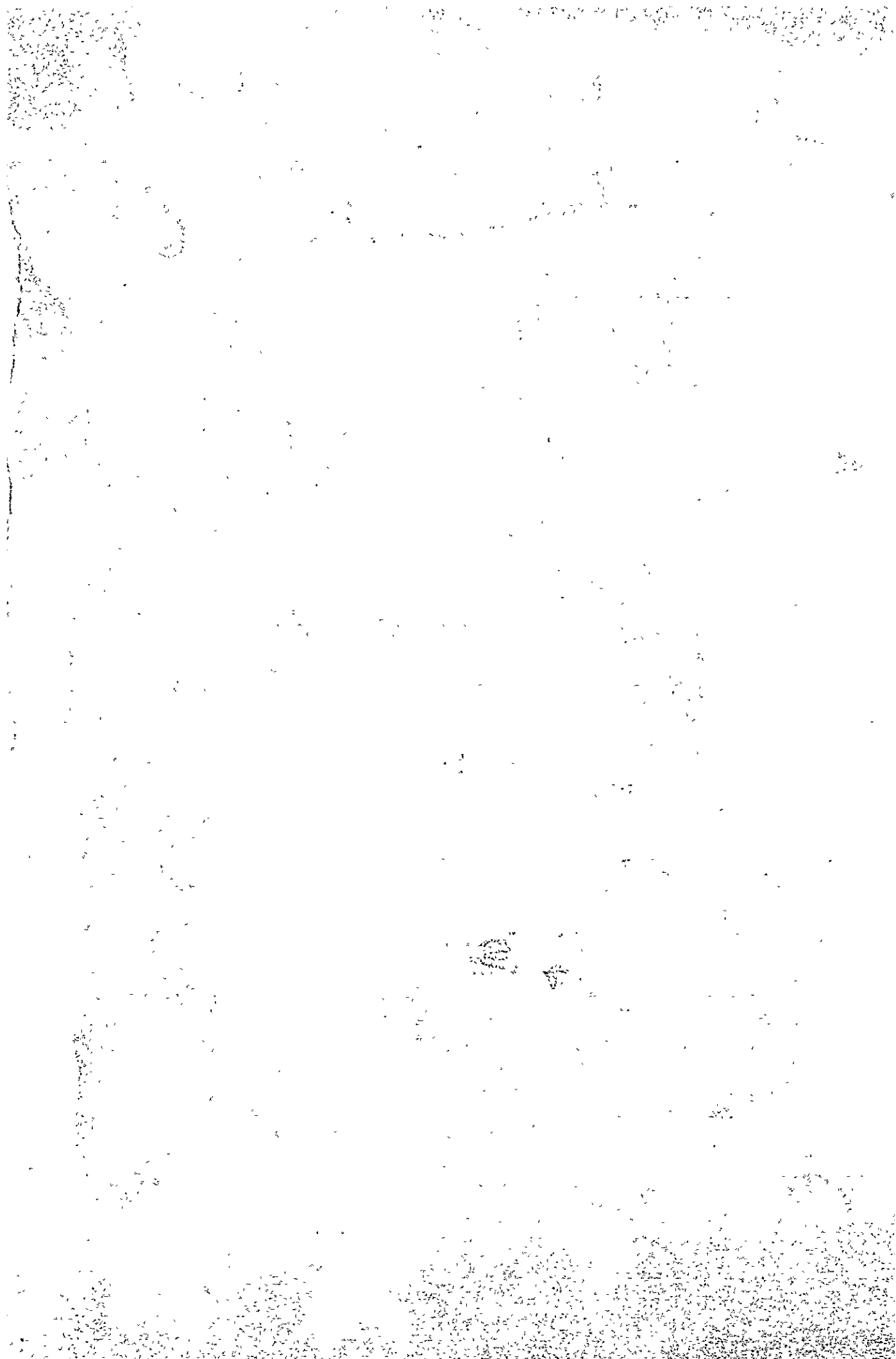


THE HISTORY OF THE
NARAYANIAN NARSINGH PURKAYASTHA



No. = 3

THE PEOPLE'S REPUBLIC OF BANGLADESH

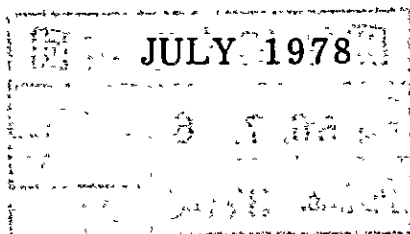
FEASIBILITY REPORT
ON
NARAYANGANJ-NARSINGDI IRRIGATION PROJECT

VOLUME II : NOTES

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THE PEOPLE'S REPUBLIC OF BANGLADESH
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 VOLUME II : NOTES
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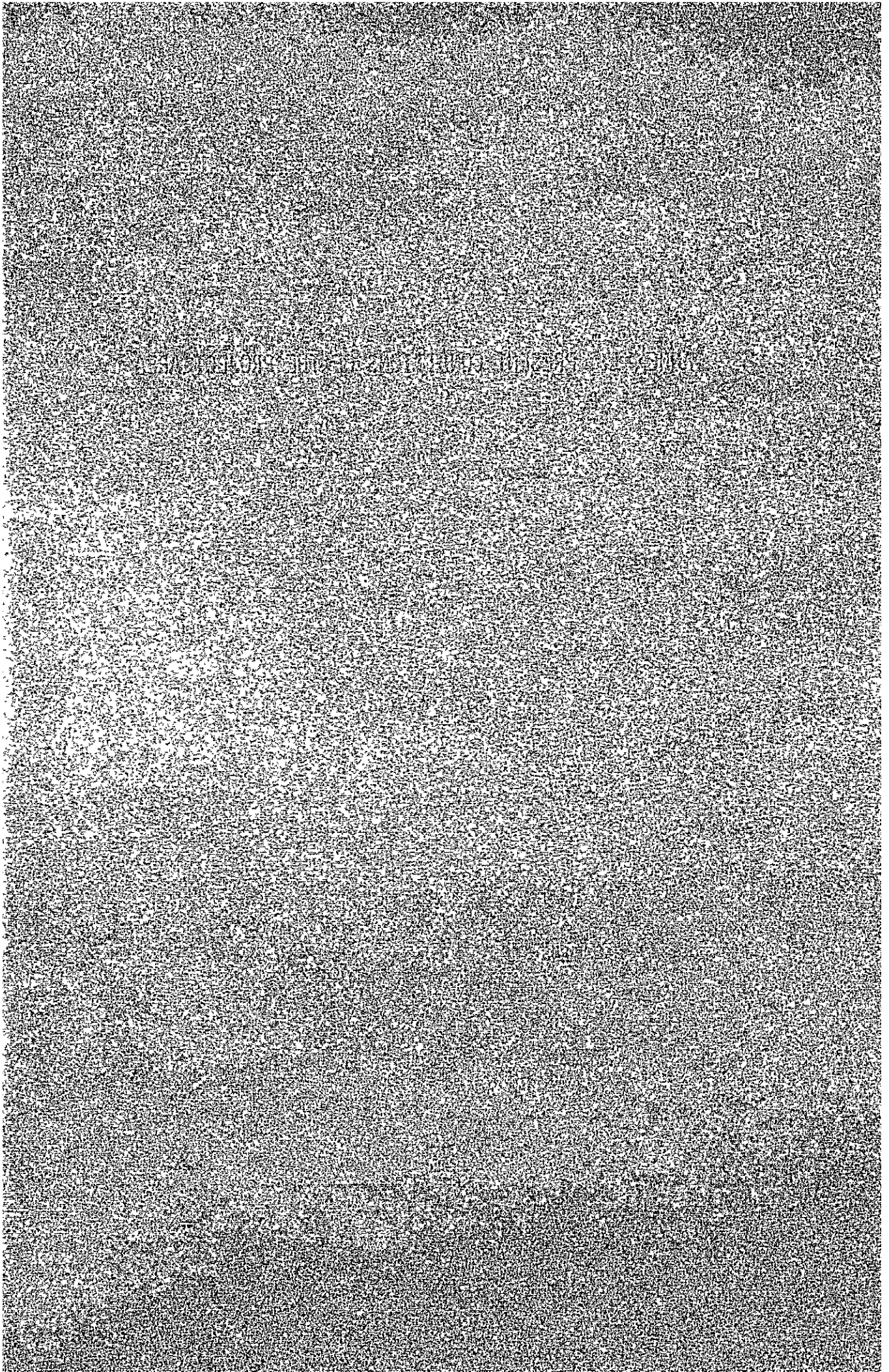
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ANNEX I. PRESENT CONDITIONS OF THE PROJECT AREA



ANNEX L PRESENT CONDITIONS OF THE PROJECT AREA

1.1 Climate and Hydrology

Table 1-1 Meteorological Data in Dacca (1967-1976. Average)

Item Month	Rainfall inches	Temperature of		Relative Humidity %		Evaporation inches	Sunshine Hr. Hr.	Wind Velocity Knots			
		Mean Max.	Mean Min.	6:00 AM	6:00 PM			6:00 AM	6:00 PM		
Jan.	0.16	77.3	65.7	54.1	91	75	58	75	0.5	1.4	0.9
Feb.	0.42	82.6	70.7	58.7	87	67	47	67	0.7	2.0	1.1
Mar.	3.01	90.2	79.2	68.2	86	67	48	67	1.6	2.6	2.4
Apr.	4.21	94.0	83.8	73.6	90	73	61	76	2.8	4.2	4.6
May.	11.17	91.1	84.6	78.1	92	77	72	82	2.4	3.7	4.0
Jun.	13.90	88.7	83.4	78.1	94	85	80	87	2.8	3.8	3.6
Jul.	16.73	86.5	82.5	78.5	94	86	83	89	2.8	3.7	3.7
Aug.	14.34	87.1	82.7	78.3	94	87	82	88	2.3	3.3	3.3
Sep.	9.10	83.3	80.8	78.2	94	83	81	88	1.6	2.9	2.2
Oct.	6.08	87.4	81.2	74.9	94	79	76	85	0.6	2.0	1.3
Nov.	1.24	83.5	74.4	65.2	93	76	68	81	0.4	1.7	0.9
Dec.	0.34	78.4	67.0	55.6	90	76	64	77	0.4	1.4	0.7
Annual	80.70										47.87

Table 1-2 Meteorological Data in Narayanganj (1967-1976 Average)

Item Month	Rainfall inches	Temperature of		Relative Humidity %		Evaporation inches	Sunshine Hr. Hr.	Wind Velocity Knots			
		Mean Max.	Mean Min.	6:00 AM	9:00 AM			6:00 PM	9:00 PM		
Jan.	0.29	81.0	68.9	56.7	88	69	64	74	0.6	1.0	0.9
Feb.	0.33	84.3	72.5	60.7	85	66	58	70	0.7	1.5	1.1
Mar.	2.93	89.9	78.9	67.9	87	69	61	72	1.3	1.8	2.4
Apr.	4.95	92.5	83.5	74.5	89	73	70	77	1.9	2.7	4.6
May.	8.84	92.1	84.5	76.8	90	77	77	81	1.8	2.5	4.0
Jun.	15.02	88.8	83.5	78.2	92	84	83	86	2.0	2.4	3.6
Jul.	16.62	87.8	83.3	78.7	91	84	83	86	2.1	2.9	3.7
Aug.	15.56	87.9	83.5	79.0	90	83	81	85	2.3	2.9	3.3
Sep.	11.93	89.6	84.5	79.3	90	81	80	84	2.0	2.2	2.2
Oct.	5.49	89.7	83.0	76.2	90	76	75	80	1.3	1.4	1.3
Nov.	2.02	87.2	77.9	68.6	88	74	69	77	0.7	1.3	0.9
Dec.	0.51	83.2	71.0	58.7	87	70	64	74	0.5	1.7	0.7
Annual	84.49										

Table 1-3 Monthly Rainfall in inches

Year	Station: Dacca												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1967	0.68	0.03	6.60	2.85	6.32	9.48	14.23	19.44	10.94	2.88	0.02	0.01	73.48
1968	0	0.02	4.74	3.05	8.35	19.43	18.97	10.02	4.98	2.70	2.14	0	74.40
1969	0	0.05	2.60	3.39	3.72	9.81	11.92	20.95	7.90	4.04	1.28	0	65.66
1970	0.60	0.30	1.47	1.76	7.93	11.47	19.65	9.97	7.82	18.85	1.23	0	81.05
1971	0.10	1.08	-	-	14.89	12.33	21.76	21.52	12.50	4.66	3.28	0	
1972	0	0.47	0.49	9.76	13.32	13.88	6.23	14.83	4.38	4.16	0	0	67.52
1973	0	0.82	2.19	5.04	24.00	16.23	11.29	10.07	13.76	4.99	2.62	3.39	94.40
1974	0.15	0	3.92	6.31	9.31	11.10	27.76	13.35	8.89	6.13	0.06	0	86.98
1975	0.03	1.14	0.51	4.38	10.66	10.63	22.52	8.06	13.36	7.97	1.49	0	80.75
1976	0	0.29	4.57	1.32	13.15	24.62	12.93	15.22	6.48	4.46	0.32	0	83.36
(mm)	(4)	(11)	(76)	(107)	(284)	(353)	(425)	(364)	(231)	(154)	(31)	(9)	(2,049)
Mean	0.16	0.42	3.01	4.21	11.17	13.90	16.73	14.34	9.10	6.08	1.24	0.34	80.67 ⁿ

Table 1-4 Monthly Rainfall in inches

Station: Narayanganj

Year	Month												Total
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
1967	1.56	0	8.42	3.92	5.05	6.43	13.40	20.05	12.90	2.17	0	0	73.90
1968	0	0.01	1.78	2.63	8.44	20.01	19.39	9.88	2.52	1.41	3.79	0	69.80
1969	0	0	4.69	8.15	8.74	14.62	10.07	16.07	8.05	5.34	1.34	0	77.07
1970	1.25	0.19	2.59	5.04	6.96	11.85	10.49	10.97	8.45	12.52	3.31	0	73.62
1971	0.12	0.57	0	-	-	12.88	15.75	22.59	12.32	2.95	4.43	0	-
1972	0	0.89	0.86	8.30	4.83	17.49	7.61	14.43	5.98	2.53	0	0	62.92
1973	0	1.24	2.43	6.84	20.49	16.91	19.55	8.47	20.28	5.78	3.25	5.14	110.38
1974	0	0	4.19	6.08	10.23	9.36	25.42	15.45	8.55	5.09	0.24	0	84.61
1975	0	0.42	0	2.83	7.10	11.75	27.28	9.03	12.36	13.78	3.46	0	88.01
1976	0	0	4.29	0.73	7.70	19.57	17.81	17.53	7.63	3.21	0.34	0	78.81
(mm) Mean	0.29	0.33	2.93	4.95	8.84	14.09	16.68	14.45	9.90	5.48	2.02	0.51	(2,043) 80.47 ⁿ

Table 1-5 Monthly Rainfall in inches

		Station: Narsingdi												
Month	Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
	1964~1965	'65 0	0.69	1.55	'64 13.10	12.73	20.44	35.91	8.79	21.73	16.98	2.09	0	134.01
	1966	'66 0.46	0	0.24	'65 0.98	6.06	25.29	23.13	27.78	22.86	2.60	2.34	0.23	111.97
	1967	1.07	0	3.16	10.25	6.77	23.40	12.01	22.87	19.45	15.13	2.45	0.99	117.55
	1968	0.21	0.27	2.22	7.93	7.65	20.95	19.11	15.41	22.18	4.58	0	0	100.51
	1969	0.12	0	7.96	8.23	10.41	23.16	16.06	15.52	10.48	1.06	1.29	0	94.29
	1970	0.58	0.16	1.45	16.35	2.43	29.67	24.33	21.81	17.81	5.19	2.09	0	121.87
	1971	0.48	0.38	0	5.31	10.50	11.02	23.64	22.67	12.55	18.74	0.72	0	106.01
	1972	0	1.14	0.92	3.65	15.27	31.88	20.21	35.84	6.00	2.95	2.70	0	120.56
	1973	0.58	3.65	2.25	12.42	15.80	23.21	13.29	19.18	9.97	2.23	0	0	102.58
	1974	0.12	0	4.28	6.33	34.45	26.25	20.86	17.57	14.85	6.31	2.86	6.53	140.41
	1974~1975	0	0.46	0.21	12.26	13.63	11.80	36.25	14.33	11.33	2.84	0.12	0	103.23
	Mean	0.33	0.61	2.20	8.80	12.34	22.46	22.25	20.16	15.38	7.15	1.51	0.70	113.89

