

Call - ⁶⁹³
FAP-20

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Government of the People's Republic of Bangladesh

Ministry of Irrigation, Water Development and Flood Control
Flood Plan Coordination Organization

BANGLADESH ACTION PLAN FOR FLOOD CONTROL

COMPARTMENTALIZATION PILOT PROJECT (FAP 20)

BN-555
A-693

17



TANGAIL CPP INTERIM REPORT

ANNEX 1.2 : TOPOGRAPHICAL AND HYDROLOGICAL SURVEYS



September 1992



Euroconsult/Lahmeyer International/Bangladesh Engineering & Technological
Services/House of Consultants

under assignment to

DIRECTORAAT GENERAAL INTERNATIONALE SAMENWERKING
Government of the Netherlands

and

KREDITANSTALT FÜR WIEDERAUFBAU
Federal Republic of Germany

Government of the People's Republic of Bangladesh

Ministry of Irrigation, Water Development and Flood Control
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TANGAIL CPP INTERIM REPORT

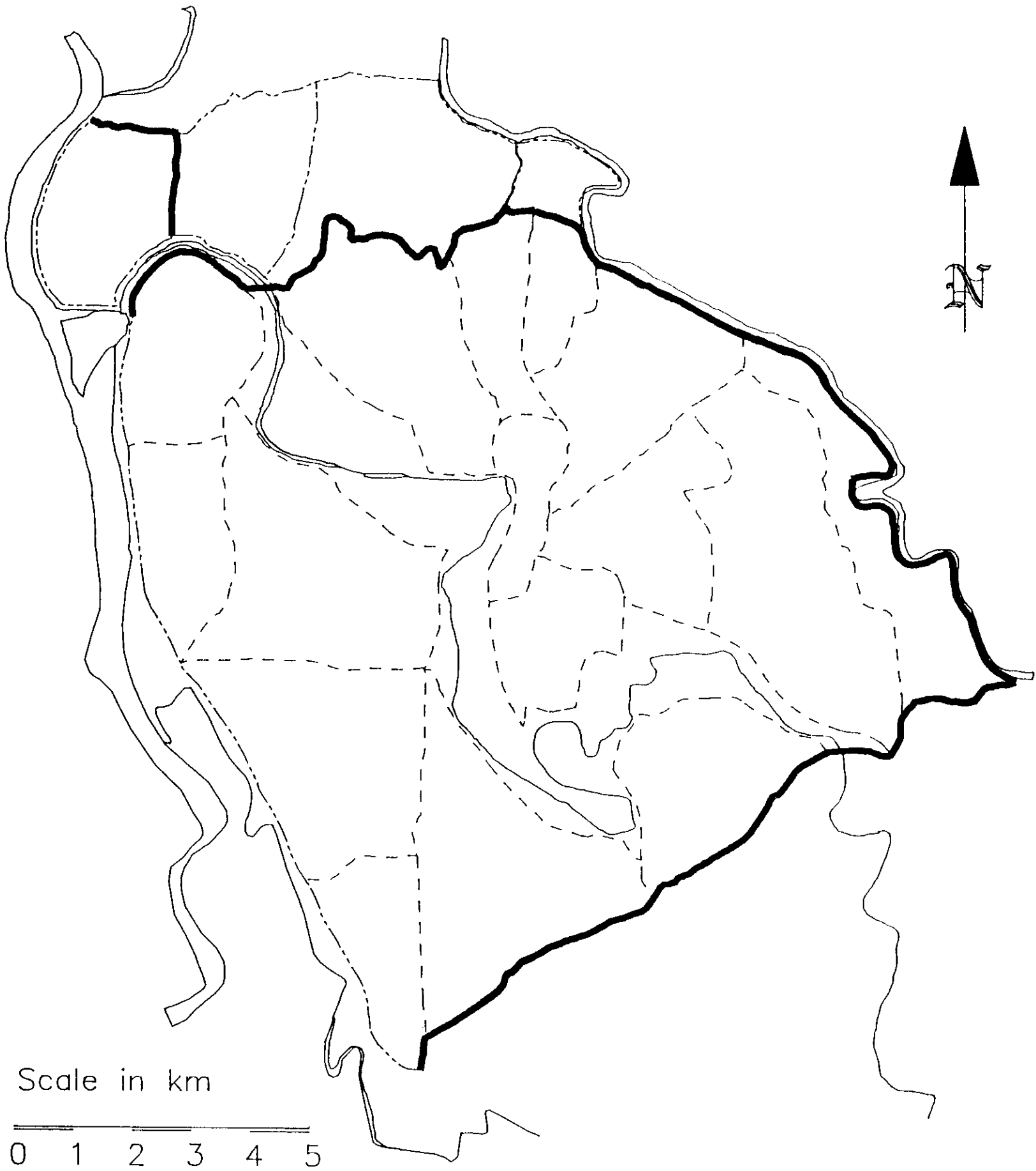
ANNEX 1.2 : TOPOGRAPHICAL AND HYDROLOGICAL SURVEYS

