31.0	52.6	71.6	40.6	334.5	180.6	264.4	63.8	126.5	40.6	1424.7
1960	82.5	0.0	133.1	51.8	6.9	8.9	246.6	297.4	105.2	*****	0.0	23.1	*****
1961	135.9	39.1	27.9	142.5	11.9	*****	*****	*****	*****	*****	*****	*****	*****
1962	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1963	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1964	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1965	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1966	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1967	0.0	71.9	232.7	42.2	53.3	8.9	278.9	156.7	69.3	27.2	0.0	17.3	1072.9
1968	101.1	17.0	29.2	21.1	12.7	14.7	422.4	453.6	61.2	24.4	3.8	140.0	1193.3
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	82.6	45.2	82.3	47.1	24.9	27.0	260.4	238.2	108.1	36.2	21.7	49.2	1078.7
MAX	179.6	121.2	232.7	142.5	71.6	123.4	509.3	453.6	264.4	93.5	126.5	140.0	1424.7
MIN	0.0	0.0	3.8	8.9	1.0	0.0	31.0	0.0	3.3	0.0	0.0	0.0	786.1

TABLE B-20. MONTHLY RAINFALL AT LORA STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	150.4	73.7	0.0	6.1	32.0	*****
1953	114.8	20.3	6.3	0.0	6.9	36.8	261.6	90.2	44.4	52.1	0.0	42.9	676.4
1954	203.2	125.0	52.1	20.8	22.9	*****	156.2	353.3	200.7	73.7	9.1	0.0	*****
1955	60.2	1.3	105.2	49.5	78.0	9.7	350.8	591.1	86.4	28.4	0.0	27.7	1388.1
1956	50.8	60.5	214.4	51.1	0.0	142.5	518.4	425.2	70.1	69.3	2.5	64.0	1668.8
1957	234.2	72.1	195.6	165.1	157.7	110.0	238.5	209.3	31.2	304.0	164.6	197.1	2079.5
1958	35.3	28.7	212.9	57.9	57.7	39.6	384.8	453.1	121.4	23.4	13.2	205.0	1633.0
1959	119.1	220.7	77.0	71.9	99.8	13.0	471.9	200.2	143.8	66.8	131.3	58.4	1673.9
1960	105.2	0.0	217.9	142.2	16.8	54.4	533.9	251.0	91.4	16.5	0.0	93.0	1522.2
1961	306.6	160.8	68.6	211.6	23.6	69.3	236.7	202.4	253.5	64.3	93.7	17.8	1708.9
1962	23.1	98.0	160.0	141.5	15.0	3.8	237.5	321.8	170.7	8.9	49.3	113.8	1343.4
1963	0.0	94.0	203.7	79.0	57.9	52.1	228.3	516.1	183.6	14.7	55.4	59.9	1544.8
1964	323.8	55.1	54.4	92.5	80.5	21.1	472.4	274.3	177.0	0.0	0.0	76.5	1627.6
1965	102.6	278.1	237.5	483.9	293.9	29.0	200.4	20.8	240.0	46.5	27.7	*****	*****
1966	0.0	217.2	150.1	101.6	88.9	105.4	309.6	178.8	176.8	135.4	0.0	44.4	1507.7
1967	0.0	284.7	227.6	124.2	30.5	18.5	160.0	224.0	154.7	30.0	5.1	202.7	1462.0
1968	115.1	122.7	*****	57.1	59.4	60.2	132.6	323.6	12.7	36.6	55.9	69.8	*****
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	112.1	115.0	145.5	115.6	68.1	51.0	305.9	281.5	151.3	57.1	36.1	81.6	1525.9
MAX	323.8	284.7	237.5	483.9	293.9	142.5	533.9	591.1	253.5	304.0	164.6	205.0	2079.5
MIN	0.0	0.0	6.3	0.0	0.0	3.8	132.6	20.8	12.7	0.0	0.0	0.0	676.4