Table 1-6 Monthly Rainfall in inches

Station: Kaliganj

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1964-1965	'65	0	0.26	1.58	10.16	11.94	10.19	23.94	4.93	14.41	16.13	0.97	0	94.51
	'64				10.16									
1966		0.46	0	0.64	2.13	8.00	20.05	10.15	20.74	20.23	2.95	2.11	0	87.46
1967		1.09	0	3.70	3.07	3.03	12.82	13.67	11.08	18.23	8.44	1.50	0.73	77.36
1968		0	0.44	0.86	3.90	6.70	12.10	11.31	18.21	10.09	1.36	0	0.01	64.98
1969		0.10	0	2.61	3.95	7.00	17.65	17.18	10.12	8.82	1.91	0.71	0	70.05
1970		0.86	0.21	0.93	9.12	2.75	12.46	13.13	17.97	8.08	3.97	3.09	0	72.57
1971		0.04	0.29	1.38	3.37	8.74	9.62	18.58	10.94	5.31	14.67	0.39	0	73.33
1972		0	0.44	0.74	0	8.51	11.83	16.28	16.37	11.36	5.22	3.33	0	74.08
1973		0.46	3.71	1.34	4.50	8.10	7.79	7.29	5.10	5.70	3.41	0	0	47.40
1974		0	0	3.10	4.30	10.64	10.12	18.78	5.72	15.07	4.84	4.51	2.60	79.68
1975		0	0	0	11.16	4.75	9.37	34.44	19.22	12.47	2.12	0	0	93.53
Mean		0.27	0.49	1.53	5.06	7.29	12.18	16.80	12.76	11.80	5.91	1.51	0.30	75.90

Table 1-7 Monthly Rainfall in inches

Station: Bancharanpur

Year	Month	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1965-1966	'66	0	0	0.52	3.57	4.87	16.07	16.98	19.05	14.28	2.81	3.36	0.22	81.73
	'67	0.80	0	5.68	5.77	0.71	16.52	13.02	18.46	26.41	8.88	1.28	0.00	97.53
1968		0	0	1.65	3.91	8.81	9.60	15.56	19.83	14.10	4.28	0	0	77.74
1969		0	0	2.36	2.71	7.66	13.64	17.75	5.57	2.56	1.66	2.10	0	56.01
1970		1.07	0.06	0.65	14.99	1.32	13.26	19.25	12.25	7.88	1.88	1.42	0	74.03
1971		0	0.87	2.22	4.84	4.47	9.04	11.17	12.12	11.13	13.99	4.31	0	74.16
1972		0	0.60	0	9.11	12.54	5.62	15.13	9.10	3.12	0.43	0	0	55.65
1973		0	1.10	1.32	2.63	1.17	11.59	9.38	6.92	2.70	0.67	0.25	0	37.73
1974		0	0	1.81	1.12	20.63	11.85	19.44	15.48	6.52	2.72	0.88	4.65	85.10
1975		0	0	0.32	2.04	6.13	21.53	23.78	23.68	9.91	2.56	4.20	0	94.15
Mean		0.19	0.26	1.65	5.07	6.83	12.87	16.15	14.25	9.86	3.99	1.78	0.49	73.39

Table 1-8 Highest Max. and Lowest Min. Temperature 1967-1976 10 years

Station	Dacca		Narayanganj	
	Highest Max. °F	Lowest Min. °F	Heighest Max. °F	Lowest Min. °F
Jan.	86	45	90	48
Feb.	94	45	95	49
Mar.	99	54	99	58
Apr.	102	60	101	62
May	104	65	103	68
June	99	70	97	71
July	96	74	99	74
Aug.	94	74	98	74
Sep.	95	73	98	71
Oct.	93	63	98	63
Nov.	90	53	96	58
Dec.	88	44	94	49

Table 1-9 Monthly Evaporation : Dacca

Year	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Total/Year
1964/65	8.50	7.64	5.72	5.78	6.14	4.88	3.96	3.60	3.04	2.22	4.08	7.06	62.62
1965/66	8.25	12.82	5.64	4.96	4.96	6.29	4.21	4.62	3.06	3.23	4.86	8.82	71.72
1966/67	11.00	10.18	6.30	6.59	5.12	4.76	4.01	3.70	2.73	3.38	3.94	5.84	67.55
1967/68	6.04	6.18	4.75	4.71	3.99	3.05	3.82	3.48	2.36	2.65	3.34	5.17	49.54
1968/69	4.43	5.13	2.59	3.61	3.03	3.36	3.30	2.55	2.13	2.29	3.11	4.50	40.03
1969/70	5.06	4.63	2.91	3.40	3.19	3.75	2.96	2.49	1.97	2.02	2.79	4.35	39.52
1970/71	4.40	4.90	3.47	2.58	2.47	2.27	2.37	2.32	2.05	1.79	2.52	4.41	35.55
1971/72	2.83	4.40	2.57	3.73	2.14	3.23	-	2.16	-	-	-	-	-
1972/73	5.83	5.71	4.68	3.07	3.00	3.27	3.33	2.28	1.98	2.18	3.23	4.64	43.20
1973/74	5.44	2.91	3.12	3.09	3.05	2.70	2.90	2.33	1.79	1.59	2.81	4.64	36.37
1974/75	4.14	3.89	2.49	2.41	2.34	2.20	2.55	1.92	2.00	2.06	2.61	3.92	32.53
Mean	160	163	106	102	95	93	85	74	59	59	85	136	1,217
mm	6.31	6.40	4.17	4.02	3.73	3.65	3.34	2.93	2.31	2.34	3.33	5.34	47.87
in													

Table 1-10 Mean Monthly Sun-Shine Hours : Dacca
(Latitude 23°46'N, Longitude 90°23'E)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	Mean
Jan.	8.0	8.3	9.2	9.0	8.4	-	9.9	9.9	9.6	9.5	9.1
Feb.	8.2	8.4	8.8	9.2	9.9	-	9.3	10.9	9.6	9.5	9.3
Mar.	7.7	7.9	7.9	8.9	11.0	-	9.0	9.2	9.6	10.1	9.0
Apr.	8.4	8.1	8.2	8.8	-	-	9.2	10.0	10.2	10.0	9.1
May	9.1	8.1	9.6	8.9	-	-	6.8	8.2	8.7	8.4	8.5
June	6.5	4.0	4.8	5.6	-	-	5.2	5.8	7.3	4.6	5.5
Jul.	6.0	5.7	5.4	4.5	-	-	6.3	2.6	4.6	5.8	5.1
Aug.	5.7	5.5	5.3	6.3	-	-	6.8	5.7	7.1	5.7	6.0
Sep.	4.7	6.0	6.3	5.8	-	-	5.7	6.1	5.4	8.6	6.1
Oct.	8.0	6.7	8.2	7.2	-	-	7.7	7.6	6.2	9.2	7.6
Nov.	9.8	8.3	8.9	9.0	-	7.7	7.6	8.5	8.4	7.8	8.4
Dec.	8.6	8.5	8.8	10.2	-	9.9	9.4	9.8	9.6	8.9	9.3

Table 1-11 Maximum Wind Velocity

(Unit : Knots)

Station Year Month	Dacca							Narayanganj						
	1967	1968	1969	1970	1971	1972	1973	1967	1968	1969	1970	1971	1972	1973
Jan.	-	NW 5	SW 17	NW 15	V 14	N 12	W 6		NW 4	SW 17	NW 3	V 2	V 2	V 2
Feb.	-	S 9	N/NW9	W 28	S 13	SW 22	N 60		S 3	N/NW9	V 2	V 2	NE 3	V 10
Mar.	-	SW 43	W 30	W 75	-	SE 13	NW 20		NW 6	W 30	S 4	S 9	V 4	SE 5
Apr.	-	NW 60	NE 17	NW 65	-	E 60	W 60		S 12	NE 17	SE 7	-	V 8	SW 14
May	-	NE 65	V 9	NW 40	NW 50	SW 40	W 40		NE 9	V 9	V 6	-	S 10	V 4
Jun.	-	V 9	S 13	V 20	E 25	N 29	N 13		ESE 7	S 13	V 6	V 5	V 4	SE 3
Jul.	-	SW 31	V 9	SSW28	V 25	SE 42	-		SE/SW16	V 9	SE 9	SW 3	SE 9	-
Aug.	S 13	S/SW 9	E 13	SSW18	SSE20	SE 26	-	SE 6	E/SE5	E 13	V 3	SE 12	SE 23	-
Sep.	SE13	S 13	S 17	SSE29	V 13	ESE20	-	SSE10	SE 3	S 17	SE 4	SE 12	SE 3	-
Oct.	-	SE 13	E 13	SSE90	SE 20	SE 18	-	E 10	SE 6	E 13	V 7	SE 10	V 3	-
Nov.	N 9	NNE 12	SW 5	NNE40	NE 20	NW 15	-	NW 2	NW 3	SW 5	NNW 6	V 5	V 2	-
Dec.	N/NW5	N 5	V 5	V 10	-	V 10	-	NW 3	NW 3	V 5	-	-	V 2	-

Table 1-12 Wind Direction : Dacca 1961~1970 Average

	9:00 AM								6:00 PM							
	N	NE	E	SE	S	SW	W	NW	N	NE	E	SE	S	SW	W	NW
Jan.	7	2	1	1	0	1	1	6	2	0	0	0	1	1	4	4
Feb.	4	2	1	1	2	5	1	3	1	0	0	1	1	2	3	3
Mar.	2	1	2	3	4	8	4	2	1	1	1	1	6	5	3	2
Apr.	1	1	2	5	12	6	1	0	0	1	2	4	14	4	1	1
May	0	1	3	7	10	6	1	1	0	1	2	6	13	3	0	0
Jun.	0	1	2	14	8	3	0	0	0	1	1	9	13	2	0	0
Jul.	0	0	1	13	7	6	1	6	0	0	1	9	13	4	0	0
Aug.	0	0	2	12	8	5	0	0	0	0	0	10	12	5	0	0
Sep.	1	0	2	11	5	4	1	0	0	0	1	7	6	7	1	1
Oct.	4	4	3	3	1	2	0	3	1	1	1	2	1	0	1	3
Nov.	7	3	2	0	1	1	0	4	2	1	0	1	0	0	1	2
Dec.	9	2	1	1	1	1	0	4	1	1	0	0	1	1	2	3

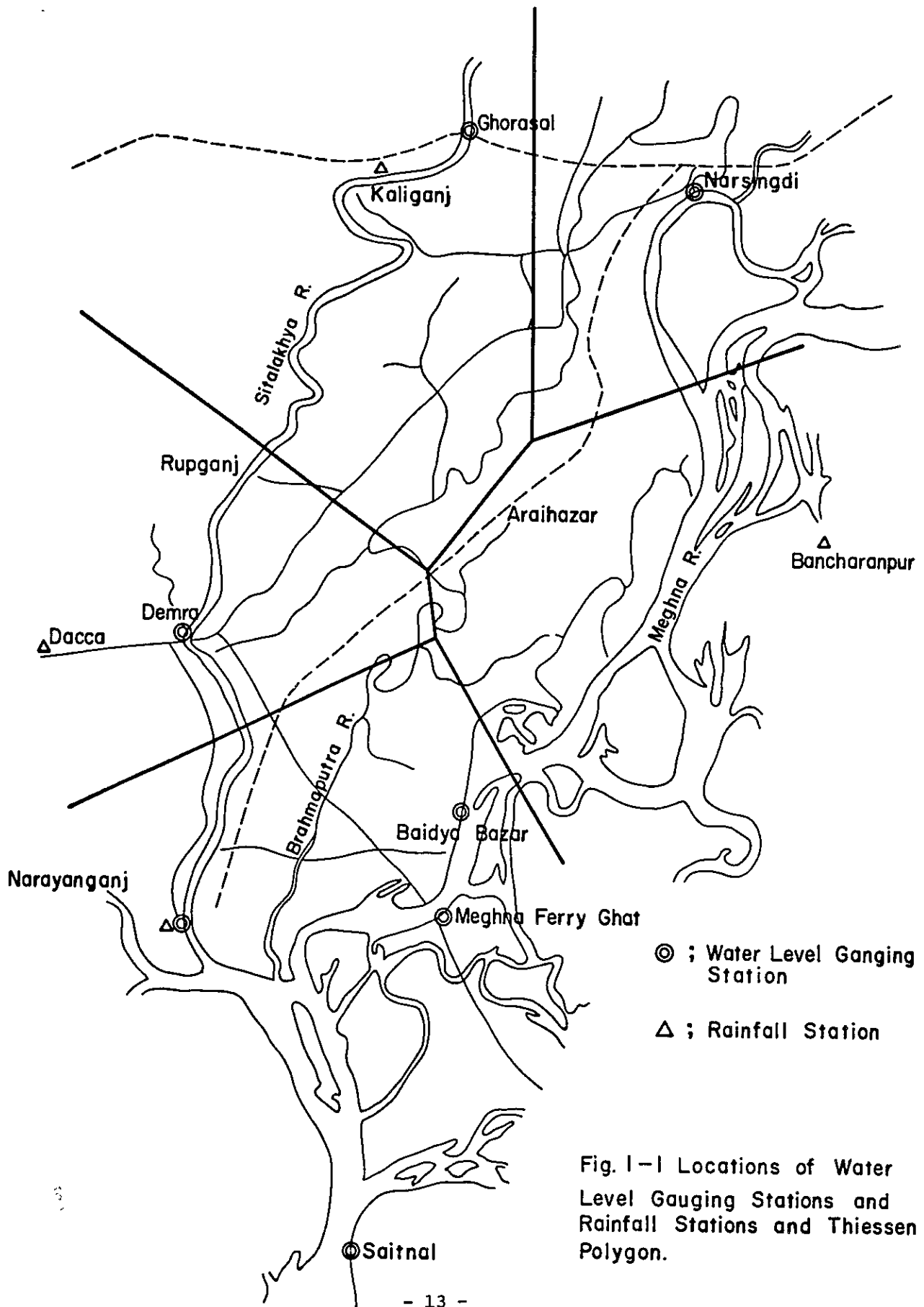


Fig. 1-1 Locations of Water Level Gauging Stations and Rainfall Stations and Thiessen Polygon.

Fig. 1-2 HIGH WATER LEVEL HYDROGRAPH AT GHORASAL (LAKHYA RIVER)

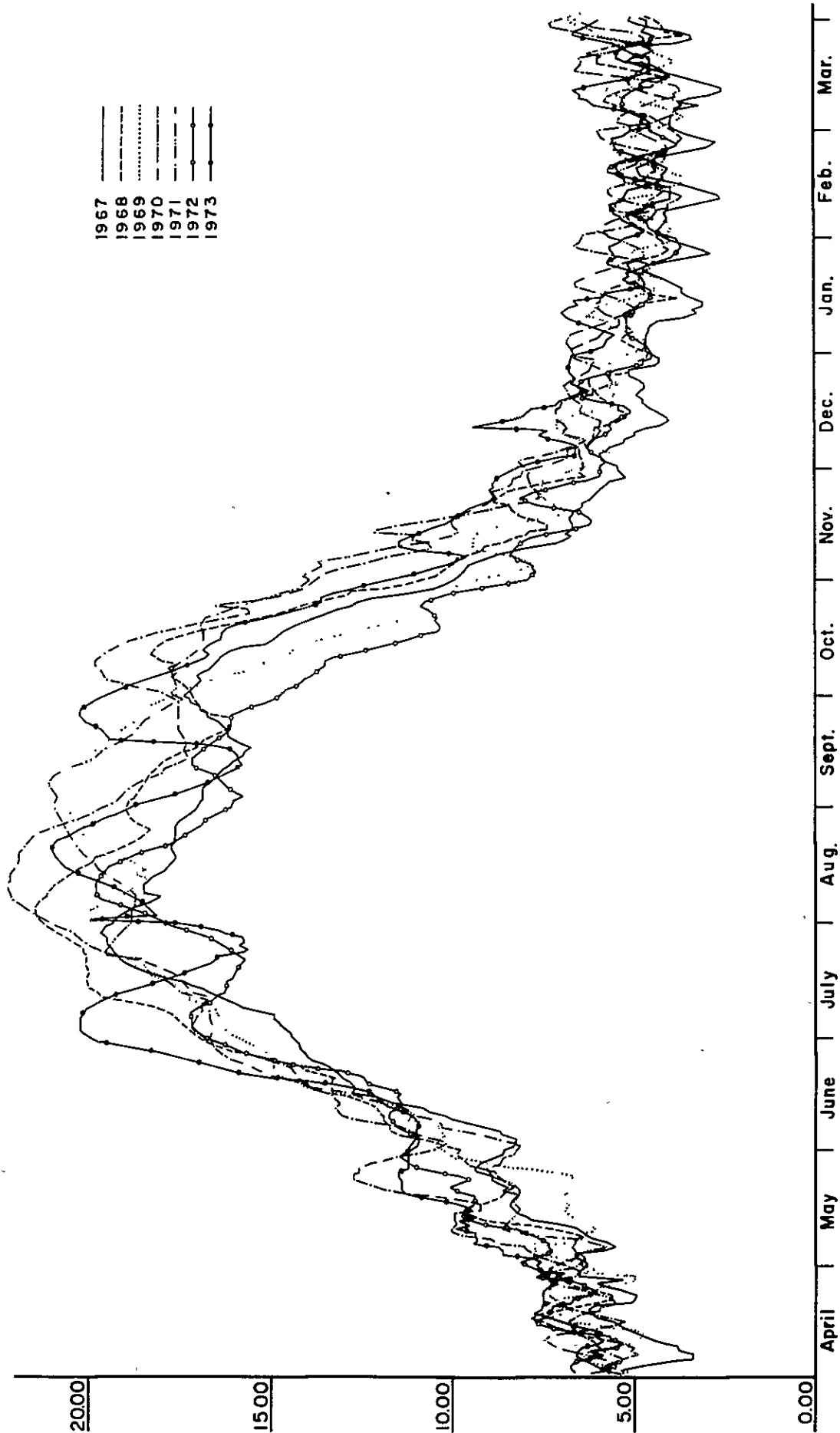


Fig. 1-3 HIGH WATER LEVEL HYDROGRAPH AT DEMRA (LAKHYA RIVER)