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ANNEX 1.2

FIGURES



LEGEND

- Compartment boundary
- Sub-compartment boundary
- Waterway
- Embankment/road surveyed

Note: Source for geo-data: FAP19.

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EMBANKMENTS SURVEYED

Consultant: Euraconsult, Lahmeyer Intl, Bets Ltd, HCL

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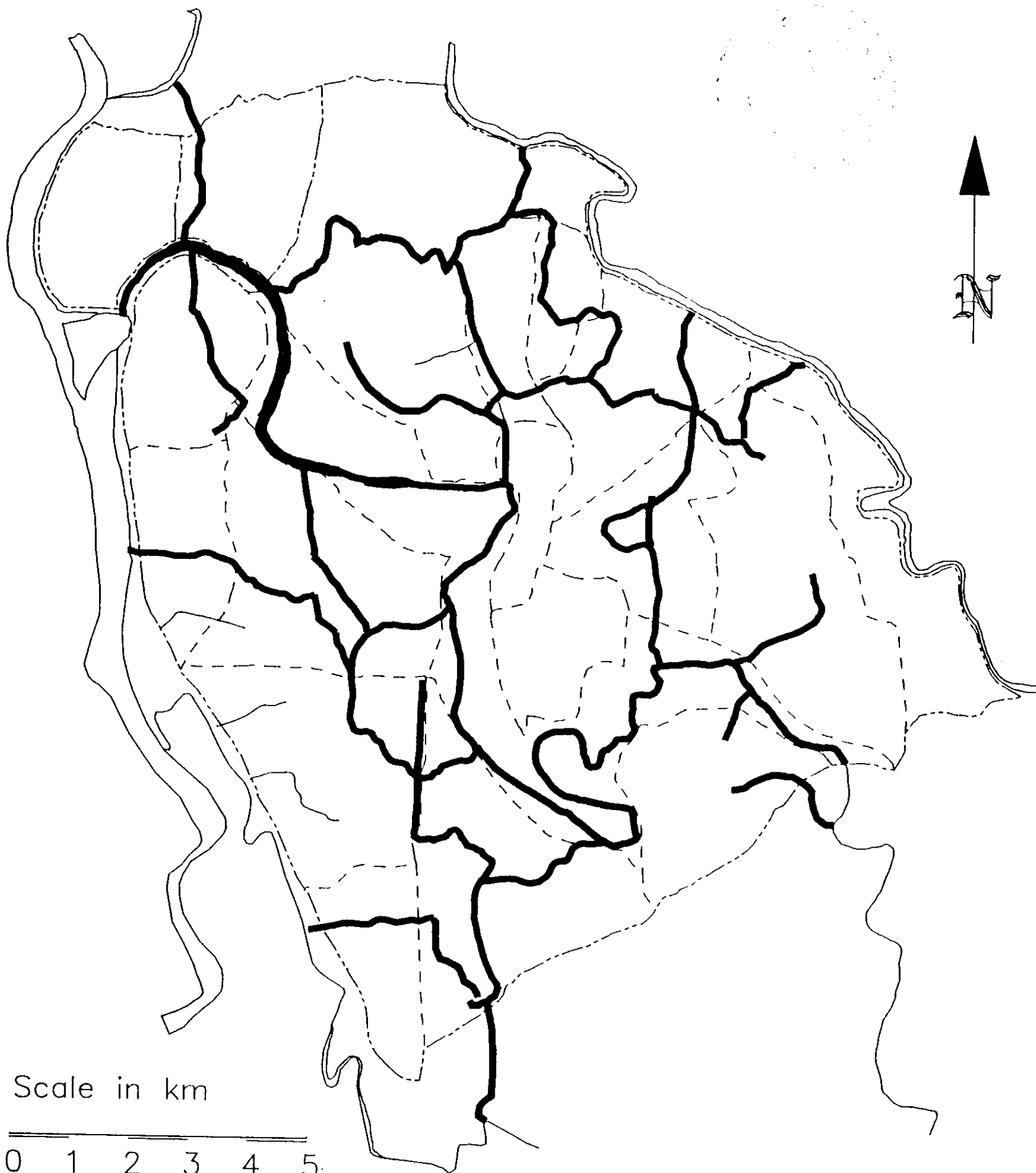
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1 (Annex 1.2)