TABLE B-21. MONTHLY RAINFALL AT MURREE STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1931	60.2	0.0	82.6	42.7	74.4	108.5	456.4	446.3	184.9	83.3	2.5	0.0	1541.8
1932	62.0	92.2	162.1	32.5	63.2	99.8	351.8	199.9	27.4	19.3	0.0	25.7	1135.9
1933	80.0	89.9	200.4	163.8	49.8	200.9	537.0	522.5	220.5	12.7	13.0	0.5	2091.0
1934	96.8	106.7	119.1	71.1	26.7	142.7	476.5	152.9	27.2	3.8	1.3	178.3	1403.1
1935	227.8	82.0	72.1	302.5	16.3	242.1	410.7	90.9	90.9	36.1	20.6	23.1	1546.3
1936	83.1	201.2	222.0	167.6	56.6	164.6	223.3	299.5	177.3	25.7	33.8	184.7	1839.4
1937	59.2	190.5	0.0	117.9	23.9	93.2	309.4	209.0	91.7	106.7	8.6	51.3	1261.4
1938	148.8	197.9	88.4	96.0	34.0	354.8	334.5	333.8	29.7	40.4	4.8	48.5	1711.6
1939	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1940	*****	*****	*****	*****	*****	*****	336.0	253.5	130.6	2.5	20.1	15.0	*****
1941	66.3	66.8	144.3	68.3	59.7	85.1	246.1	176.3	323.6	35.3	4.8	39.4	1316.0
1942	188.5	221.5	46.0	143.0	75.7	62.2	354.3	389.1	159.3	34.3	22.4	40.9	1737.2
1943	245.4	70.6	196.9	149.6	123.4	57.4	284.7	545.3	201.9	*****	4.1	30.5	*****
1944	130.0	110.5	170.2	131.1	91.7	134.6	689.9	674.4	100.8	56.1	41.1	68.1	2398.5
1945	134.6	2.0	110.7	177.3	54.1	51.1	301.8	286.3	155.4	107.4	38.1	9.7	1428.5
1946	31.5	81.0	85.9	15.7	53.8	90.9	256.3	505.2	112.3	65.5	29.5	46.2	1373.8
1947	70.4	64.0	69.1	20.8	65.3	85.8	248.7	528.4	196.1	46.7	0.8	72.1	1266.2
1948	61.2	151.1	407.2	78.7	56.6	94.2	316.0	188.2	15.5	2.8	4.6	78.2	1454.3
1949	65.8	174.5	234.4	47.5	61.0	126.7	354.8	234.4	130.0	20.6	6.1	15.0	1470.8
1950	246.6	131.3	167.9	82.6	33.0	105.4	310.1	521.2	73.9	51.6	0.0	2.5	1726.1
1951	138.9	119.4	126.5	125.5	89.4	80.0	195.3	254.0	29.2	39.6	66.3	29.5	1293.6
MEAN	115.6	113.3	142.4	107.1	58.3	113.6	341.2	346.5	123.9	41.6	16.1	48.0	1555.3
MAX	246.6	221.5	407.2	302.5	123.4	354.8	689.9	674.4	323.6	107.4	66.3	184.7	2398.5
MIN	31.5	0.0	0.0	15.7	16.3	22.1	195.3	152.9	15.5	2.5	0.0	0.0	1135.9

TABLE B-22. MONTHLY RAINFALL AT MURREE STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	125.3	143.5	145.6	33.5	40.2	102.1	415.6	282.0	74.4	3.3	4.1	22.3	1391.9
1953	172.0	67.4	56.8	119.5	76.2	55.9	333.9	274.0	199.2	52.1	2.3	37.8	1447.1
1954	258.7	221.1	153.1	48.3	61.0	56.9	337.4	257.7	241.5	114.1	16.9	6.4	1773.1
1955	35.8	6.9	142.8	54.3	87.2	76.0	408.9	841.1	122.6	44.3	0.0	65.5	1885.4
1956	84.3	35.8	238.8	93.5	1.3	187.8	611.1	508.9	81.6	127.2	1.3	79.0	2050.6
1957	243.5	43.7	213.9	257.9	129.9	72.9	200.5	273.7	78.2	229.6	155.2	84.4	1983.4