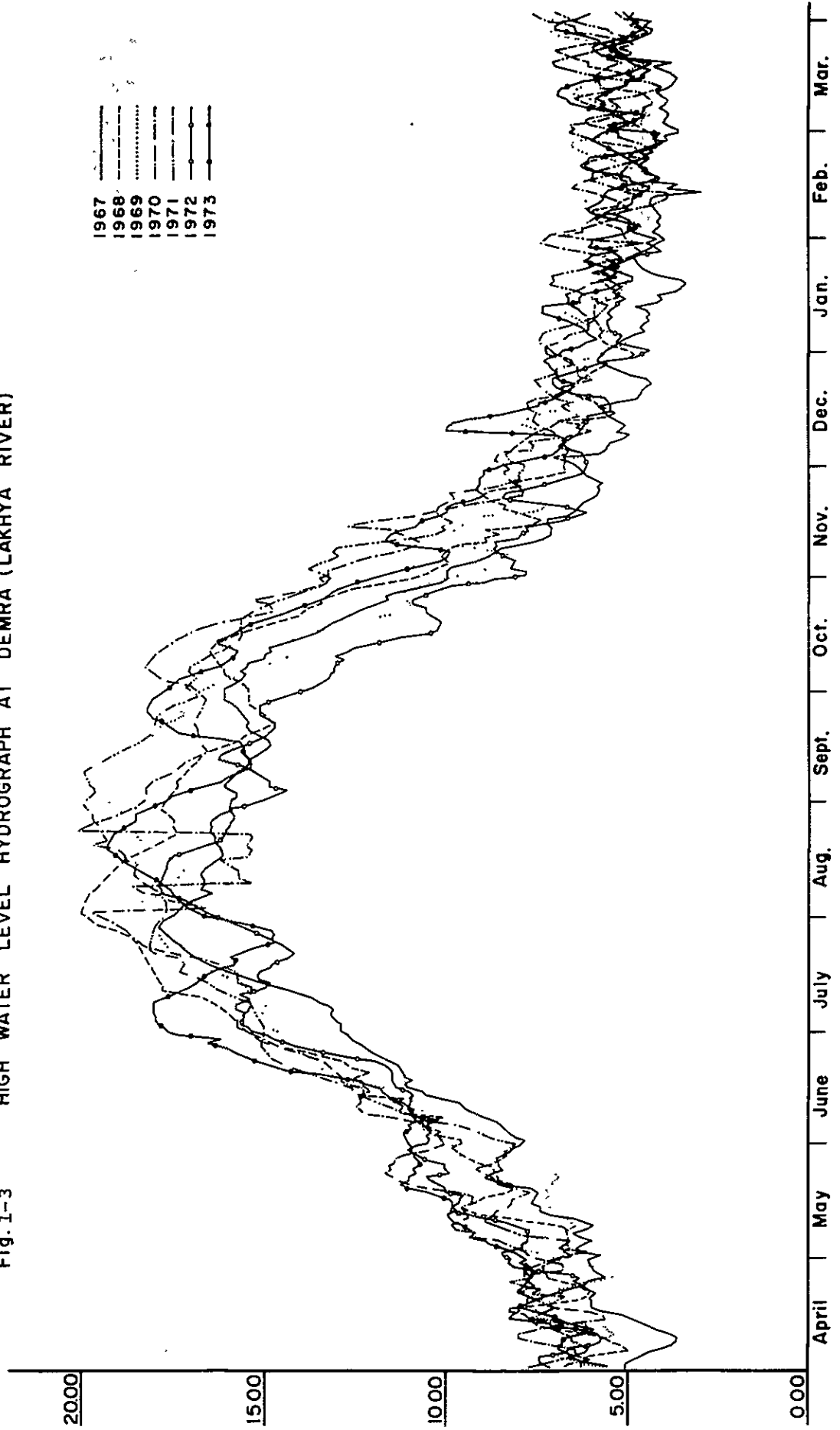
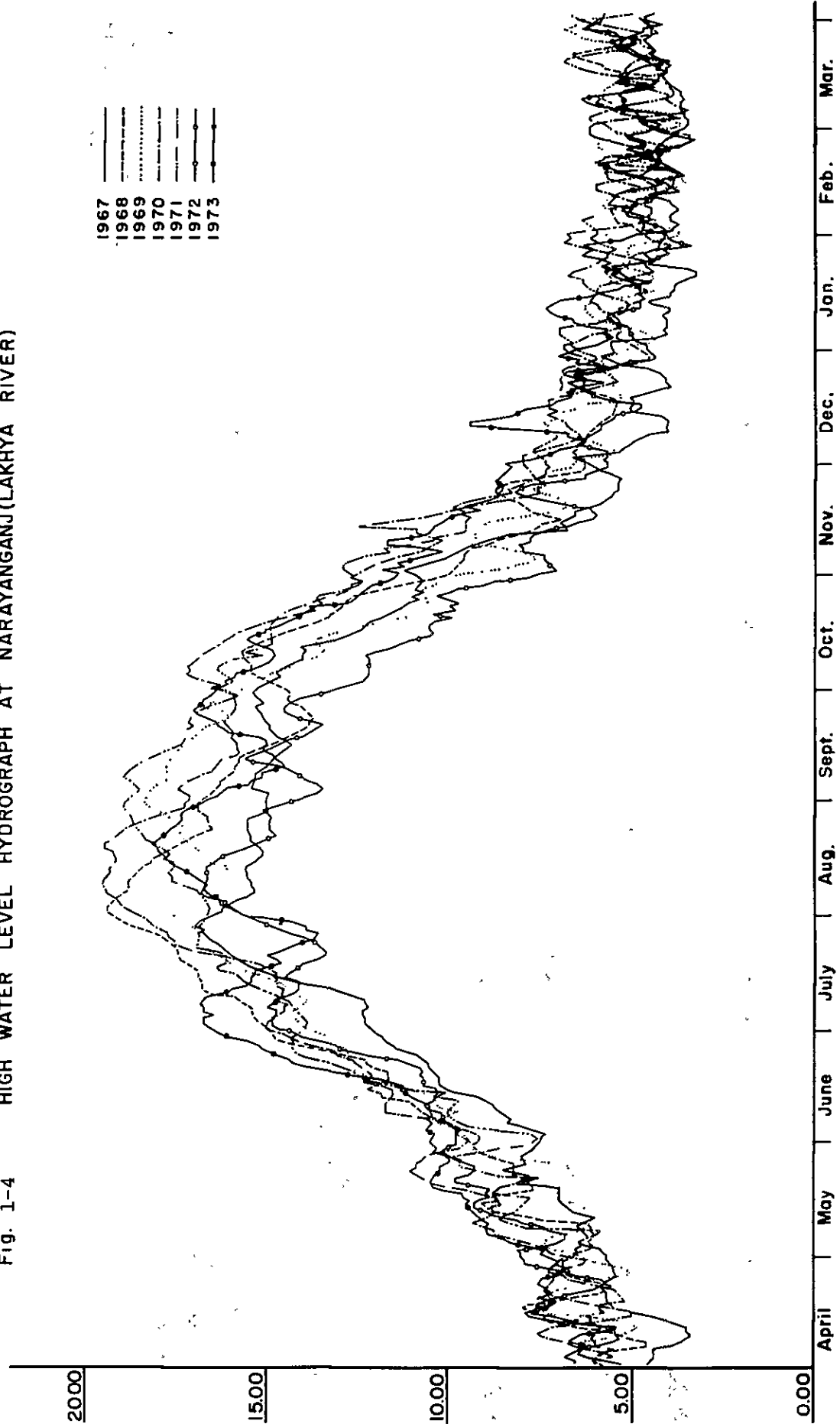


Fig. 1-4 HIGH WATER LEVEL HYDROGRAPH AT NARAYANGANJ(LAKHYA RIVER)



1967
 1968
 1969
 1970
 1971
 1972
 1973

Fig. 1-5 HIGH WATER LEVEL HYDROGRAPH AT NARSINGDI (MEGHNA RIVER)

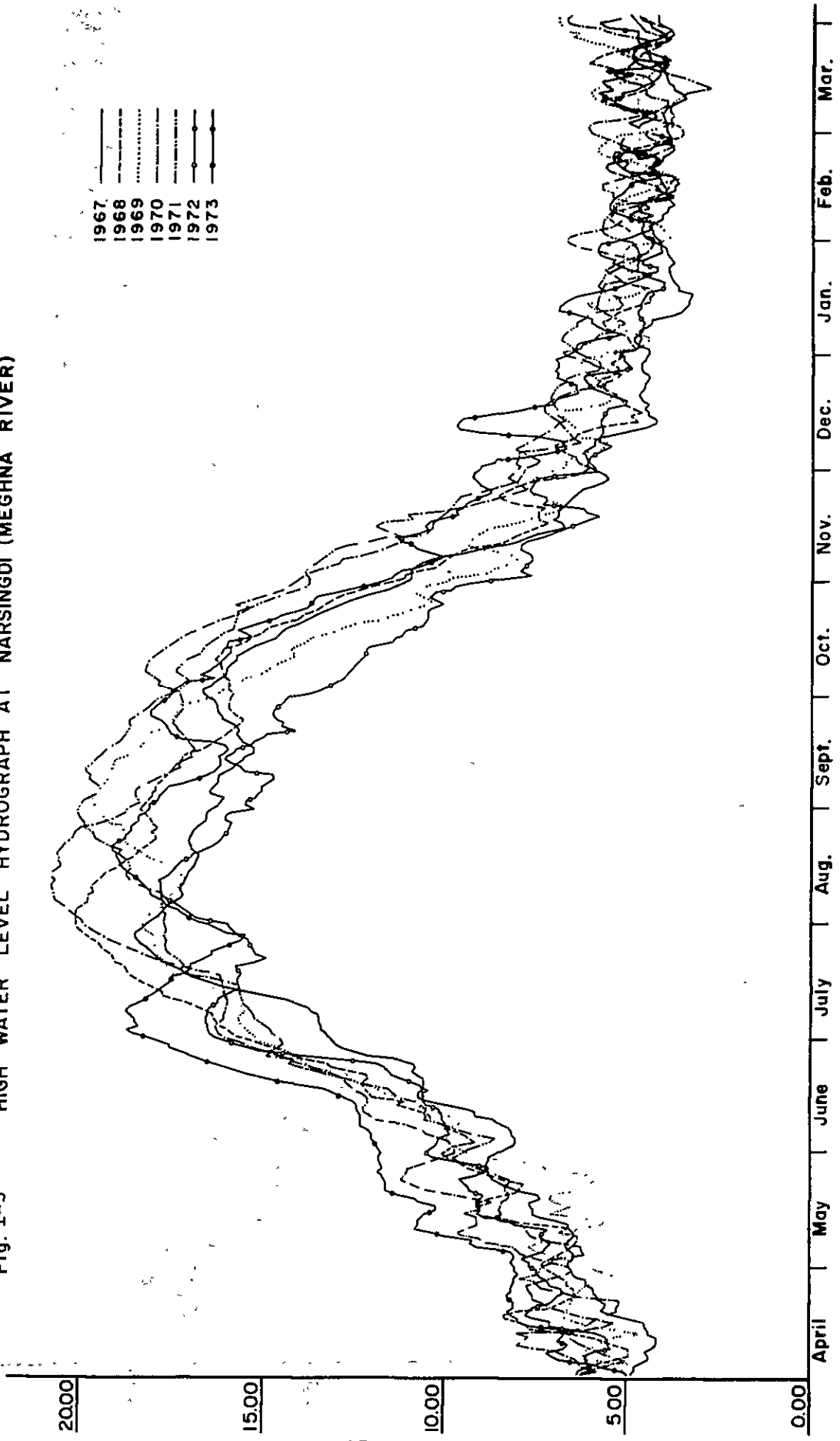


Fig. 1-6 HIGH WATER LEVEL HYDROGRAPH AT BAIDYA BAZAR (MEGHNA RIVER)