LEGEND

- Compartment boundary
- - - - - Sub-compartment boundary
- _____ Waterway
- _____** Waterway surveyed

Note: Source for geo-data: FAP19.

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WATERWAY SURVEYED

Consultant: Euroconsult, Lahmeyer Intl, Bets Ltd, HCL

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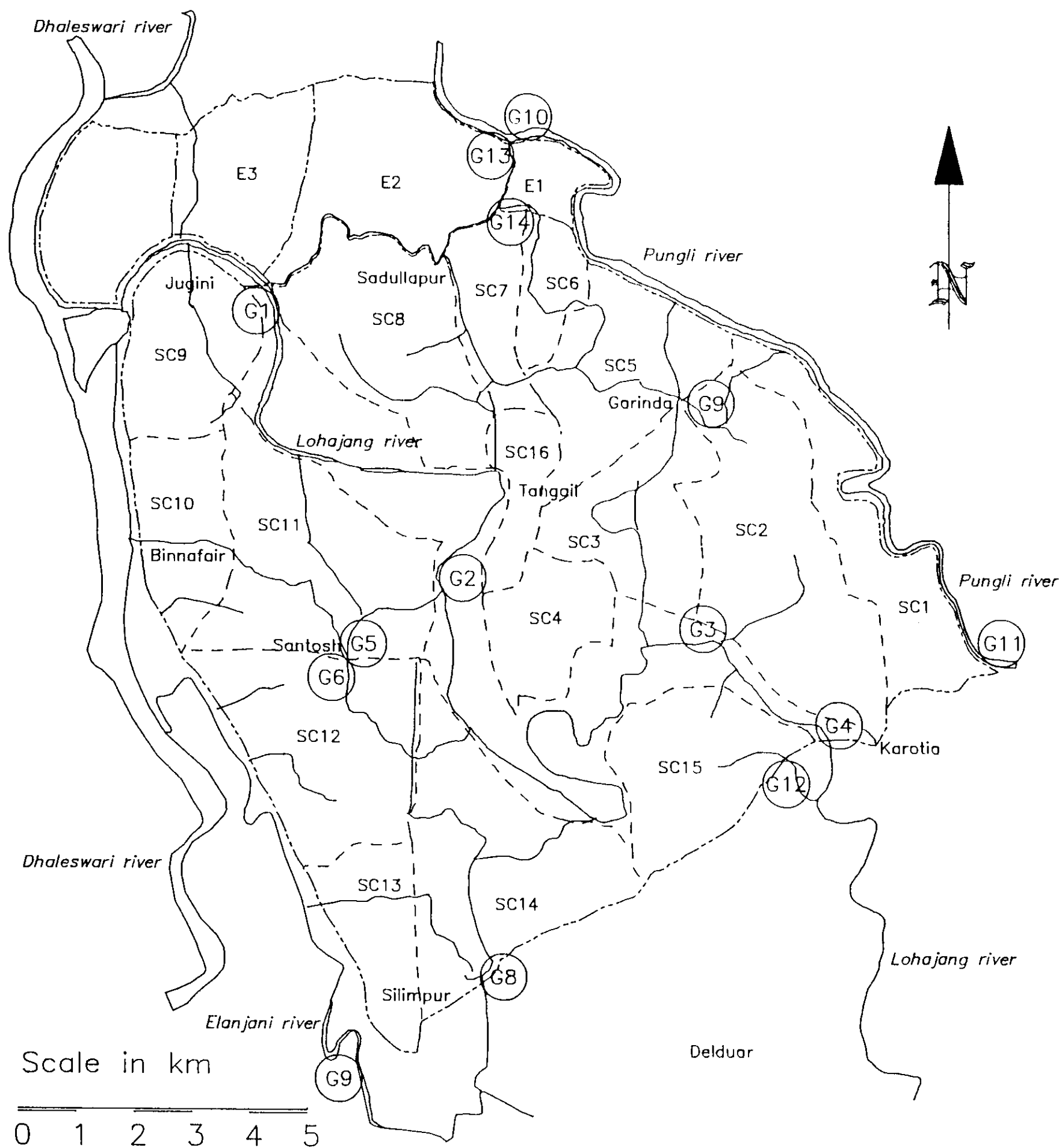
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2 (Annex 1.2)