1958	29.3	25.9	152.9	66.5	48.1	15.8	317.3	519.2	131.3	68.8	6.6	243.1	1624.8
1959	94.6	162.0	123.8	22.6	173.0	174.4	557.8	235.9	299.6	71.4	104.4	46.4	2165.9
1960	112.1	7.5	183.3	80.7	45.5	36.6	430.8	262.0	120.1	12.4	6.8	47.9	1345.7
1961	151.2	116.3	72.0	269.8	78.7	92.2	353.4	335.5	301.8	97.2	80.5	25.9	1974.5
1962	21.8	105.6	140.2	119.7	83.3	89.5	301.5	249.8	163.0	15.2	46.5	58.5	1394.6
1963	0.0	115.1	235.1	137.7	79.9	72.0	297.0	284.4	180.1	3.0	66.3	44.5	1524.1
1964	255.4	72.1	69.6	155.6	71.5	81.4	401.0	268.5	269.4	0.0	7.3	113.2	1756.0
1965	51.3	207.2	151.3	388.9	208.4	72.3	355.2	286.3	32.4	63.3	43.8	18.0	1878.4
1966	0.3	212.8	166.1	148.3	96.3	118.8	261.6	314.5	209.3	168.6	0.0	47.2	1743.8
1967	5.6	207.0	229.4	181.2	113.7	43.9	277.0	308.8	173.1	55.6	26.8	110.5	1732.6
1968	184.6	126.2	76.1	72.5	95.5	100.6	349.9	284.0	23.9	82.9	35.8	80.3	1512.3
1969	42.9	103.4	113.5	116.9	110.9	55.1	219.8	220.0	95.7	193.3	23.6	0.0	1295.1
1970	120.4	118.9	163.8	51.3	25.4	79.5	263.0	417.1	314.2	48.0	0.0	21.1	1622.7
1971	0.0	147.8	32.0	180.3	35.6	519.4	215.4	274.4	22.8	9.9	24.9	25.1	1487.6
1972	113.6	112.9	140.3	98.9	36.1	102.6	167.9	280.7	223.0	80.3	16.4	123.7	1496.4
1973	223.8	139.2	243.8	75.3	96.3	108.0	398.3	388.4	96.1	55.6	1.3	43.7	1869.8
1974	137.9	247.7	22.5	48.4	79.0	228.1	349.4	151.1	63.5	0.0	0.0	191.7	1520.1
1975	62.6	174.9	110.9	110.8	95.5	150.4	398.9	443.6	100.5	0.0	15.0	17.0	1680.1
1976	274.4	344.3	180.6	128.6	63.4	54.6	405.3	439.4	221.4	102.3	0.0	12.6	2226.9
1977	257.1	60.5	15.7	209.0	160.9	200.6	523.5	263.4	221.5	254.1	57.5	65.9	2289.7
1978	293.3	136.1	170.4	53.8	52.7	218.9	545.8	405.7	286.1	10.2	89.7	10.2	2274.9
1979	155.8	108.7	225.1	59.7	122.5	84.1	223.5	310.2	146.7	35.5	103.7	44.1	1619.6
1980	134.7	170.4	212.1	24.2	23.8	318.8	351.0	282.0	146.2	47.0	12.0	47.2	1769.4
1981	233.4	131.2	310.3	208.0	196.7	96.1	457.4	112.9	112.5	40.2	3.5	0.0	1829.1
1982	241.4	150.9	279.3	208.0	128.1	84.4	206.3	357.4	18.6	60.7	82.7	77.5	1875.3
1983	310.0	58.8	180.0	181.6	87.8	61.9	257.6	344.8	81.7	57.3	3.2	8.5	1633.2
1984	4.2	305.1	95.9	117.9	46.2	183.8	269.6	448.3	131.0	2.8	36.5	42.5	1683.8
1985	122.0	28.3	64.6	79.5	49.6	73.3	387.5	431.5	152.2	92.6	20.5	134.3	1635.9
1986	52.5	98.0	413.8	129.1	100.5	156.5	323.7	503.6	119.7	124.7	106.5	108.9	2237.5
MEAN	131.7	128.9	157.9	124.5	85.7	120.7	347.8	338.3	150.1	69.3	34.3	60.1	1749.5
MAX	310.0	344.3	413.8	388.9	208.4	519.4	611.1	841.1	514.2	254.1	155.2	243.1	2289.7
MIN	0.0	6.9	15.7	24.2	1.3	15.8	167.9	112.9	18.6	0.0	0.0	0.0	1295.1

MONTHLY RAINFALL AT NARC STATION

TABLE B-23.