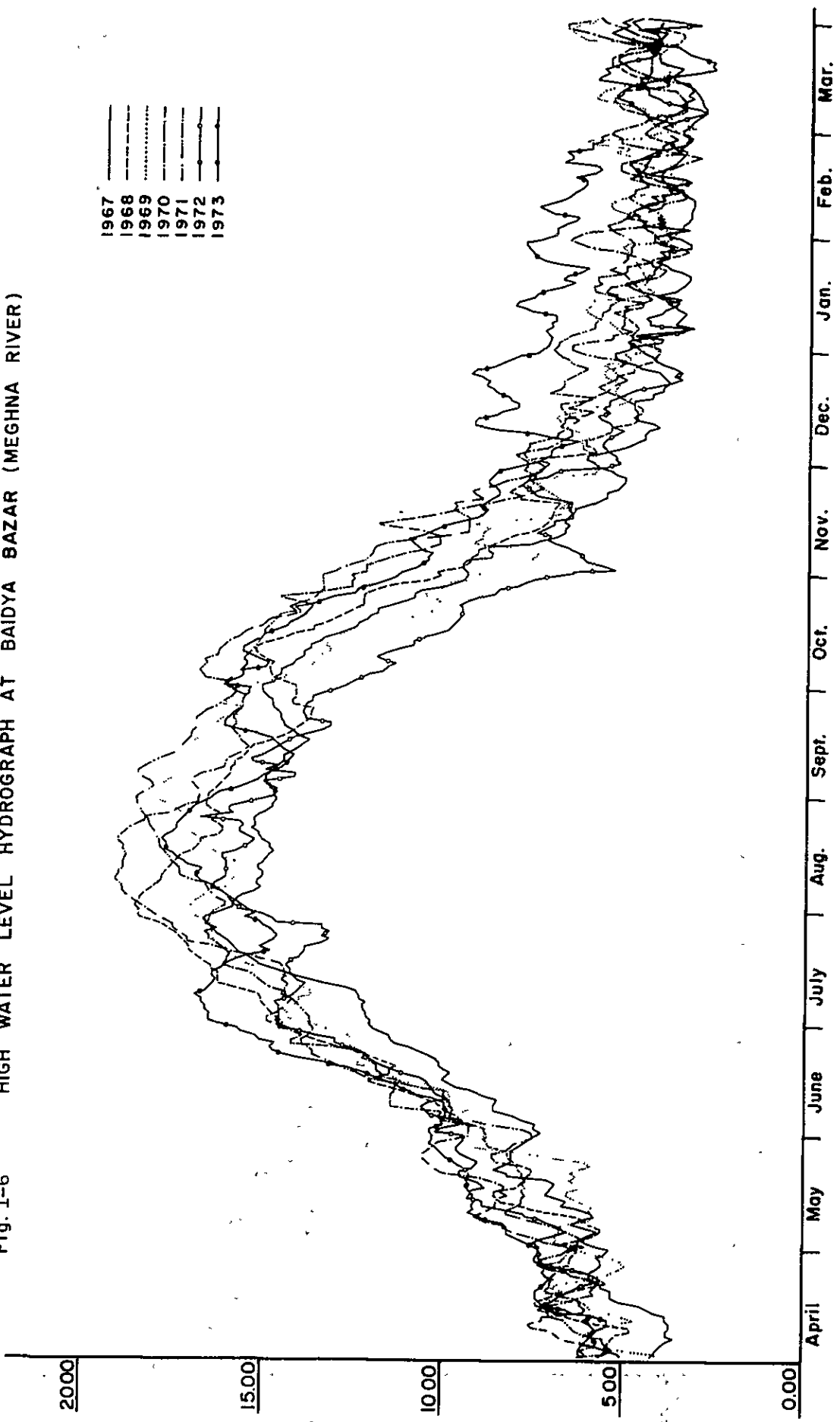
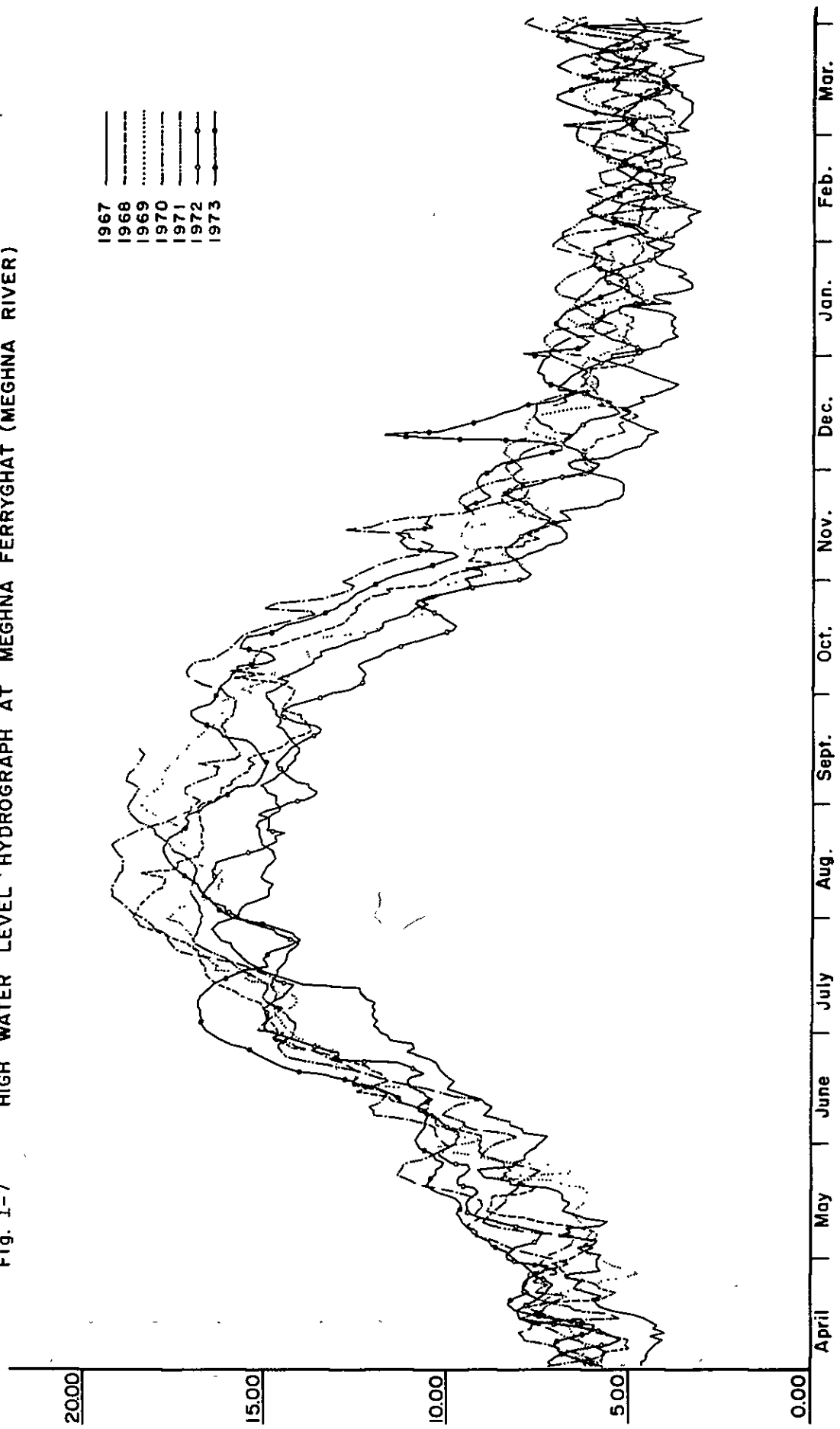
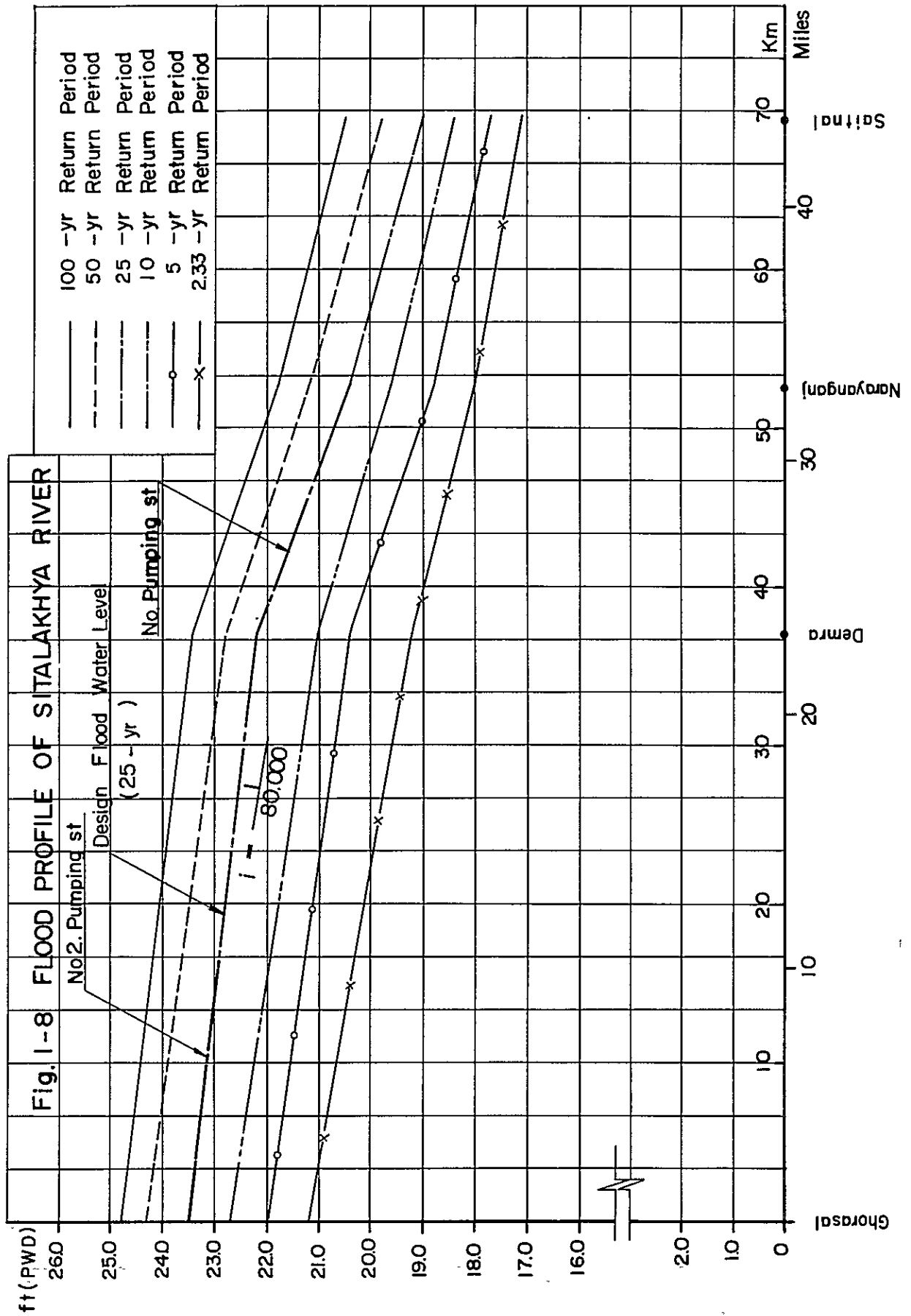
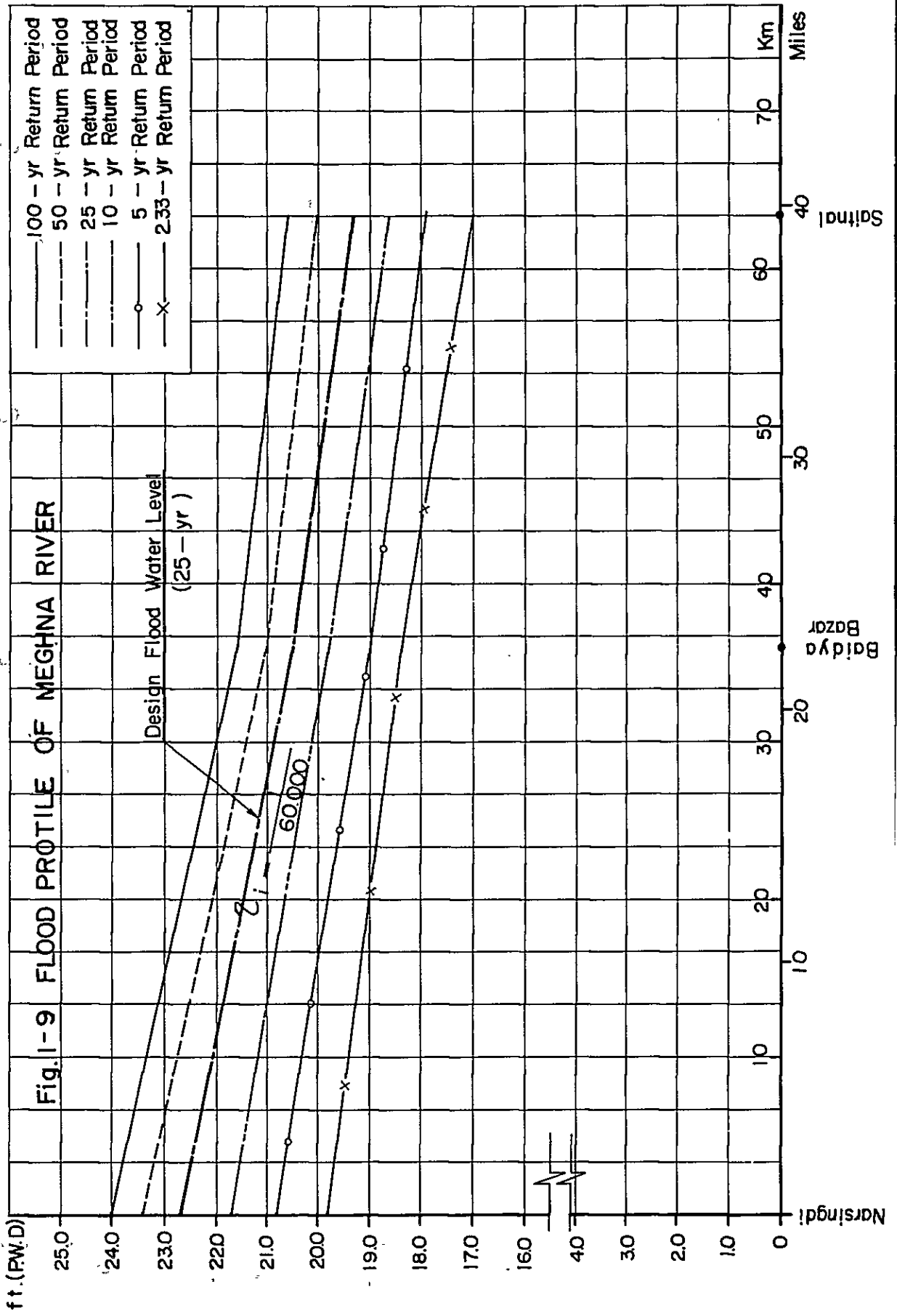
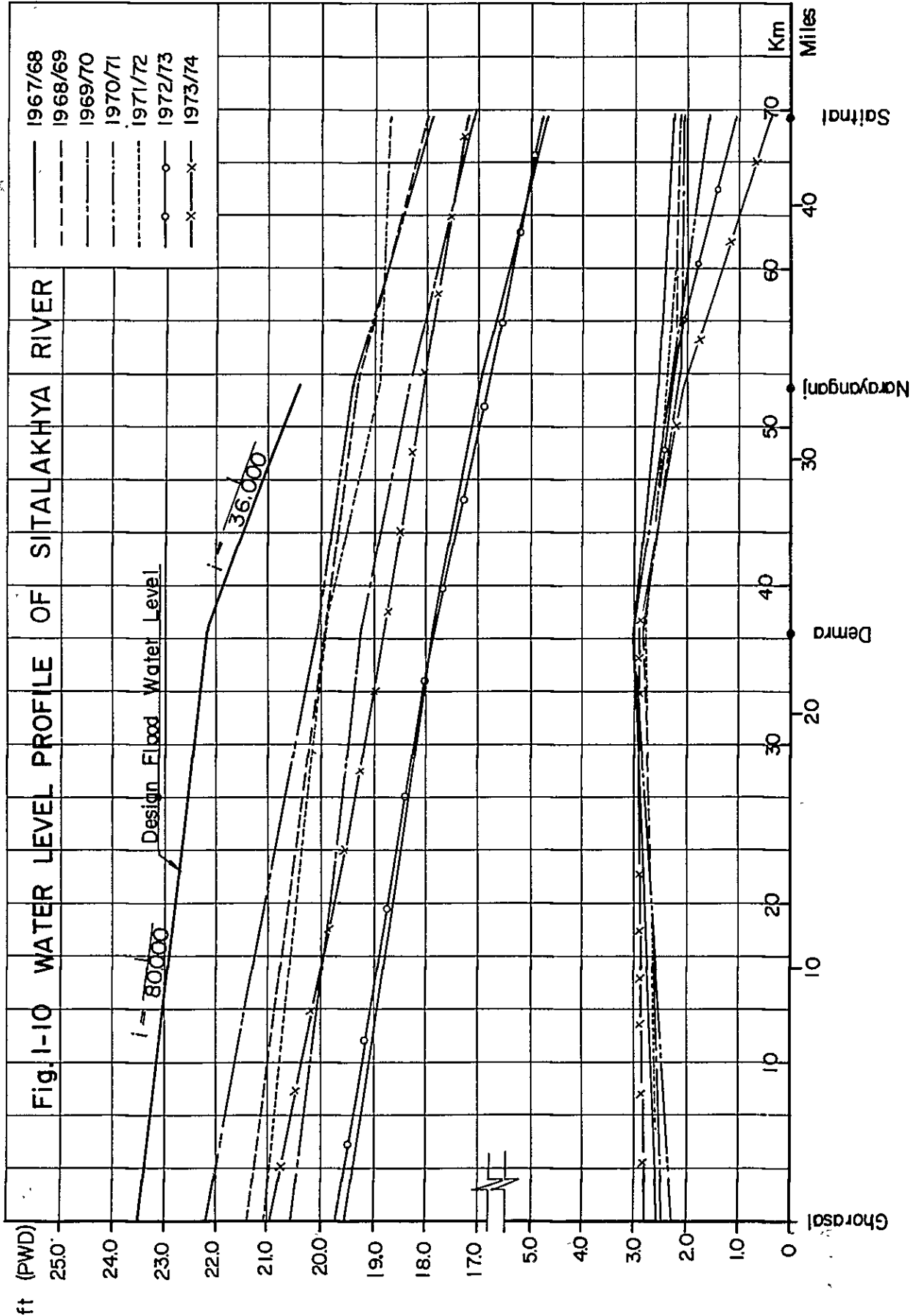


Fig. 1-7 HIGH WATER LEVEL HYDROGRAPH AT MEGHNA FERRYGHAT (MEGHNA RIVER)