LEGEND

- - - - - Compartment boundary
 - - - - - Sub-compartment boundary
 ——— Waterway
 (G#) Gauge location in 1991

Note: Source for geo-data: FAP19.

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GAUGE LOCATION 1991

Consultant: Euroconsult, Lahmeyer Intl, Bets Ltd, HCL

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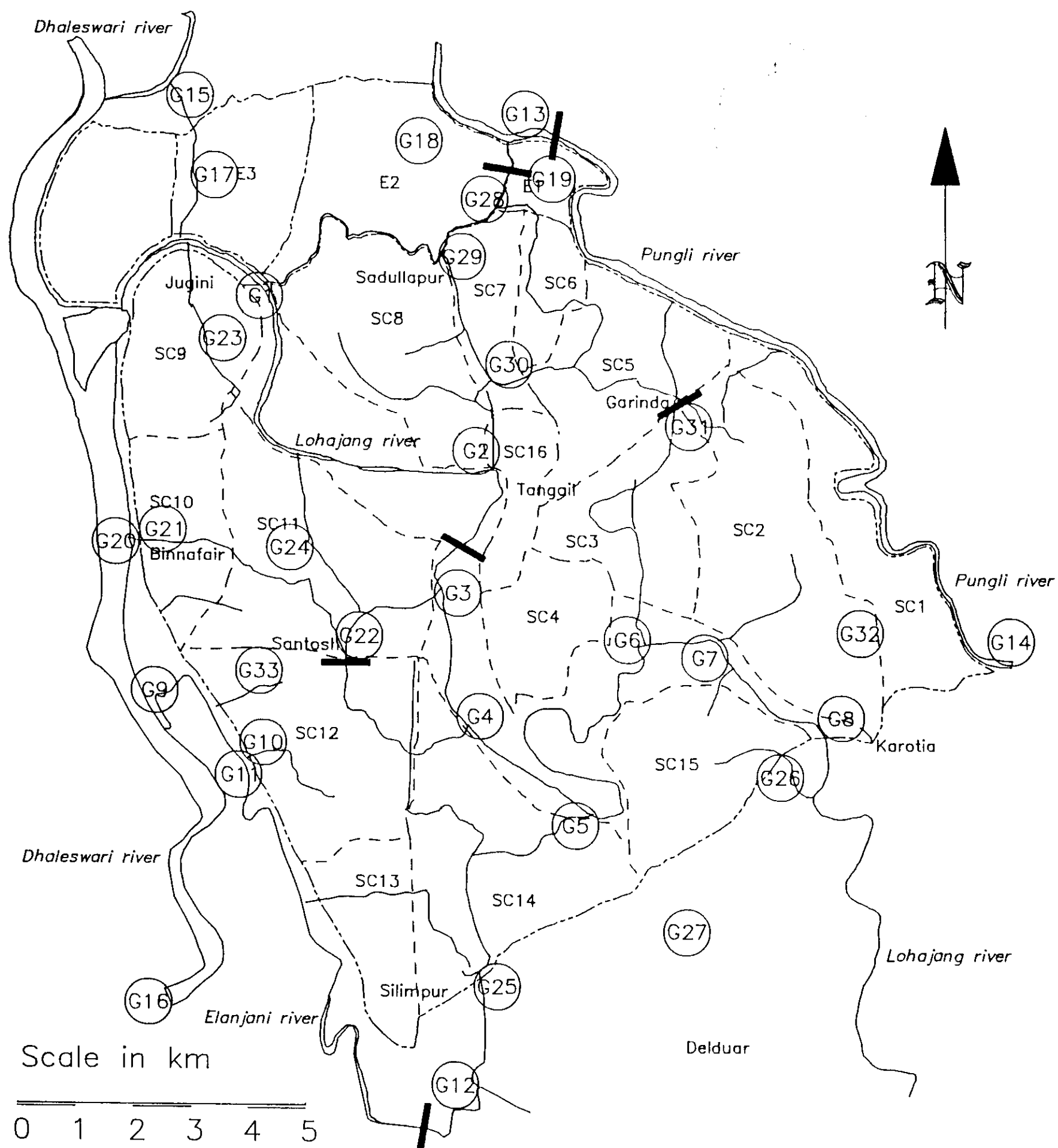
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3 (Annex 1.2.)