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1953	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1954	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1955	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1956	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1957	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1958	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1959	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1960	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1961	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1962	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1963	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1964	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1965	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1966	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1967	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1968	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	63.5	82.7	135.9	130.7	65.3	37.9	118.1	447.3	24.1	51.8	62.0	30.1	1229.4
1983	94.8	41.1	77.9	234.1	65.0	41.8	157.9	281.0	221.1	57.5	0.0	1.0	1273.2
1984	0.0	105.5	97.6	24.7	17.1	57.0	257.0	482.5	132.5	0.0	11.8	12.3	1198.0
1985	52.0	11.2	37.5	33.0	31.0	15.0	631.0	259.5	81.0	38.0	11.5	149.0	1349.7
1986	12.0	126.0	110.0	48.0	43.0	92.0	117.0	140.0	109.0	29.5	41.0	63.0	930.5
MEAN	44.5	73.3	91.8	94.1	44.3	48.7	256.2	322.1	113.5	31.4	25.3	51.1	1196.2
MAX	94.8	126.0	135.9	234.1	65.3	92.0	631.0	482.5	221.1	57.5	62.0	149.0	1349.7
MIN	0.0	11.2	37.5	24.7	17.1	15.0	117.0	140.0	24.1	0.0	0.0	1.0	930.5

TABLE B-24. MONTHLY RAINFALL AT PANJAR STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	525.3	36.1	0.0	3.8	24.9	*****
1953	32.3	39.4	30.7	72.9	40.6	35.6	696.0	309.6	24.9	47.0	0.0	30.2	1359.2
1954	252.4	240.8	146.3	19.8	29.7	55.4	149.9	113.0	*****	*****	*****	*****	*****
1955	*****	*****	*****	*****	30.2	0.8	200.9	*****	125.7	0.0	0.0	3.3	*****
1956	33.0	45.2	221.0	24.1	5.1	116.8	652.8	351.8	59.7	33.0	0.0	*****	*****
1957	*****	*****	128.8	152.4	71.1	33.0	141.0	328.9	50.3	160.0	133.3	119.9	*****
1958	7.6	25.9	96.5	20.3	6.3	12.7	289.1	341.9	97.0	44.4	0.0	221.0	1162.8
1959	89.2	285.7	*****	*****	*****	*****	*****	*****	283.0	114.3	120.6	38.9	*****
1960	110.2	0.0	130.0	52.3	2.5	60.5	415.0	445.8	146.3	39.4	0.0	73.9	1476.0
1961	244.9	67.6	68.3	210.6	37.1	76.7	389.1	310.6	393.7	110.7	58.7	27.4	1995.4
1962	9.4	87.6	*****	27.9	30.0	33.8	237.2	314.7	70.4	0.0	76.2	51.1	*****
1963	0.0	78.7	17.3	102.9	30.5	38.4	157.5	241.3	208.0	47.0	50.8	39.4	1011.7
1964	195.6	45.7	61.0	109.2	38.1	25.4	294.6	213.4	241.3	0.0	0.0	44.4	1268.7
1965	61.0	146.0	132.1	198.1	170.2	19.0	213.4	119.4	27.9	16.5	30.5	6.5	1140.5