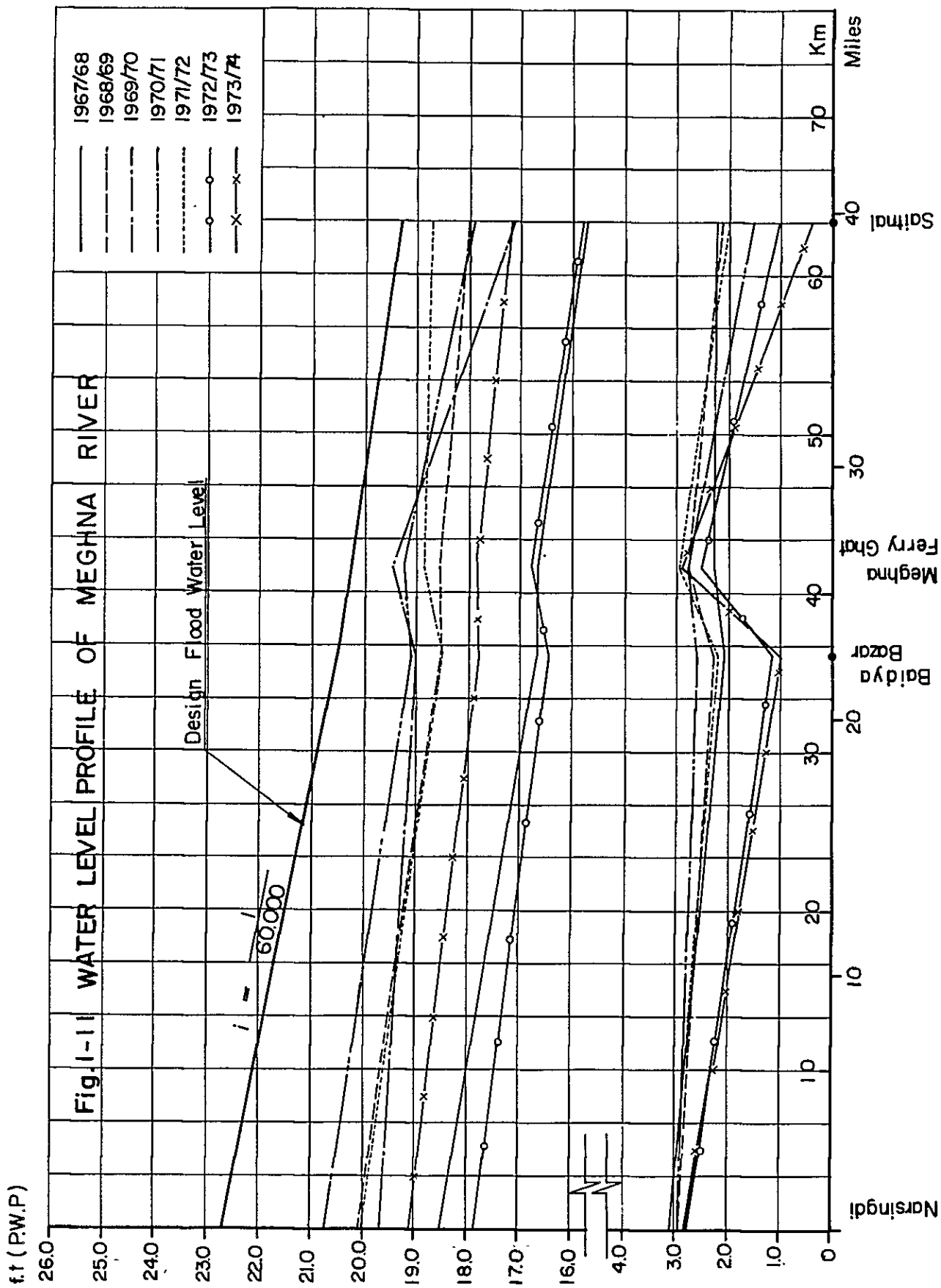


Fig. I-12 ANNUAL RAINFALL DURATION CURVE
(DATA 1906 - 1977)

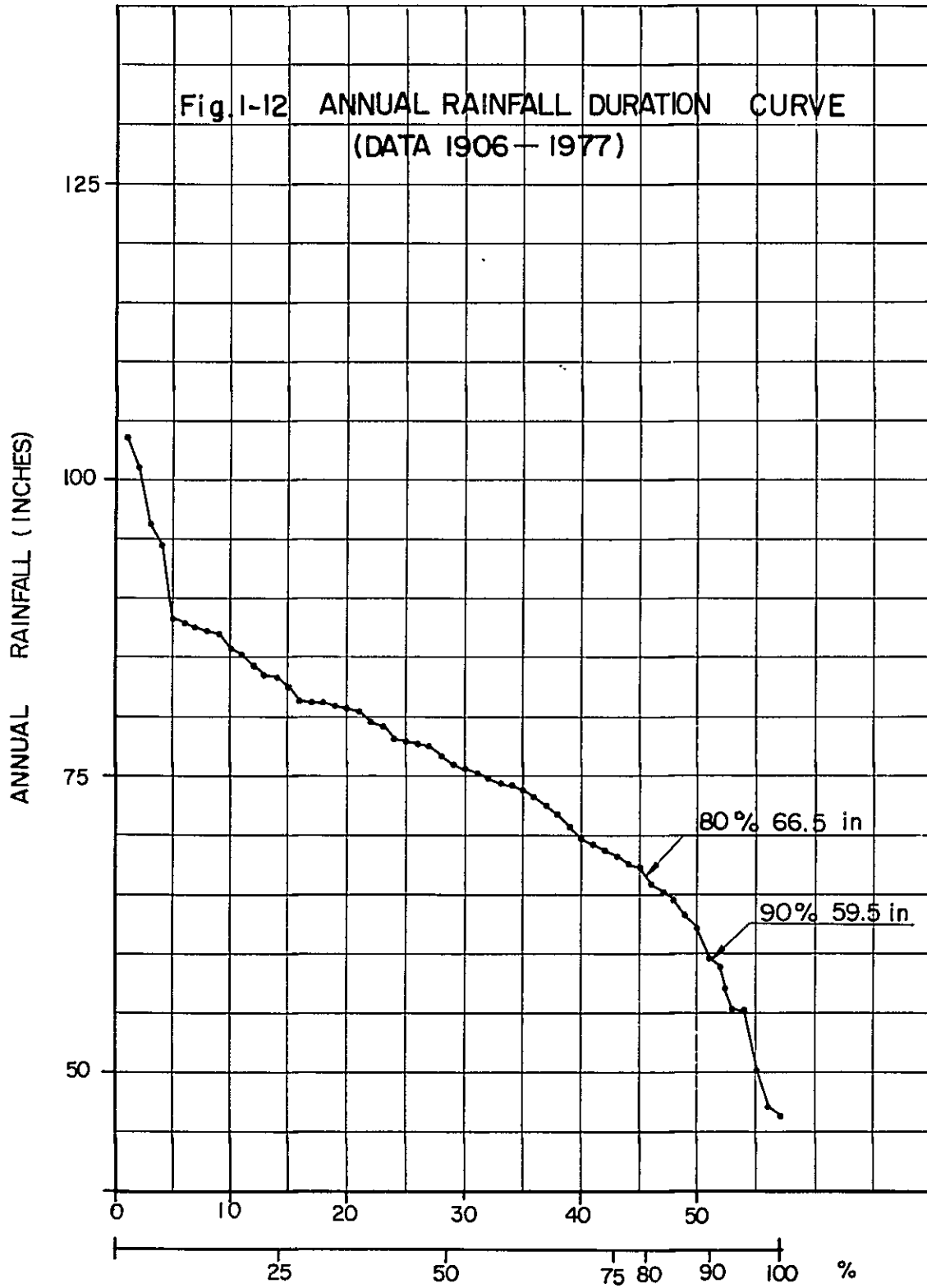


Fig. 1-13 SOIL PROFILE OF SITALAKHYA BRIDGE SITE

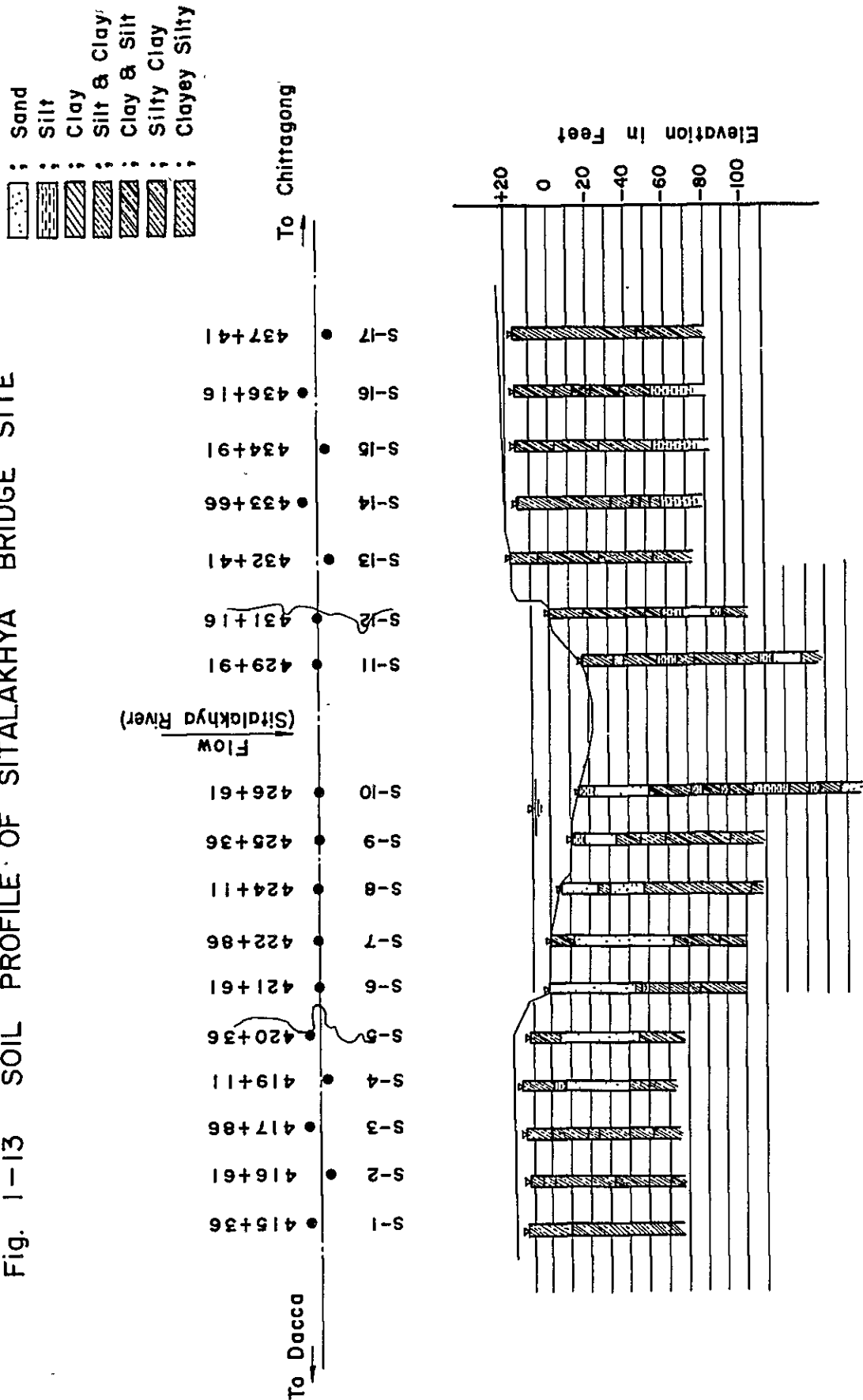


Fig. 1-14 FIELD BORE LOG IN THE PROJECT AREA
 LOCATION KALIGONJ GROUND LEVEL

SCALE	LITHOLOGY	THICKNESS FT. / IN.	DEPTH FT. / IN.
	Brownish grey sandy clay	10' - 00"	10' - 00"
	Brownish grey fine sand	9' - 00"	19' - 00"
	Brownish grey medium to fine sand	18' - 00"	37' - 00"
	Brownish grey medium sand	9' - 00"	46' - 00"
	Grey fine sand with silt	27' - 00"	73' - 00"
100'	Grey fine sand	46' - 00"	119' - 00"
	Grey sticky clay with boulders	9' - 00"	128' - 00"
	Bluish sticky clay	18' - 00"	146' - 00"
	White grey medium to coarse sand	34' - 00"	182' - 00"
	Brown grey medium sand with gravels	9' - 00"	191' - 00"
200'	Brown fine to medium sand	9' - 00"	200' - 00"
	Deep brown fine sand with silt	9' - 00"	209' - 00"
	Brownish grey medium sand	9' - 00"	218' - 00"
	Reclish brown medium to coarse sand	9' - 00"	227' - 00"
	Brown medium to fine sand	9' - 00"	236' - 00"
	Brown medium sand	18' - 00"	254' - 00"
	Light brown medium sand	18' - 00"	272' - 00"
	Light brown coarse sand	9' - 00"	281' - 00"
	Brown coarse sand	9' - 00"	290' - 00"
300'	Light brown medium sand with gravels	9' - 00"	299' - 00"
	Light brown medium to fine sand	9' - 00"	308' - 00"
	Deep brown coarse sand with gravels & little clay	18' - 00"	326' - 00"
400'			

Fig.1-15. FIELD BORE LOG IN THE PROJECT AREA

LOCATION ARAHAZAR

GROUND LEVEL 4'-00"

SCALE	LITHOLOGY	THICKNESS FT. / IH.	DEPTH FT. / IH.
	Muddy	10'-00"	10'-00"
	Deep gray plastic clay	18'-00"	28'-00"
	Gray fine sand trace silt	9'-00"	37'-00"
	Gray plastic clay	27'-00"	64'-00"
	Brownish gray plastic clay trace very fine sand	9'-00"	73'-00"
100'	Yrownish gray plastic clay trace very fine sand	27'-00"	100'-00"
	Brownish fine to medium sand trace little silt	27'-00"	127'-00"
	Gray plastic clay trace very fine sand	50'-00"	177'-00"
	Gray fine sand trace silt	8'-00"	186'-00"
200'	Gray meclium sand	38'-00"	222'-00"
	Light gray medium sand	27'-00"	249'-00"
	Brounish gray meclium to fine sand frace	27'-00"	276'-00"
300'	Broun medium sand	36'-00"	312'-00"
	Brounish medium to fine sand	18'-00"	330'-00"
400'			

Fig. I-16 FIELD BORE LOG IN THE PROJECT AREA

LOCATION NARSHINGI

GROUND LEVEL 1'-0"

SCALE	LITHOLOGY	THICKNESS FT. / IN.	DEPTH FT. / IN.
	Muddy	10' - 00"	10' - 00"
	Brownish grey muddy	9' - 00"	19' - 00"
	Black sticky clay	9' - 00"	28' - 00"
	Deep grey sticky clay	20' - 00"	48' - 00"
	Brownish clay	7' - 00"	55' - 00"
	Brownish sandy clay	27' - 00"	82' - 00"
100'	Brownish medium sand	22' - 00"	104' - 00"
	Assorted clay	5' - 00"	109' - 00"
	Deep grey sticky clay	36' - 00"	145' - 00"
	Grey sticky clay	18' - 00"	163' - 00"
	Assorted clay	9' - 00"	172' - 00"
	Brownish sandy clay	9' - 00"	181' - 00"
200'	Assorted fine sand	18' - 00"	199' - 00"
	Brown fine medium sand	31' - 00"	230' - 00"
	Brownish medium sand	28' - 00"	258' - 00"
	Brown fine sand	18' - 00"	276' - 00"
300'	Brown medium sand	27' - 00"	303' - 00"
	Brown coarse sand with gravel	59' - 00"	363' - 00"
	Brown coarse sand with gravel	18' - 00"	380' - 00"
	Deep brown medium sand	10' - 00"	390' - 00"
400'			

1.3 Present Irrigation Conditions

Since majority of the project area are flooded during the monsoon season, it is unnecessary to provide irrigation facilities, but during the dry season the river water levels fall paddy-field level. The low-lying areas nearby the Khals and beels are artificially irrigated by use of low-lift pumps and in the higher areas, deep tube-wells are used for irrigation by ground water. Such pumps and tube-wells are provided under the Small Irrigation Scheme of BADC and their number and areas cultivated by them are shown in Tables 1-13 and 1-14, respectively. The net area being irrigated by pumps and tube-wells is rather small and in other areas farmers depend upon the residual moisture in the ground for cultivation of crops of shorter growing periods.

1.4 Present Conditions of Flooding and Drainage

The Sitalakhya and the Meghna Rivers, by which the project area is bordered on both sides, start swelling from May and their water levels reach at the maximum in August. Then the two rivers start receding gradually and, in November, their water levels come down below the land. The rising of the two rivers is synchronized with the monsoon season which lasts from June to October.

The project area is generally flat, excepting chain-like heights along the Sitalakhya River and the table land extending from Narsingdi to Araihasar in north-south direction through which run the D-N Road and the N-M Railway. The project area topography and profiles demarcated by a 15.5 ft contour line are shown in Figs. 1-17 and 1-18.

Water level of the Sitalakhya River is about 1 ft higher than that of the Meghna River and, during the monsoon season, it comes up to 18-21.5 ft, while that of the Meghna River reaches approximately at 17.5-19.5 ft. The project area is almost equally divided into three portions by the D-N Road and the N-M Railway both running in NE-SW direction, or into two parts by the Mangal

Khali-Saoghata-Araihazar Road running in N-S direction. The D-C Road is again running through the southern part of the project area. Many number of bridges and culverts provided along all these arterial transport lines do not allow an easy passage of water, forming one of the major constraints for drainage of flood water invading the project area during each monsoon season. Water level in the interior of the project area is lower than those of the rivers flowing alongside, and comes up to about 17 ft in the vicinity of the D-N Road.