LEGEND

- Compartment boundary
- - - - - Sub-compartment boundary
- Waterway
- (G#) Gauge location in 1992
- Discharge measurement location

Note: Source for geo-data: FAP19.

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GAUGE LOCATION 1992

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Date:

Date:

4 (Annex 1.2.)



ANNEX 1.2

TABLES



TABLE 1 (Annex 1.2.) pg 1

RAINFALL DATA PER DECADE FOR TANGAIL ATIA [mm/10day]

MONTH	DECADE	TOTAL PER DECADE FOR:										1977						
		1961	1962	1963	1964	1965	1966	1967	1968	1969	1970		1971	1972	1973	1974	1975	1976
1	1	30.5	0	0	0	0	31	12.7	0	0	0	0	5.1	0	0	0	0	0
2	2	1.5	8.6	0	0	0	0	0	0	2.5	0	0	0	0	0	0	0	0
	3	40.8	6.4	0	6.4	1.3	0	0	0	0	33.3	1.3	0	0	0	0	0	12.7
3	2	0	0	0	0	3	0	1.3	0	0	3.8	0	0	0	0	0	0	0
	3	0	0	0	30.5	0	0	0	0	0	0	0	0	4.8	0	0	0	0
4	1	16.3	0	6.6	0	0	0	51.3	0	0	1.3	0	6.4	15.5	0	1.3	9.9	88.9
	2	6.6	0	0	8.6	16.5	0	66	14.7	40.1	0	0	0	0	0	0	0	0.5
5	3	4.1	5.8	16.5	14.7	20.8	0	45.7	38.9	68.4	6.4	94.9	1.3	0	161.2	1.3	0	0
	2	0	11.9	16.7	94.7	43	0	36.9	51.5	45.7	76.2	-10	0	17.7	86.4	11.5	0	45.8
6	3	50.5	19.3	18	41.1	0	25.2	20.5	0	44.5	1.3	-10	0	122.1	20.1	21.6	49.7	27.4
	1	107.1	85.5	175.8	154.1	34.1	47	115.6	6.6	27.2	0	9.2	0	108.3	53.1	0	56.8	72.4
7	2	16.3	104.6	47.3	71.4	94	15	15.3	125.8	0	120.4	81.3	234.4	0	66	44.2	65.3	53.1
	3	64.7	34.9	73.9	22.9	11.4	27.9	14.2	94.4	73.2	11.5	28	12.7	80.8	46.2	116.8	76.8	103.2
8	1	80.6	57.7	179.1	17.8	201.5	50.1	58.6	6.3	109.3	125.9	208.8	57.4	61.2	58.7	0	166.6	73.5
	2	34.6	28.5	180	163.1	5.8	12.3	78.9	248.6	107.4	73.9	19.3	227.6	127.8	114.3	102.9	228.5	146.9