1966	0.0	212.1	132.1	85.1	104.1	58.4	205.7	151.1	68.6	45.7	0.0	25.4	1088.4
1967	0.0	27.9	215.9	111.8	0.0	25.4	249.7	257.8	125.2	31.7	*****	*****	*****
1968	153.7	87.6	17.8	57.1	0.0	49.5	160.0	271.8	8.9	40.6	29.2	26.7	903.0
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	83.5	99.3	107.5	88.9	39.7	42.8	296.8	286.4	122.9	45.7	33.5	52.3	1267.3
MAX	244.9	285.7	221.0	210.6	170.2	116.8	696.0	525.3	393.7	160.0	133.3	221.0	1995.4
MIN	0.0	0.0	17.3	19.8	0.0	0.8	141.0	113.0	8.9	0.0	0.0	3.3	903.0

TABLE B-25. MONTHLY RAINFALL AT RAWAL DAMSITE STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	56.8	109.5	75.4	4.9	19.8	123.7	281.5	301.7	35.2	3.8	0.0	3.7	1016.0
1953	109.4	41.4	15.2	31.8	35.0	4.4	466.0	197.4	28.9	27.0	0.0	16.4	972.9
1954	179.8	141.8	44.4	13.1	19.3	14.9	175.6	204.8	138.2	85.2	3.9	12.8	1033.8
1955	17.9	1.7	64.1	30.9	39.7	10.6	144.3	285.0	188.3	13.3	0.0	21.1	816.9
1956	38.3	79.5	96.7	17.9	0.0	127.9	282.1	353.2	82.0	20.7	0.0	7.9	1106.2
1957	150.9	38.2	99.9	114.2	67.1	52.7	36.3	265.7	30.8	102.9	59.3	90.5	1108.5
1958	10.4	8.3	103.5	16.5	4.8	13.6	275.5	202.2	141.3	7.7	14.4	123.6	921.8
1959	105.1	96.5	49.7	29.4	80.7	24.2	359.9	260.0	300.8	52.1	97.6	29.1	1485.1
1960	94.8	0.0	100.2	43.0	6.1	8.4	218.9	218.1	84.7	12.2	0.0	40.5	826.9
1961	156.0	49.2	24.0	136.0	14.9	29.3	266.1	167.3	299.3	43.4	47.1	9.9	1242.5
1962	15.2	59.2	75.9	30.2	26.6	56.7	212.8	450.4	85.3	5.7	29.2	88.4	1135.8
1963	0.0	0.0	87.0	65.9	47.6	18.8	312.6	579.2	226.9	3.3	42.2	57.6	1441.1
1964	183.7	26.1	30.8	88.1	40.7	17.1	413.2	289.5	168.1	0.0	0.0	3.6	1260.9
1965	51.6	124.7	122.0	219.5	125.7	26.9	142.9	163.8	9.2	7.7	35.6	11.7	1041.3
1966	0.0	186.7	81.0	55.7	63.5	107.1	219.3	261.2	119.3	43.5	0.0	24.6	1162.1
1967	0.0	78.5	181.4	54.0	24.7	14.2	279.9	275.8	97.3	37.0	12.3	158.8	1213.9
1968	57.4	100.5	64.3	30.0	8.7	26.2	378.9	488.3	12.7	31.5	44.4	68.2	1311.1
1969	12.4	103.3	67.6	25.8	41.2	18.8	145.1	273.5	61.0	138.7	6.3	0.0	893.7
1970	73.4	82.2	77.0	9.9	7.1	49.1	141.7	551.9	390.7	49.0	0.8	14.7	1447.5
1971	17.0	63.3	5.0	71.7	33.0	317.3	241.9	437.9	108.8	32.0	16.5	10.9	1355.3
1972	92.5	50.5	120.6	87.8	16.2	37.9	45.2	161.1	74.0	43.9	20.3	78.8	828.8
1973	70.3	67.8	82.8	29.9	46.8	125.5	255.5	391.8	96.0	24.3	0.0	24.4	1215.1
1974	36.8	51.1	25.8	12.7	27.8	120.9	392.5	194.2	77.7	0.0	0.0	32.3	971.8
1975	37.6	75.4	72.4	37.3	61.8	48.4	220.9	373.6	196.5	0.0	9.9	4.3	1138.1
1976	102.1	181.1	155.0	73.6	1.3	34.3	391.5	430.4	222.2	22.8	0.0	0.0	1614.3
1977	81.6	0.0	5.3	90.6	44.4	148.1	504.1	252.2	35.1	84.8	50.3	21.9	1318.4
1978	48.0	28.2	63.3	23.6	48.5	159.2	413.5	568.2	142.5	9.1	53.9	2.8	1560.8
1979	77.9	105.9	169.6	28.4	31.9	37.2	280.4	277.9	52.7	25.3	42.4	30.5	1160.1