Flood waters invade the project area from three directions. In the north, invasion takes place mostly through two railway bridges (of the T-N Railway) across the Old Brahmaputra River nearby Ghorasal, but its unit flow must be relatively small as the railway bridge span distance is limited to only about 6 meters. Invasion from the Sitalakhya River takes place through Khals, mainly Ghagra and Kendua. The mouth of the Old Brahmaputra River in the south provides the entry passage of flood water from the Meghna River; its invasion into the project area takes northward course. Flood water invading the project area turns most of it into a lake-like inundation but, as a whole, the flood water is slowly flowing from the north to the south. Present drainage depends upon the two main drainage canals: Old Brahmaputra River and Sonakhali Khal. Drainage in Phase I Area is being facilitated by such Khals as Ghagra, Kendua and Tatkir which are directly connected with the Sitalakhya River.

Table 1-13 Deep Tubewells Irrigation
in the N-N Project Area for
the Year 1977

SL. No.	Name of Thana	No. of exsiting Tubewells	No. of Tube-wells used	No. of Tube-wells not yet Used	Capacity of the Pump Used in each Tubewell in cusecs	Total Area irrigated in Acre	Remarks
1	Narshingdi	98	55	43	2	1,866	
2	Araihazar	67	44	23	2	1,168	
3	Baidya Bazar	10	9	1	2	250	
4	Kaliganj	71	55	16	2	1,594	
5	Rupganj	47	39	8	2	1,948	
6	Narayan-ganj	-	-	-	-	-	No Tube-well yet sunk
	Total	293	202	91		6,826	

(Notes) Prepared by Bangladesh Agricultural Development Corporation (BADC), Survey and Investigation Division.

Table 1-14 Power Pump used in the N-N Project Area
in the year 1976-1977

SL. No.	Name of Thana	Capacity of pump used			Total No. of pump	Type of pump used	Total acreage covered in Ac.
		1 cusec	2 cusecs	3 cusecs			
1	Narayanganj	12 Nos.	135 Nos.	-	147	KSB, Climek, Krilosker	5,507.00
2	Baidya Bagar	38 Nos.	121 Nos.	-	159	BMTF, KSY, G.D.R.	5,164.00
3	Rupganj	35 Nos.	158 Nos.	1 Nos.	194	Itezag, Ebra Shamolo	6,531.17
4	Araihazar	3 Nos.	39 Nos.	-	42	Morision, Beco	1,214.00
5	Narsingdi	23 Nos.	88 Nos.	-	111	1YWA, F1L-812, Slavia, Yanmer, 2YWA, F2L+812, F2L-912	3,781.00
6	Kaliganj	-	65 Nos.	-	65	Slavia, GDR, Ruston, Yanmer Deage, Electric Motor	867.00

Table 1-15 BANGLADESH AGRICULTURAL DEVELOPMENT CORPORATION
49-51, DILKUSHA COMMERCIAL AREA, DACCA-2.

DEEP TUBEWELL IN OPERATION
IN THE YEAR 1977

P.S. - Narsingdi
Region - Dacca
Dist. - Dacca

SL.No.	U. C.	Mouza	J.L.No.	Plot No.	Area Irrigated in acre with types of crop produced						Total area irrigated (Acres)	Remarks
					Irrig	*Boro	*Aush	*Aman	Wheat	Others		
1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Madhabdi	Nurullapur(1)	368	512	15	-	-	-	-	-	15	* Aush and Aman crops produced using natural water.
2.	"	Birampur (N)	222	182	30	-	-	-	-	-	30	
3.	"	Rainadi	225	113	25	-	-	-	-	-	25	
4.	Panchdona	Vatpara (1)	259	915	36	-	-	-	-	-	36	
5.	"	do (2)	259	1701	12	-	-	-	-	-	12	
6.	"	do-Chakshal	259	252	21	-	-	-	-	-	21	° Boro & Irri belong to the same season.
7.	"	Saikadisaner	254	35	50	-	-	-	-	-	50	
8.	"	Nahaba (S)	257	1183	50	-	-	-	-	-	50	
9.	"	do (N)	257	505	50	-	-	-	-	-	50	
10.	"	Nagarpanchdona	260	28	7	-	-	-	-	-	7	
11.	"	Basantapur	121	26	2	-	-	-	-	-	2	
12.	Narsingdi (Municipality	Salidah	293	2086	40	-	-	-	-	-	40	
13.	Chinispur	Goradia	286	149	30	-	-	-	-	-	30	
14.	"	Sonatala	282	301	8	-	-	-	-	-	8	
15.	"	Degria (N)	297	104	30	-	-	-	-	-	30	
16.	"	do (S)	297	507	50	-	-	-	-	-	50	
17.	"	Ghoradia (N)	282	659	11	-	-	-	-	-	11	
18.	Maherpara	Kabirajpur	237	107	30	-	-	-	-	-	30	
19.	"	Sreenagar-patharpara	236	412	50	-	-	-	-	-	50	
20.	"	Sreenagar	236	168	45	-	-	-	-	-	45	
21.	"	Nisondria	229	283	35	-	-	-	-	-	35	
22.	"	Doichaitab	230	44	40	-	-	-	-	-	40	
23.	"	Chowa (1)	232	1086	25	-	-	-	-	-	25	
24.	"	do (2)	232	827	12	-	-	-	-	-	12	
25.	Shilmondi	Shilmondi (N)	275	565	-	-	-	-	25	-	25	
26.	"	Khatehara	299	228	125	-	-	-	-	-	125	
27.	"	Baghata (1)	300	1417	20	-	-	-	-	-	20	
28.	"	do (2)	300	2139	30	-	-	-	-	-	30	
29.	"	Kismat-baniadi	303	189	55	-	-	-	-	-	55	
30.	"	Gonergaon	304	96	50	-	-	-	-	-	50	
31.	"	Barhata (S)	300	1747	55	-	-	-	-	-	55	
32.	"	do (3)	300	2019	35	-	-	-	-	-	35	
33.	"	Baghata-khatehara (N)	300	477	27	-	-	-	-	-	27	
34.	"	Khidirpur	302	480	35	-	-	-	-	-	35	

SL.No.	U. C.	Mouza	J.L.No.	Plot No.	Area Irrigated in acre with types of crop produced										Total area irrigated (Acres)	Remarks
					Irrig	*Boro	*Aush	*Aman	wheat	Others	6	7	8	9		
1	2	3	4	5	6	7	8	9	10	11	12	13				
35.	Amdia	Bonobag	205	746	70	-	-	-	-	-	-	-	70	* Aush and Aman crops produced using natural water.		
36.	"	Kandail(N)	181	1297	40	-	-	-	-	-	-	-	40			
37.	"	Akhalia(N)	205	2396	27	-	-	-	-	-	-	-	27			
38.	"	Saikardi	205	1314	2	-	-	-	-	-	-	-	2			
39.	Kathalia	Khoria(N)	364	128	5	-	-	-	-	-	-	-	5			
40.	"	Baramaisadi	366	493	8	-	-	-	-	-	-	-	8	° Boro & Irri belong to the same season.		
41.	"	Kallanpur	398	75	15	-	-	-	-	-	-	-	15			
42.	"	Nayakandi	395	91	8	-	-	-	-	-	-	-	8			
43.	Paikarchar	Sagardi	343	2130	35	-	-	-	-	-	-	-	35			
44.	"	Barabalapur	343	2545	60	-	-	-	-	-	-	-	60			
45.	"	Kandrapadi	339	370	30	-	-	-	-	-	-	-	30			
46.	"	Paikarchar	340	200	4	-	-	-	-	-	-	-	4			
47.	Maishashora	Shantibaola	320	217	55	-	-	-	-	-	-	-	55			
48.	"	Chaddopaika	346	429	48	-	-	-	-	-	-	-	48			
49.	"	Khilgaon	346	1628	27	-	-	-	-	-	-	-	27			
50.	"	Kalakanda	346	2036	40	-	-	-	-	-	-	-	40			
51.	"	Atpaika	308	206	30	-	-	-	-	-	-	-	30			
52.	Maishasowra	Baloochar	89	1505	46	-	-	-	-	-	-	-	46			
53.	"	Baloochair(N)	309	103	60	-	-	-	-	-	-	-	60			
54.	"	do(S)	309	702	60	-	-	-	-	-	-	-	60			
55.	"	Damer-vawla	312	112	35	-	-	-	-	-	-	-	35			
56.	Madabdi	Anandi	307	199	-	-	-	-	-	-	-	-	-			
57.	"	Manaharpur	351	163	-	-	-	-	-	-	-	-	-			
58.	"	Nurullahpur(2)	368	84	-	-	-	-	-	-	-	-	-			
59.	"	Kandapara	225	759	-	-	-	-	-	-	-	-	-			
60.	"	Birampur(S)	222	467	-	-	-	-	-	-	-	-	-			
61.	"	Godairchar	220	324	-	-	-	-	-	-	-	-	-			
62.	"	Balvadradi	369	224	-	-	-	-	-	-	-	-	-			
63.	"	Khidirkandi	220	913	-	-	-	-	-	-	-	-	-			
64.	Panchdona	Charpara	274	167	-	-	-	-	-	-	-	-	-			
65.	"	Kamarchar	262	3	-	-	-	-	-	-	-	-	-			
66.	"	Batpara(3)	259	1226	-	-	-	-	-	-	-	-	-			
67.	Narsingdi(Municipality)	Satirpara	293	1785	-	-	-	-	-	-	-	-	-			
68.	"	Rangamatia	293	1370	-	-	-	-	-	-	-	-	-			
69.	Chinishpur	Bashai	295	211	-	-	-	-	-	-	-	-	-			
70.	"	Bilashdi	301	80	-	-	-	-	-	-	-	-	-			

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SL.No.	U. C.	Mouza	J.L.No.	Plot No.	Area Irrigated in acre with types of crop produced										Total area irrigated (Acres)	Remarks	
					Irri	Boro	*Aush	*Aman	Wheat	Others	6	7	8	9			10
1	2	3	4	5													
71.	Chinispur	Baghdi	296	433	-	-	-	-	-	-	-	-	-	-	-	-	* Aush and Aman crops produced
72.	Shilmandi	Shilmandi (S)	275	1640	-	-	-	-	-	-	-	-	-	-	-	-	crops produced using natural water.
73.	"	do (M)	275	1260	-	-	-	-	-	-	-	-	-	-	-	-	
74.	"	Darpara	174	293	-	-	-	-	-	-	-	-	-	-	-	-	
75.	"	Tolshipur	301	40	-	-	-	-	-	-	-	-	-	-	-	-	
76.	Meherpara	Korerpar	239	419	-	-	-	-	-	-	-	-	-	-	-	-	
77.	"	Chowameherpara	234	88	-	-	-	-	-	-	-	-	-	-	-	-	
78.	Amadia	Kandail	181	1722	-	-	-	-	-	-	-	-	-	-	-	-	
79.	"	Kathalia-dabashartak	205	106	-	-	-	-	-	-	-	-	-	-	-	-	
80.	"	Chata-Amadia	207	150	-	-	-	-	-	-	-	-	-	-	-	-	
81.	"	Akhalia (S)	205	3392	-	-	-	-	-	-	-	-	-	-	-	-	
82.	"	Kandail (S)	181	1744	-	-	-	-	-	-	-	-	-	-	-	-	
83.	Kathalia	Chowkaria	377	72	-	-	-	-	-	-	-	-	-	-	-	-	
84.	"	do (2)	373	219	-	-	-	-	-	-	-	-	-	-	-	-	
85.	"	Dokadi (N)	362	256	-	-	-	-	-	-	-	-	-	-	-	-	
86.	"	do (S)	362	405	-	-	-	-	-	-	-	-	-	-	-	-	
87.	"	do (E)	362	1273	-	-	-	-	-	-	-	-	-	-	-	-	
88.	"	Kharia (S)	364	488	-	-	-	-	-	-	-	-	-	-	-	-	
89.	Paikarchar	Bidirkandi	343	1146	-	-	-	-	-	-	-	-	-	-	-	-	
90.	"	Manorkandi	343	1527	-	-	-	-	-	-	-	-	-	-	-	-	
91.	"	Khadamerchar	332	294	-	-	-	-	-	-	-	-	-	-	-	-	
92.	"	Chatabalapur	343	2773	-	-	-	-	-	-	-	-	-	-	-	-	
93.	Maishasora	Kotoalichar (N)	350	217	-	-	-	-	-	-	-	-	-	-	-	-	
94.	Hazipur	Badarpur (W)	360	7	-	-	-	-	-	-	-	-	-	-	-	-	
95.	"	Badarpur (E)	360	359	-	-	-	-	-	-	-	-	-	-	-	-	
96.	Meherpara	Kabirapur	242	134	-	-	-	-	-	-	-	-	-	-	-	-	
97.	Panchdona	Charpara	274	175	-	-	-	-	-	-	-	-	-	-	-	-	
98.	Chinispur	Bagdi	296	196	-	-	-	-	-	-	-	-	-	-	-	-	

Table 1-16 DEEP TUBEWELL IN OPERATION
IN THE YEAR 1977

Sl. No.	U.C.	Mouza	J.L.No.	Plot No.	Area irrigated in acre with types of crop produced										Total area irrigated (Acres)	Remarks	
					Irri	Boro	*Aush	*Aman	Wheat	Others	6	7	8	9			10
1.	Satgram	Sanpara	157	1786	29	-	-	-	-	-	-	-	-	-	-	29	* Aush and Aman crops produced using natural water.
2.	"	Matain	217	1732	10	-	-	-	-	-	-	-	-	-	-	10	
3.	"	Ashohat	216	1846	41	-	-	-	-	-	-	-	-	-	-	41	
4.	"	Purinda(S)	217	610	55	-	-	-	-	-	-	-	-	-	-	55	
5.	"	Panchrokhi(3)	157	1419	45	-	-	-	-	-	-	-	-	-	-	45	
6.	"	do(2)	157	363	39	-	-	-	-	-	-	-	-	-	-	39	° Boro & Irri belong to the same season.
7.	"	do(1)	157	854	31	-	-	-	-	-	-	-	-	-	-	31	
8.	"	do(4)	157	1087	34	-	-	-	-	-	-	-	-	-	-	34	
9.	"	Purinda(N)	217	1067	50	-	-	-	-	-	-	-	-	-	-	50	
10.	"	Takpara(N)	217	869	10	-	-	-	-	-	-	-	-	-	-	10	
11.	Doptara	Panchbaria	218	383	50	-	-	-	-	-	-	-	-	-	-	50	
12.	"	Panchgaon(Mollapara)	218	2227	30	-	-	-	-	-	-	-	-	-	-	30	
13.	"	Panchgaon(M)	218	1303	36	-	-	-	-	-	-	-	-	-	-	36	
14.	"	Panchgaon(Noapara)	218	3056	37	-	-	-	-	-	-	-	-	-	-	37	
15.	"	Palla	160	216	51	-	-	-	-	-	-	-	-	-	-	51	
16.	"	Banit	159	461	35	-	-	-	-	-	-	-	-	-	-	35	
17.	Sodasodi	Bora Sadardia	406	149	5	-	-	-	-	-	-	-	-	-	-	5	
18.	"	Lakhibordi(kolaga-chia)	330	678	22	-	-	-	-	-	-	-	-	-	-	22	
19.	"	Jolakandi	408	112	26	-	-	-	-	-	-	-	-	-	-	26	
20.	"	Ramchandradi	409	321	5	-	-	-	-	-	-	-	-	-	-	5	
21.	"	Sonakanda	361	180	25	-	-	-	-	-	-	-	-	-	-	25	
22.	"	Ulokandi	111	280	11	-	-	-	-	-	-	-	-	-	-	11	
23.	Araihazar	Kamrangirchar(Daspara)	375	375	4	-	-	-	-	-	-	-	-	-	-	4	
24.	"	Mukundi	379	147	2	-	-	-	-	-	-	-	-	-	-	2	
25.	"	Araihazar	484	766	22	-	-	-	-	-	-	-	-	-	-	22	
26.	Fatehpur	Lotbodi	450	100	16	-	-	-	-	-	-	-	-	-	-	16	
27.	"	Chata-Khamarchar	443	37	20	-	-	-	-	-	-	-	-	-	-	20	
28.	"	Fatehpur	404	491	30	-	-	-	-	-	-	-	-	-	-	30	
29.	"	Bogadikanda para	388	27	25	-	-	-	-	-	-	-	-	-	-	25	
30.	"	Bogadi	402	46	16	-	-	-	-	-	-	-	-	-	-	16	
31.	Uchitpura	Atadi	517	58	35	-	-	-	-	-	-	-	-	-	-	35	
32.	"	Dasherdia(N)	507	236	33	-	-	-	-	-	-	-	-	-	-	33	
33.	Haizadi	Kalagachia(Purba)	458	925	25	-	-	-	-	-	-	-	-	-	-	25	
34.	"	Madhobodi(N)	303	112	15	-	-	-	-	-	-	-	-	-	-	15	
35.	"	do	503	493	38	-	-	-	-	-	-	-	-	-	-	38	
36.	"	Sandi	499	250	40	-	-	-	-	-	-	-	-	-	-	40	