9	3	49.3	14.8	21.5	63.3	229.7	105.6	27.1	153.2	9.2	56.9	81	1.3	180.3	151.9	45.5	5.1	361.6
	1	39.1	4.5	45.4	73	184.9	73.1	151.7	108	127.2	63.1	45.8	1.3	11.2	239.8	10.7	54.7	3.9
10	2	103.2	50.7	171.6	95.6	32.8	101	50.6	181.3	47.2	203.4	89	32.8	36.3	146	287.1	125.8	162.6
	3	2.5	66.2	48.9	280.4	81.3	59.8	11.6	19.4	9.9	125.3	150.3	159.7	238.6	128.1	81.4	38.9	108.5
11	1	73.1	21.1	61.5	7.6	56.3	86.7	197.4	64.7	78.2	134	62.2	91	124.5	6.3	25.4	82.1	33.9
	2	17	28.4	72.7	94	155.2	192.9	13.5	88.9	273.8	40.9	120.4	81.4	75.9	64.5	101	194.4	45.7
12	3	22.9	0	52.3	47.4	301	126.3	99.6	123.4	89.3	52.9	110.5	76.3	48.3	75.8	127.3	92.7	49.5
	1	51.3	25.9	72.7	50.2	103.2	101.4	61.4	68.9	36.9	57.6	183.5	45.7	77.6	26.2	111.8	1.8	85.6
13	2	38.7	10.7	88.6	24.7	150.3	39.6	83.8	71.8	104.7	60	162.9	30.3	208.2	130.3	36.8	40.7	81.9
	3	12.2	22.9	0	20.3	65.1	22.9	117.5	75.4	73.9	86.6	79.2	9.2	189.3	95.2	14	71.7	6.7
14	1	108.1	21.4	0	118.7	0	103.4	93.2	106.1	46.7	267.8	45.8	44.5	27	34.1	65.3	20.6	147.8
	2	10.4	0	0	67	0.5	66.3	33	0	30.2	0	0.8	0	0	48.7	45.1	0	0
15	3	3.3	20.6	0	44.9	3.8	19.6	0	0	0	124.9	0	0	63.5	39	24.9	0	10.9
	1	2.3	0	0	0	19	0	0	0	0	6.1	34.3	0	0	2.6	0	0	26.7
16	2	0	0	0	0	0	0	0	12.7	20.6	14	0	0	0	0	0	0	0
	3	0	0	0	0	0	10.7	0	0	0	0	0	0	0	0	0	5.3	1.5
17	1	0	0	0	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	11.2	0	0	0	0	0	0	0	0	0	0	0
18	3	0	0	0	0	4.3	0	0	0	0	0	0	0	0	0	0	0	26.1
TOTAL [mm/year]		987	650	1349	1612	1819	1330	1457	1604	1466	1749	1589	1117	2056	1847	1276	1389	1868

TABLE 1 (Annex 1.2.) pg 2

RAINFALL DATA PER DECADE FOR TANGAIL ATIA [mm/10day]