1980	99.9	102.4	137.0	17.2	25.6	86.5	331.7	202.4	93.5	38.9	16.5	18.3	1169.9
1981	171.3	79.5	189.6	140.5	116.9	22.2	616.4	361.2	140.1	11.2	5.6	0.0	1854.5
1982	80.6	94.4	187.3	204.3	107.8	21.0	170.3	664.6	43.7	27.8	88.2	27.4	1717.4
1983	141.6	55.6	88.0	284.2	11.7	54.6	277.9	619.0	206.4	79.4	3.0	0.0	1839.0
1984	0.0	121.7	81.3	44.0	21.7	216.0	328.0	270.3	141.2	0.0	4.2	17.7	1236.1
1985	58.8	5.1	51.3	0.0	51.4	9.2	485.6	235.6	41.5	59.8	12.0	154.1	1164.4
1986	13.2	159.6	122.8	72.1	33.3	99.2	93.1	180.2	79.1	62.1	43.6	50.2	1008.5
MEAN	69.8	73.4	86.2	63.8	38.9	65.2	280.0	326.0	121.5	34.5	21.7	35.9	1216.9
MAX	183.7	186.7	189.6	284.2	125.7	317.3	616.4	664.6	390.7	138.7	97.6	158.8	1854.5
MIN	0.0	0.0	5.0	0.0	0.0	4.4	36.3	161.1	9.2	0.0	0.0	0.0	816.9



TABLE B-26.

## MONTHLY RAINFALL AT RAWALPINDI STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1890	40.9	22.4	34.3	160.5	57.4	134.6	170.2	213.9	242.6	5.6	15.5	0.0	1097.9
1891	51.3	1.3	98.6	101.6	66.8	222.0	166.4	134.4	159.3	34.3	4.8	4.1	1045.1
1892	106.7	40.4	13.7	1.5	9.9	34.3	0.0	0.0	196.1	130.1	83.8	36.6	653.1
1893	131.3	119.4	6.9	35.8	43.7	25.9	66.5	17.8	322.1	519.2	132.8	107.2	1528.6
1894	29.0	4.8	59.7	26.7	101.9	110.5	31.5	65.8	165.4	29.2	66.3	47.5	738.3
1895	93.7	22.4	101.3	6.1	21.6	130.0	234.4	310.1	195.3	40.1	33.5	0.0	1188.5
1896	91.7	41.1	67.3	36.1	90.8	410.7	239.8	222.8	1.0	56.6	27.4	14.0	1299.3
1897	56.4	29.5	81.0	10.2	97.8	152.9	25.7	91.7	29.7	40.6	63.0	0.0	678.7
1898	93.5	56.6	126.5	96.8	63.2	242.1	233.3	333.8	4.8	28.7	30.5	60.4	1350.2
1899	66.5	81.0	153.2	56.4	126.0	143.5	280.9	173.2	55.1	110.2	116.8	103.2	1466.0
1900	88.6	34.0	23.1	95.2	57.1	0.0	176.0	125.2	163.8	15.0	0.0	78.2	856.2
1901	47.3	55.6	48.8	164.3	279.4	83.3	143.8	113.5	72.4	32.5	55.6	47.0	1143.5
1902	0.0	0.8	24.9	45.0	33.5	35.4	130.8	119.6	135.6	95.0	29.9	0.3	650.8
1903	19.1	2.5	99.8	7.6	71.1	16.0	0.0	202.7	74.6	0.0	0.0	0.0	493.2
1904	119.4	1.0	123.7	9.9	17.8	0.0	17.8	243.6	15.5	4.6	15.5	39.4	608.2
1905	102.9	68.1	56.1	18.0	18.3	8.9	142.2	95.2	108.2	3.8	0.0	76.7	698.4
1906	13.5	169.7	110.2	22.6	11.9	73.7	208.7	406.7	287.0	158.5	0.0	27.2	1489.7
1907	105.2	115.3	112.0	71.6	33.5	112.5	46.9	136.9	0.3	0.0	2.8	0.0	737.0
1908	52.8	46.7	7.1	28.4	3.8	3.6	488.6	473.2	154.2	2.5	0.0	30.2	1291.1
1909	6.9	90.7	30.0	43.2	10.4	69.3	358.1	233.9	31.5	0.0	0.0	101.3	975.3
1910	99.6	78.0	30.0	98.6	8.1	195.1	82.6	393.2	13.3	0.0	0.0	27.4	1025.9
1911	213.6	30.7	288.3	33.0	0.0	56.6	25.4	130.6	121.9	36.3	52.1	21.6	1010.1
1912	63.2	26.9	115.6	28.2	30.0	16.2	158.2	166.1	67.6	2.8	0.0	11.7	686.5
1913	6.6	46.7	91.7	58.2	12.4	109.5	110.0	320.3	81.2	0.8	2.8	0.0	840.2
1914	35.6	165.9	53.6	131.3	18.0	40.1	284.0	91.4	142.5	135.9	35.3	69.9	1203.5
1915	0.3	94.0	50.8	45.5	0.0	15.0	73.7	238.3	30.0	8.4	0.0	4.8	560.8