SL.No.	U. C.	Mouza	J.L.No.	Plot No.	Area Irrigated in acre with types of crop produced							Total area irrigated (Acres)	Remarks
					Area Irrigated in acre with types of								
					Irrl	*Boro	*Aush	*Aman	Wheat	Others			
1	2	3	4	5	6	7	8	9	10	11	12	13	
37.	Bakhondi	Maoradi	479	50	22	-	-	-	-	-	-	22	* Aush and Aman
38.	"	Brakhondi	462	327	12	-	-	-	-	-	-	12	crops produced
39.	"	Chata-kaosha	481	444	28	-	-	-	-	-	-	28	using natural
40.	"	Rishirchar (Bara mo- nohar)	467	111	18	-	-	-	-	-	-	18	water.
41.	"	Laskar (West)	475	279	32	-	-	-	-	-	-	32	* Boro & Irri
42.	"	do (West)	475	891	25	-	-	-	-	-	-	25	belong to the
43.	"	Baro-Kaosha	481	85	32	-	-	-	-	-	-	32	same season.
44.	"	Ujangobandi	466	226	1	-	-	-	-	-	-	1	
45.	Satgram	Rasulpur	221	704	-	-	-	-	-	-	-	-	
46.	"	Dakhin-soropab	226	5	-	-	-	-	-	-	-	-	
47.	Satgram	Rasulpur (N)	221	502	-	-	-	-	-	-	-	-	
48.	"	Bara-Naogaon	217	2017	-	-	-	-	-	-	-	-	
49.	"	Takpara	217	2407	-	-	-	-	-	-	-	-	
50.	"	Satgram	216	1010	-	-	-	-	-	-	-	-	
51.	Dooptara	Panchgaon	218	3761	-	-	-	-	-	-	-	-	
52.	"	Khanpara	156	1524	-	-	-	-	-	-	-	-	
53.	Sodasodi	Mollarchar	339	293	-	-	-	-	-	-	-	-	
54.	Aralhazar	Kamrangirchar	375	279	-	-	-	-	-	-	-	-	
55.	"	Jawgora	464	774	-	-	-	-	-	-	-	-	
56.	"	Noapara	382	38	-	-	-	-	-	-	-	-	
57.	"	Baliapara	472	184	-	-	-	-	-	-	-	-	
58.	"	Langordi	485	220	-	-	-	-	-	-	-	-	
59.	Maijaddi	Kalagachia (East)	458	380	-	-	-	-	-	-	-	-	
60.	"	Kamaldi (East)	455	475	-	-	-	-	-	-	-	-	
61.	Md.pur	Kallandi (Nayapara)	440	632	-	-	-	-	-	-	-	-	
62.	Fatehpur	Naykahan	447	187	-	-	-	-	-	-	-	-	
63.	"	Dakhinpara	444	104	-	-	-	-	-	-	-	-	
64.	Uchitpura	Damerdia (N)	506	772	-	-	-	-	-	-	-	-	
65.	Brahmandi	Maoradi (S)	479	239	-	-	-	-	-	-	-	-	
66.	Hyezaddi	Kamaldi (West)	455	774	-	-	-	-	-	-	-	-	
67.	Dooptara	Monohar	218	3684	-	-	-	-	-	-	-	-	

Table 1-17 DEEP TUBEWELL IN OPERATION
IN THE YEAR 1977

P.S. - Baidya Bazar
Region - Dacca
Dist - Dacca

SL.No.	Name of Union	Name of Mouza	J.L.No.	Plot No.	Whether commissioned		Whether used			Total running period (Hours)	Total area irrigated (Acres)	Remarks
					Yes	No	Yes	No	Yes			
1	2	3	4	5	6	7	8	9	10	11	12	
1.	Sadipur	Gojariapara	37	108	Yes		Yes		200	20		
2.	"	Konabari	37	267	"		"		210	25		
3.	"	Baragaon	35	57	"		"		160	15		
4.	"	Baraba	24	588	"		"		215	20		
5.	"	Dakhinpara-Maizom	23	797	"		"		225	31		
6.	"	Neapur-Baroybari	28	85	"		"		205	30		
7.	"	Ghoramara	37	375	Yes	No	Yes	No	-	-		
8.	Kachpur	Chandahull	25	520	"		"		562	55		
9.	"	Lalati(N)	26	254	"		"		165	25		
10.	"	do(E)	20	132	"		"		215	29		
											250	

Table 1-18 DEEP TUBEWELL IN OPERATION
IN THE YEAR 1977

P.S. - Kaliganj
Region - Dacca
Dist - Dacca

SL.No.	Name of Union	Name of Mouza	J.L.No.	Plot No.	Whether commissioned		Whether used		Total running period (Hours)	Total area irrigated (Acres)	Remarks
					Yes	No	Yes	No			
1	2	3	4	5	6	7	8	9	10	11	12
1.	Baria	Bonkor-Amona	298	14	Yes		Yes		284	50	
2.	"	Khondia	302	92	"		"		134	35	
3.	"	Kaloni (1)	307	173	"		"		140	20	
4.	"	Paragaon (1)	306	207	"		"		301	38	
5.	"	Balda	305	212	"		"		395	36	
6.	"	Daribolda (1)	304	25	"		"		306	39	
7.	"	Paragaon (2)	306	245	"		"		219	19	
8.	"	Sokondi	301	106	"		"		367	60	
9.	"	Atori (1)	317	31	"		"		106	28	
10.	"	Jamona	303	94	"		"		108	20	
11.	"	Atori (2)	317	672	"		"		211	20	
12.	"	Digda (1)	302	131	"		"		407	50	
13.	"	Atori (3)	317	228	"		"		56	18	
14.	"	Roshadia	315	44	"		"		163	15	
15.	"	Kashrita	295	91	"		"		177	21	
16.	"	Daribolda (2)	300	195	"		"		111	20	
17.	"	Komon	316	364	"		"		95	20	
18.	Baria	Chilni	314	102	"		"		97	21	
19.	"	Bandan	319	325	"		"		108	20	
20.	"	Kalni (2)	307	676	"		"		272	33	
21.	"	Khadabormi	300	231	"		"		123	40	
22.	Gozaria	Noakanda	391	185	"		"		202	41	
23.	Jinardi	Parolia	411	859	"		"		360	49	
24.	"	Uttar-Chandan (1)	409	445	"		"		195	29	
25.	"	do (2)	409	96	"		"		251	32	
26.	Jangalia	Bangalgaon	276	723	"		"		108	10	
27.	Kaligonj	Chowra	349	231	"		"		293	40	
28.	"	Golabari	351	1193	"		"		275	46	
29.	"	Chaitarpara (2)	351	390	"		"		284	41	
30.	Bahadursadi	Bahadurshadi	359	106	"		"		280	40	
31.	"	Dakhin bhagh	358	1443	"		"		229	28	
32.	"	Iswarpur (2)	265	858	"		"		90	17	
33.	Jamaipur	Jamalpur (2)	362	858	"		"		190	22	
34.	"	Jamalpur (4)	362	1957	"		"		257	36	
35.	"	Challardi (1)	260	661	"		"		440	60	

SL.No.	Name of Union	Name of Mouza	J.L.No.	Plot No.	Whether commissioned		Whether used		Total running period (Hours)	Total area irrigated (Acres)	Remarks
					Yes	No	Yes	No			
1	2	3	4	5	6	7	8	9	10	11	12
36.	Kaliganj	Uttar-Daopara	353	99	Yes		Yes		319	42	
37.	Charsindor	Khanapur	376	591	"		"		200	32	
38.	Gazaria	Char-Mahmudpur	385	27	"		"		214	46	
39.	"	Sakandardi	395	318	"		"		125	22	
40.	"	Gazaria	391	1164	"		"		50	3	
41.	Baria	Khodabarmi (2)	300	359	Yes		Yes		104	18	
42.	Kaliganj	Sonapara	80	1629	"		"		132	40	
43.	"	Kumartak	349	486	"		"		106	16	
44.	Jamalpur	Jamalpur (1)	362	1039	"		"		148	15	
45.	Jinardi	Charankardi	402	383		No		No			
46.	Charsindur	Pakragonj	370	621		No		No			
47.	"	Chalna	372	206		No		No			
48.	"	Malita	134	1237		No		No			
49.	Baria	Atori (4)	317	411	Yes		Yes		71	20	
50.	"	Khatia	322	382	"		"		84	20	
51.	"	Komon (2)	316	70	"		"		175	15	
52.	Jamalpur	Jamalpur (3)	312	1472	"		"		200	24	
53.	Bahadursadi	Khalpara	354	913	"		"		200	8	
54.	Kaliganj	Chaitarpara (1)	351	210					161	26	
55.	Bahadursadi	Kakar	350	376					256	43	
56.	Kaliganj	Dakhin Daopara	353	259					84	14	
57.	Gazaria	Ishakhali	325	382					135	21	
58.	Charsindor	Dakhin Daora	382	819					254	40	
59.	Bahadursadi	Jogoli	351	38					61	15	
60.	Kaliganj	Chowravatgati	342	166	Yes			No	-	-	
61.	"	Bangal-Baola	336	448	"		"	No	-	-	
62.	"	"	336	1016	"		"	No	-	-	
63.	Bahadursadi	Iswarpur (1)	355	346	"		"	No	-	-	
64.	"	Dakhin Bhag (2)	358	723	"		"	No	-	-	
65.	Jamalpur	Chonair (N)	261	388	"		"	No	-	-	
66.	Moktarpur	Barhara	270	182	"		"	No	-	-	
67.	Baktarpur	Fuldi (1)	329	2367	"		"	No	-	-	
68.	"	do (1)	329	856	"		"	No	-	-	
69.	"	do (3)	329	1817	"		"	No	-	-	
70.	Baria	Pakuria	310	88	"		"	No	-	-	
71.	Kaliganj	Chowraniabari	345	35	"		"	No	-	-	

Table 1-19 DEEP TUBEWELL IN OPERATION
IN THE YEAR 1977

P.S. - Rupganj
Region - Dacca
Dist - Dacca

SL.No.	Name of Union	Name of Mouza	J.L.No.	Plot No.	Whether commissioned		Whether used		Total running period (Hours)	Total area irrigated (Acre)	Remarks
					Yes	No	Yes	No			
1	2	3	4	5	6	7	8	9	10	11	12
1.	Danga	Kandoabo	190	195	Yes		Yes		200	60	
2.	"	Danga	193	152	"			No	-	-	
3.	"	Taltala	191	181	"		Yes		40	65	
4.	"	Joynagar	197	1407	"		"		50	60	
5.	"	Birinda	197	617	"		"		50	70	
6.	"	Galimpur	196	48	"			No	-	-	
7.	"	Kazer Dashpara	196	597	"			"	-	-	
8.	Taraboo	Karnagop(1)	5	454	"		Yes		50	60	
9.	"	Daboy	4	158	"		"		43	55	
10.	"	Karnagop(2)	5	301	"		"		75	70	
11.	"	Sotalra	10	238	"		"		140	60	
12.	"	Masaboo	7	394	"		"		389	30	
13.	"	Oraboo	39	36	"		"		73	70	
14.	Volta	Sonaboo	147	517	"		"		140	70	
15.	"	Majipara	147	133	"		"		100	70	
16.	"	Paragaon(1)	139	448	"		"		330	25	
17.	"	Vandaboo	147	789	"		"		44	50	
18.	"	Paragaon(2)	139	329	"		"		100	40	
19.	"	Barok(1)	137	215	"		"		60	34	
20.	"	Barok(2)	137	337	"		"		86	40	
21.	Morapara	Labrapara	127	520	"		"		190	35	
22.	"	Mirkotihao	143	83	"		"		230	50	
23.	"	Brahmangaon(1)	127	1644	"		"		61	50	
24.	"	do(2)	127	845	"		"		43	30	
25.	"	Parain	146	140	"		"		125	45	
26.	Golakandaish	Golakandaish(1)	148	77	"		"		82	70	
27.	"	do(2)	148	1155	"		"		156	70	
28.	"	do(3)	148	1356	"		"		150	25	
29.	"	Amlab(1)	166	1224	"		"		136	35	
30.	"	do(2)	166	969	"		"		116	32	
31.	"	do(3)	166	767	"		"		207	40	
32.	"	Mahna	169	16	"		"		159	70	
33.	"	Ponab	164	235	"		"	No	-	-	
34.	"	Kashraboo	159	689	"		"		80	60	

SL.No.	Name of Union	Name of Mouza	J.L.No.	Plot No.	Whether commissioned		Whether used		Total running period (Hours)	Total area irrigated (Acres)	Remarks
					Yes	No	Yes	No			
1	2	3	4	5	6	7	8	9	10	11	12
35.	Kanchan	Diggalia	178	766	Yes		Yes		170	57	
36.	"	Karab(S)	169	1	"		"		280	70	
37.	"	Nospara	179	75	"		"		300	40	
38.	"	Karab(N)	169	711	"			No	-	-	
39.	"	Kalataia	169	1622		No		"	-	-	
40.	Volaboo	Kotobpur(1)	176	1046	"		"		384	50	
41.	"	Angargora	175	160	"		"		160	70	
42.	"	Gotomiah	180	202	"		"		193	25	
43.	"	Kotobpur(2)	176	1334	"		"		44	45	
44.	"	Charitaslok(W)	182	896	"			No	-	-	
45.	"	do(E)	182	1920	"		"	"	-	-	
46.	"	Kartia	174	122	"		Yes		125	25	
47.	"	Kartia(N)	174	348	"		"		110	25	
										11	
										10	
										11	
										12	
										1948	

Fig. 1-17 WATER LEVEL OBSERVED IN THE 1ST FIELD SURVEY PERIOD (Aug. 5, 1977)