1916	4.6	53.3	113.3	25.1	78.7	74.9	200.7	374.9	807.1	35.8	5.8	24.6	1798.8
1917	7.9	2.0	36.6	55.9	73.7	291.3	286.5	170.2	259.1	3.8	0.0	106.9	1293.9
1918	7.4	6.4	230.1	146.1	0.0	65.8	14.7	230.1	54.8	1.8	2.8	48.8	808.8
1919	67.3	56.7	24.4	36.1	23.1	86.1	319.0	528.8	62.0	0.0	0.0	76.2	1279.7
1920	49.0	33.3	57.7	19.3	31.0	52.6	129.0	21.9	219.5	85.9	1.3	2.8	703.3
1921	21.6	40.4	2.3	7.4	2.8	19.1	161.3	177.2	78.2	73.2	0.5	149.1	753.3
1922	17.0	0.0	4.3	16.0	67.3	325.4	53.3	308.1	1.8	16.3	3.8	43.6	856.9
1923	41.7	186.4	78.7	88.4	111.0	33.0	89.2	143.5	57.2	62.5	0.0	0.0	889.6
1924	57.4	185.9	52.0	13.0	72.6	1.3	71.4	43.9	69.6	24.6	45.2	16.8	653.7
1925	19.8	49.5	44.5	47.0	65.3	90.7	381.5	114.4	47.5	43.7	21.6	0.0	925.7
1926	27.4	31.2	262.6	25.5	86.9	22.6	235.7	469.9	274.3	0.0	0.0	21.1	1457.2
1927	52.1	55.4	32.8	25.4	19.8	8.9	140.2	162.1	51.3	0.0	0.0	24.9	572.9
1928	57.4	43.2	31.0	49.8	10.2	11.4	89.9	48.8	189.5	0.0	71.1	77.7	700.0
1929	82.0	26.9	5.6	11.4	8.1	69.9	253.7	479.8	10.1	27.2	0.0	108.7	1083.4
1930	138.7	68.6	9.1	139.9	9.4	28.7	452.9	221.7	98.6	28.7	0.0	0.0	1196.3
1931	83.6	61.7	66.3	36.3	59.1	10.7	228.9	192.9	84.1	37.6	0.0	0.0	861.2
1932	48.8	37.6	111.8	9.4	20.8	14.0	177.3	157.0	26.9	4.8	0.0	47.5	655.9
1933	39.6	42.9	73.4	53.3	58.2	100.0	275.8	217.9	62.5	1.0	6.1	0.0	930.7
1934	13.2	37.8	64.5	24.1	2.0	200.7	193.5	377.7	14.7	0.0	0.0	65.8	994.0
1935	143.5	38.4	36.6	127.8	3.0	7.1	231.6	379.2	42.2	15.0	14.0	8.4	1046.8
1936	46.7	111.2	185.7	68.1	11.4	104.9	322.1	248.2	102.4	5.8	13.7	50.8	1271.0
1937	25.4	106.2	38.6	60.5	13.0	66.0	323.3	111.8	47.0	29.2	0.0	25.7	846.7
1938	45.5	56.9	20.6	37.3	29.0	344.2	235.5	257.6	9.1	11.2	0.0	27.9	1074.8
1939	22.4	199.1	284.0	39.9	8.4	39.1	122.4	119.6	144.3	31.5	0.0	0.0	1010.7
1940	57.1	52.3	59.4	1.8	36.3	32.3	165.9	313.9	117.6	20.6	9.1	1.8	868.1
1941	70.1	40.9	45.0	100.3	41.9	62.9	148.3	207.0	34.3	27.2	13.0	36.5	825.4
1942	102.1	129.0	100.8	78.5	73.7	17.8	231.4	141.0	54.6	0.0	1.8	2.0	932.7
1943	123.7	13.2	131.8	43.8	16.0	14.1	309.6	385.6	156.7	11.2	9.9	10.4	1226.0
1944	101.9	95.8	102.4	52.1	19.3	15.2	173.2	308.1	53.8	0.0	21.6	8.4	951.8
1945	83.8	63.5	82.3	1.0	29.5	99.6	380.0	195.8	160.0	30.3	56.6	21.1	1203.5
1946	12.7	78.5	12.7	0.0	5.6	10.9	184.9	75.7	25.8	10.4	0.0	22.6	439.8
1947	66.5	27.7	101.6	2.0	20.3	45.5	257.0	129.7	209.8	19.3	5.1	41.1	925.6
1948	17.8	45.2	102.1	3.8	21.3	14.5	331.5	184.9	110.5	5.1	0.0	0.0	836.7
1949	29.0	101.1	79.5	7.1	0.0	24.9	229.4	257.0	137.4	19.1	0.0	0.0	884.5
1950	98.8	29.2	62.5	87.1	44.2	56.9	85.9	331.5	12.4	14.0	53.8	0.0	876.3
1951	20.6	46.0	46.7	87.4	55.4	25.7	53.6	268.3	9.4	28.7	52.6	4.0	698.4
MEAN	58.7	59.9	77.4	49.4	40.5	79.5	184.4	216.3	109.1	35.7	19.0	31.6	961.8
MAX	213.6	199.1	288.3	164.3	279.4	410.7	488.6	528.8	807.1	519.2	132.8	149.1	1798.8
MIN	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	439.8

TABLE B-27. MONTHLY RAINFALL AT SAIDPUR STATION

(UNIT:MM)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1952	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1953	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1954	163.3	*****	*****	*****	*****	*****	*****	*****	31.7	*****	*****	*****	*****
1955	*****	*****	*****	*****	51.3	*****	43.9	96.5	172.7	10.2	0.0	*****	*****
1956	44.4	74.4	127.0	34.3	0.0	61.0	80.0	273.8	24.9	22.9	0.0	8.6	*****
1957	*****	*****	94.0	114.8	67.1	*****	*****	63.0	*****	*****	*****	72.1	*****
1958	2.0	2.5	114.3	0.0	0.0	0.0	232.4	228.6	138.4	*****	*****	*****	*****
1959	130.8	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1960	43.7	0.0	98.8	33.3	0.0	22.9	444.5	221.0	73.2	3.3	0.8	*****	*****
1961	*****	43.6	50.5	115.1	16.0	23.6	451.6	458.5	388.1	42.4	50.8	10.7	*****
1962	0.2	46.5	121.4	26.4	*****	90.7	*****	404.6	*****	47.0	24.6	60.7	*****
1963	10.0	43.4	94.2	34.0	36.1	27.9	290.3	513.1	165.4	1.5	51.1	39.4	1296.4
1964	191.5	29.7	27.2	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1965	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1966	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1967	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1968	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1969	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1970	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1971	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1972	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1973	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1974	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1975	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1976	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1977	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1978	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1979	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1980	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1981	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1982	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1983	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1984	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1985	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1986	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
MEAN	73.2	34.3	90.9	51.1	24.3	37.7	257.1	313.7	132.2	21.2	21.2	38.3	1296.4
MAX	191.5	74.4	127.0	115.1	67.1	90.7	451.6	513.1	388.1	47.0	51.1	72.1	1296.4
MIN	0.0	0.0	27.2	0.0	0.0	0.0	43.9	96.5	24.9	1.5	0.0	8.6	1296.4