BANGLADESH N-N IRRIGATION PROJECT

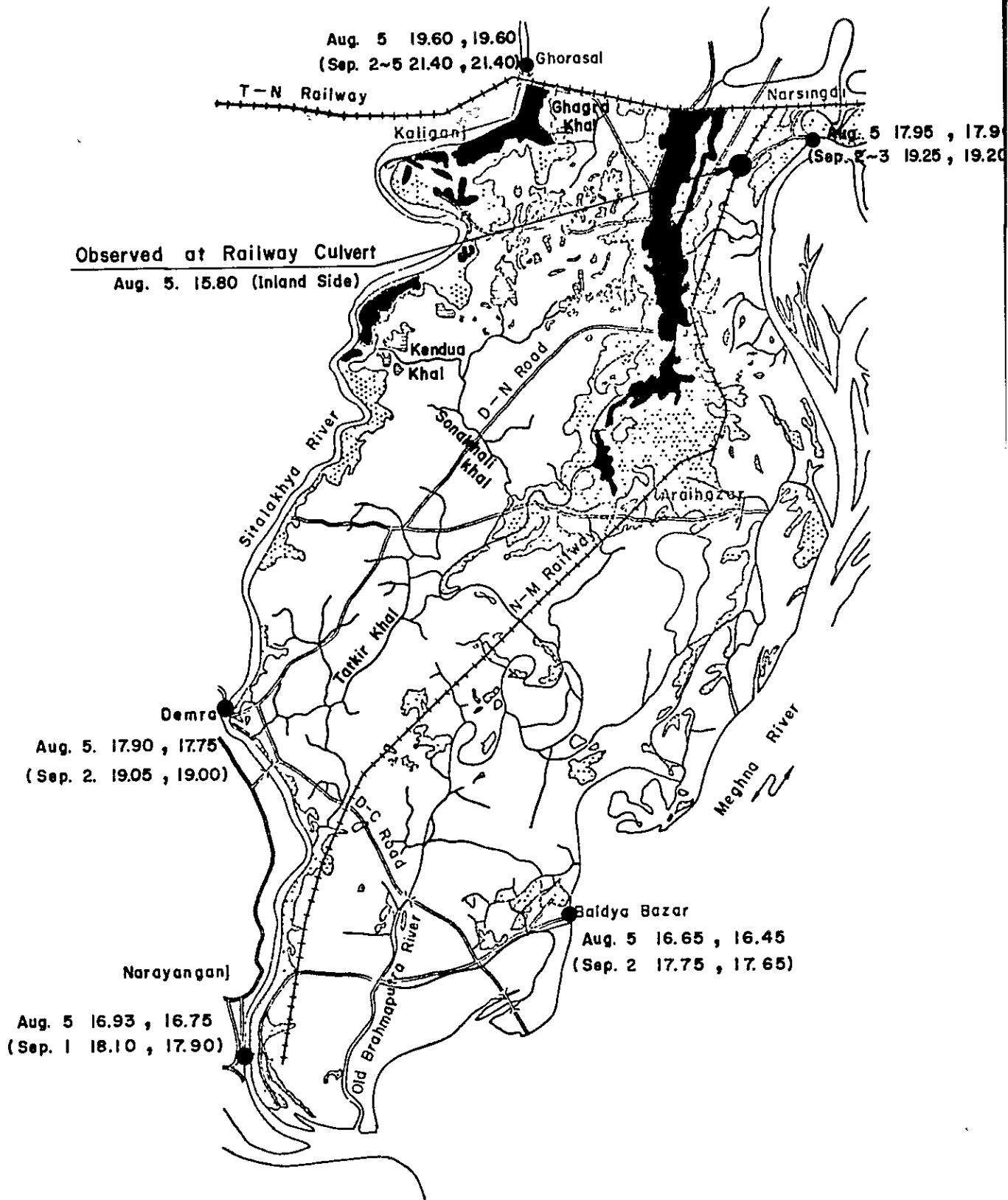
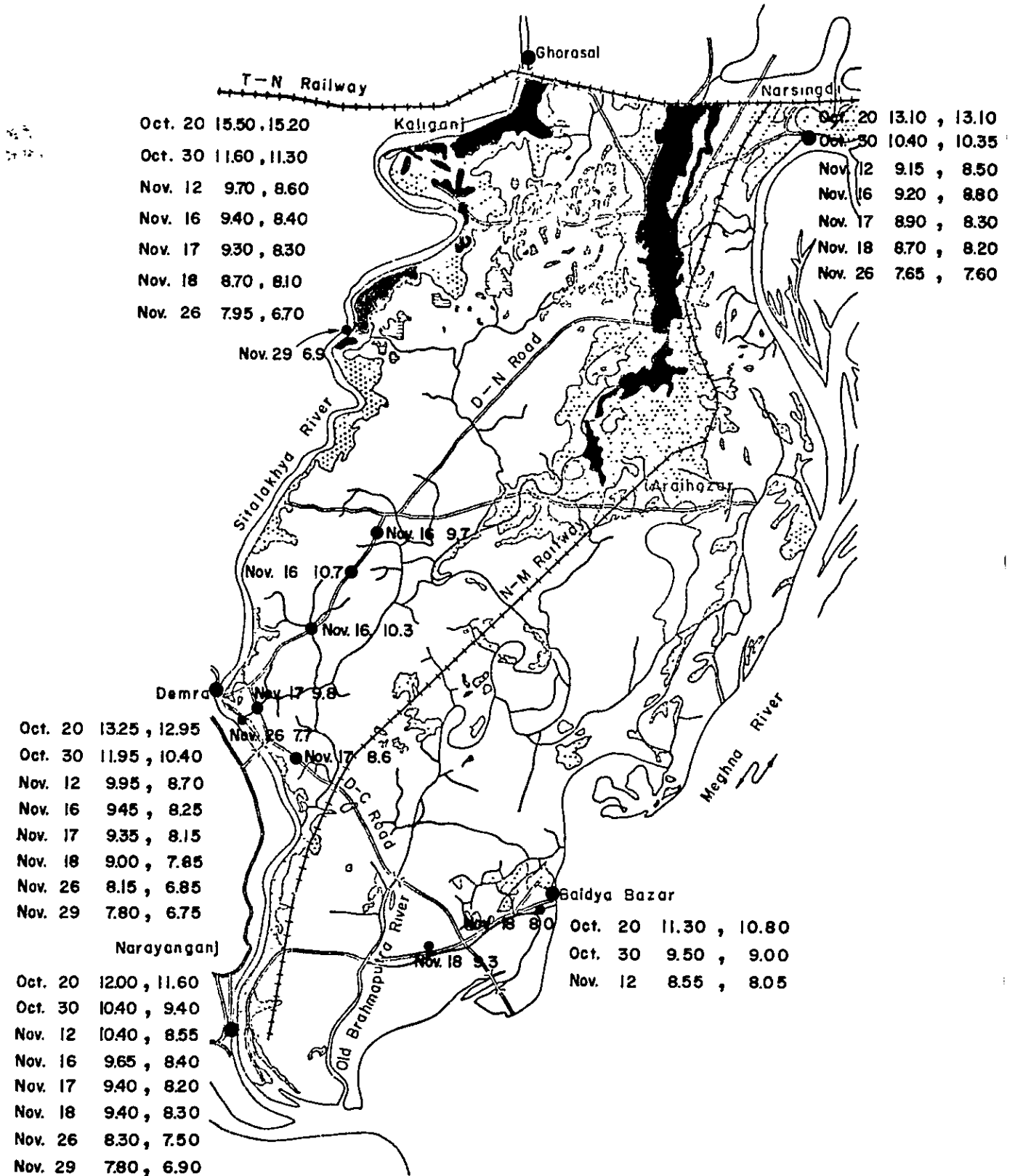


Fig. 1-18 WATER LEVEL OBSERVED IN THE 2ND FIELD SURVEY PERIOD (From Oct. 10 to Dec. 24, 1977)

BANGLADESH N - N IRRIGATION PROJECT



1.5 List of Present Structures in the Project Area

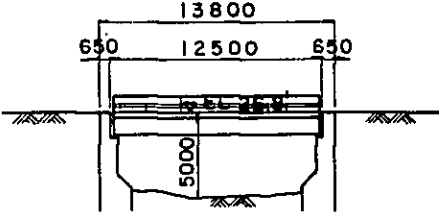
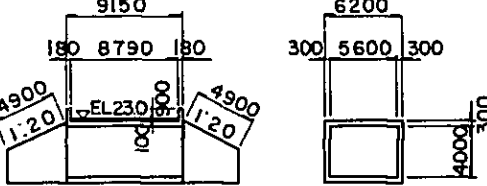
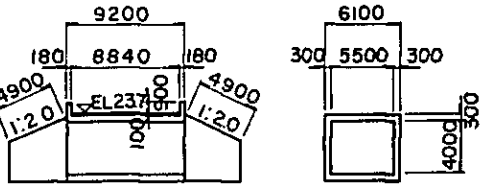
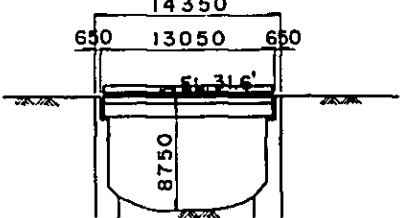
(Note) Elevations are shown in P.W.D. (ft) Standard.

Dimensions of Structures are shown in millimeter.

DACCA-CITTAGONG ROAD (1/2)

No	Sta. No	Section	Remarks
1	STANo0+016 ^{Mile}		Concrete
2	STANo0+044 ^{Mile}		Concrete
3	STANo0+067 ^{Mile}		Concrete
4	STANo1+023 ^{Mile}		Concrete
5	STANo1+095 ^{Mile}		Concrete
6	STANo2+015 ^{Mile}		Concrete

DACCA - CITTAGONG ROAD (2/2)

No	Sta. No	Section	Remarks
7	STANo.2+0.40 ^{Mile}		Concrete
8	STANo.2+0.70 ^{Mile}		Concrete
9	STANo.2+0.97 ^{Mile}		Concrete
10	STANo.3+0.25 ^{Mile}		Concrete

DACCA - NARSINGDI ROAD (1/6)

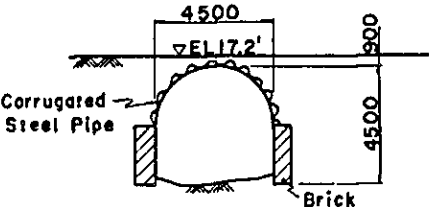
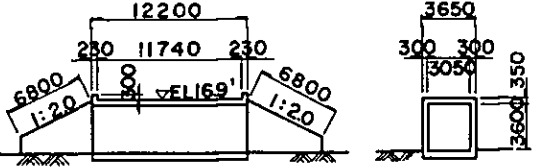
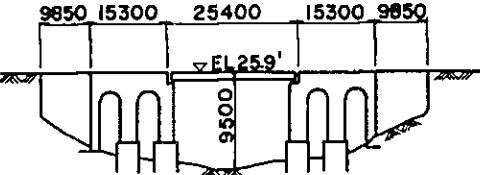
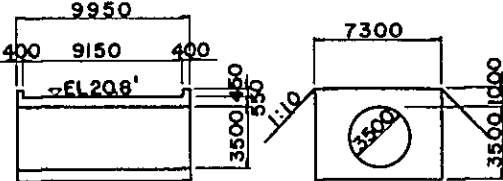
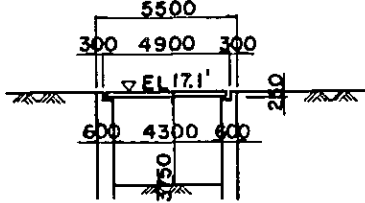
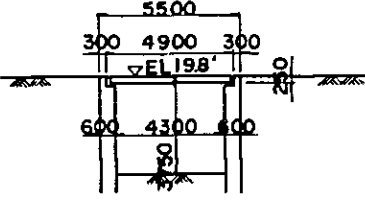
From 23 Mile Post To Narsingdi

No	Sta. No	Section	Remarks
1	STANo0+0.39 ^{Mile}		Concrete
2	STANo0+0.79 ^{Mile}		Concrete
3	STANo1+0.25 ^{Mile}		Concrete
4	STANo2+0.13 ^{Mile}		Concrete
5	STANo2+0.45 ^{Mile}		Concrete
6	STANo2+0.80 ^{Mile}		Corrugated Steel Pipe

DACCA - NARSINGDI ROAD (2/6)

No	Sta. No	Section	Remarks
7	STANo.4+0.01 ^{Mile}		Concrete
8	STANo.4+0.66 ^{Mile}		Concrete
9	STANo.4+0.97 ^{Mile}		Concrete
10	STANo.5+0.20 ^{Mile}		Concrete
11	STANo.5+0.71 ^{Mile}		Concrete
12	STANo.6+0.11 ^{Mile}		Corrugated Steel Pipe

DACCA - NARSINGDI ROAD (3/6)

No	Sta.No	Section	Remarks
13	STANo6+085 ^{Mile}		Corrugated Steel Pipe and Brick
14	STANo8+025 ^{Mile}		Concrete
15	STANo8+062 ^{Mile}		Metal and Concrete
16	STANo9+016 ^{Mile}		Corrugated Steel Pipe
17	STANo9+065 ^{Mile}		Concrete
18	STANo10+031 ^{Mile}		Concrete

DACCA - NARSINGDI ROAD (4/6)

No	Sta. No	Section	Remarks
19	STANo.10+087 ^{Mile}		Concrete
20	STANo.11+027 ^{Mile}		Concrete
21	STANo.11+087 ^{Mile}		Concrete
22	STANo.12+024 ^{Mile}		Concrete
23	STANo.12+089 ^{Mile}		Concrete
24	STANo.13+048 ^{Mile}		Concrete

DACCA - NARSINGDI ROAD (5/6)

No	Sta. No	Section	Remarks
25	STANo14+004 ^{Mile}		Corrugated Steel Pipe
26	STANo17+047 ^{Mile}		Metal
27	STANo17+076 ^{Mile}		Corrugated Steel Pipe
28	STANo17+092 ^{Mile}		Corrugated Steel Pipe
29	STANo17+098 ^{Mile}		Concrete
30	STANo19+072 ^{Mile}		Corrugated Steel Pipe

DACCA-NARSINGDI ROAD (6/6)

No	Sta.No	Section	Remarks
31	STANa19+Q98 ^{M/S}		Metal

NARSINGDI - MADANGANJ RAIL WAY (1/5)

No	Sta. No	Section	Remarks
1	STANo.0+0.01 ^{Mile}		Metal
2	STANo.0+0.63 ^{Mile}		Metal
3	STANo.1+0.50 ^{Mile}		Metal
4	STANo.2+0.43 ^{Mile}		Metal
5	STANo.3+0.18 ^{Mile}		Brick
6	STANo.3+0.37 ^{Mile}		Metal

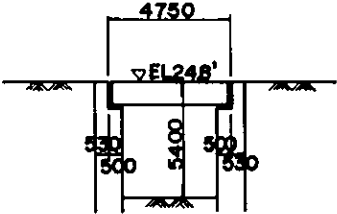
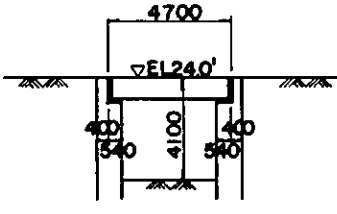
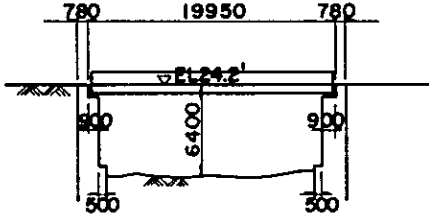
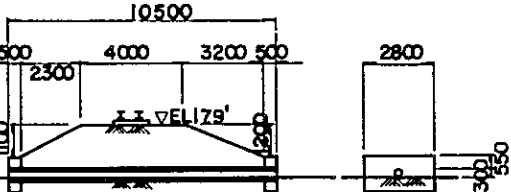
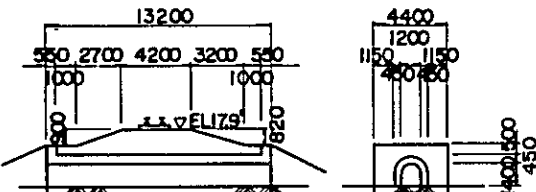
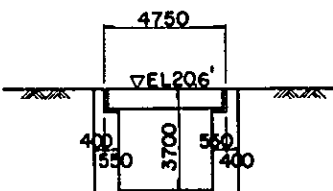
NARSINGDI - MADANGANJ RAIL WAY (2/5)

No	Sta. No	Section	Remarks
7	STANo.3+081 ^{Mile}		Metal
8	STANo.4+038 ^{Mile}		Brick
9	STANo.4+095 ^{Mile}		Metal
10	STANo.5+090 ^{Mile}		Brick
11	STANo.6+009 ^{Mile}		Metal
12	STANo.6+075 ^{Mile}		Brick

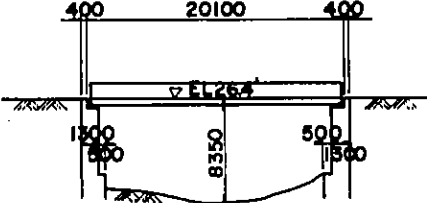
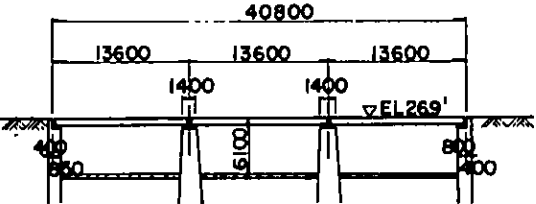
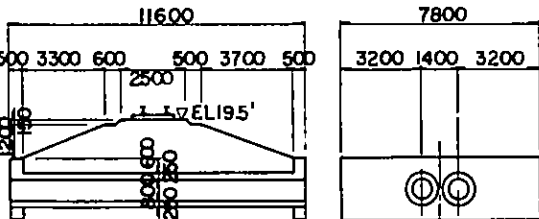
NARSINGDI - MADANGANJ RAIL WAY (3/5)

No	Sta. No	Section	Remarks
13	STANo.7+0.03 ^{Mile}		Metal
14	STANo.8+0.43 ^{Mile}		Brick
15	STANo.8+0.86 ^{Mile}		Metal
16	STANo.9+0.70 ^{Mile}		Metal
17	STANo.9+0.77 ^{Mile}		Metal
18	STANo.10+0.48 ^{Mile}		Metal

NARSINGDI - MADANGANJ RAIL WAY. (4/5)

No	Sta. No	Section	Remarks
19	STANo.1+033 ^{Mile}		Metal
20	STANo.2+066 ^{Mile}		Metal
21	STANo.4+008 ^{Mile}		Metal
22	STANo.6+008 ^{Mile}		Earthen Pipe
23	STANo.6+083 ^{Mile}		Brick
24	STANo.17+018 ^{Mile}		Metal

NARSINGDI - MADANGANJ RAIL WAY (5/5)

No	Sta.No	Secton	Remarks
25	STANo17+099 ^{Mile}		Metal
26	STANo18+081 ^{Mile}		Metal
27	STANo19+Q72 ^{Mile}		Earthen Pipe