MONTH	DECADE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1	1	0	0	5.8	0	0	2.3	0	0	0	0	0	0	0	14
	2	0	0	0	0	0	0	0	0	5.8	0.8	0	0	0	0
2	1	0	5.3	0	2.3	0	2.8	5.8	0	0	0	0	0	0	0
	2	12.2	2.3	0	20.6	0	0	0	0	0	0	0	0	0	12
3	1	0	0	0	18	0	0	0	0	3.3	0	2.3	55.8	12.9	0
	2	0	0.8	0	0	3.3	0	0	0	0	0	41.2	0	27.2	4
	3	6.9	2.3	0	2.8	76.9	16.8	0	0	2.3	4	3.3	0	9.1	6
4	1	19.1	4.1	4.5	19.3	1.5	40.9	0	0	0	29.4	27.7	0.8	17.1	3
	2	0	0	4.8	27.2	19.1	14.5	15	30.1	0	0	2.8	0.5	137	71
	3	23.3	10.4	0	111.3	108.4	105.9	9.1	16.2	60.2	13.2	0	0	90.5	7
5	1	44.4	0	71.4	86.9	35.3	38.3	2.3	58.9	0	14.2	22.6	0	57.4	10
	2	174.2	2.3	161.6	15	52.3	135.3	54	37.3	89.4	131.1	62.1	0.5	57	36
	3	60.7	1.8	133.1	102.1	83.5	63.8	159.3	82.8	89.6	59.2	39.6	112.3	35	174
6	1	269.5	0	100.4	174.2	16.3	77.4	78.4	44.7	36.6	47.7	165.5	242.8	60.6	80
	2	183	95	266	33	38.9	31.2	539.6	120.2	30.9	97.5	16.5	159.7	75.2	183
	3	68.5	137.5	34.6	12.7	73.3	99.5	196.5	158.9	18	30	475.1	67	148	127
7	1	13.5	32.5	33.7	86.8	270.4	141.1	63.4	78	54.3	158.4	130.3	21.6	67.8	205
	2	104.7	93	19.3	126.5	94.6	158.2	62.7	89.2	280.2	85.9	274.3	45.8	200.2	18
	3	103.9	20.5	82.4	148.8	117.7	150.8	154.4	103.4	58.1	30.9	93.9	115.4	138.8	155
8	1	46.8	23.9	55.4	33	132.9	186.4	73.3	215.7	98.9	221.4	61.5	149.9	156	164
	2	20.9	198.4	3.1	87.6	85.9	29.7	38.9	26.4	170	154.7	13.3	12.6	83.4	109
	3	88.7	166.3	169.9	109.9	116	214.7	38.9	39.4	34.1	51.5	87.3	27.2	108	17
9	1	100	87.8	68.3	117.3	20.8	68.2	72.8	26.4	115.3	149.6	70.1	44.2	98	21
	2	158	41.7	53.1	58.2	56.9	265.7	265.7	41.7	75.4	74.7	20.8	111.5	13	132
	3	77.9	70.1	58.4	17.5	26.4	257.7	257.7	38.5	50.8	65.8	64.7	12.2	56	211
10	1	3.9	145.8	121.3	5.3	0	138	75.1	130.6	577.4	200.8	0	114.1	101	320
	2	4.8	2.3	122.4	0	0	164.2	29.2	128.8	323.6	34.3	87.7	53.4	114	112
	3	0	0	108.2	0	25.9	1.5	7.3	82.8	174.5	16.8	65.3	162.6	9	195
11	1	0	0	0	0	0	0	0	0	0	0	0	8	0	0
	2	0	0	0	0	29.2	0	0	65.8	0.5	0.5	0	0	55	0
	3	0	7.8	0	0	0	0	0	0	0	20.4	0	0	7	0
12	1	0	33.3	0	0	0	0	0	0	0	0	148.8	0	0	0
	2	0	0	0	63.2	0	0	0	0	0	0	3.6	0	0	0
	3	0	0	0	0	0	0	0	0	0	30.5	0	0	4	0
	4	0	0	0	0	0	28	0	6.9	0	0	0	1.1	0	75
TOTAL [mm/year]		1745	1321	1822	1677	1546	2286	2355	1644	2483	1731	2133	1519	1955	2652

TABLE 2.1 (Annex 1.2.)

Maximum 3 day mean waterlevel per decade at Jugini station.

YEAR	14	114	1114	15	115	16	116	1116	17	117	18	118	19	119	110	1110	111	1111	112	1112	11112	MAX						
52				7.08	9.37	10.20	9.69	10.42	11.29	12.16	11.96	10.72	12.16	12.16	12.13	11.93	11.42	11.27	9.79	8.70								
53				7.17	9.48	10.29	10.18	10.42	11.39	11.87	12.22	12.23	11.92	11.31	11.30	12.05	11.99	11.54	11.51	9.66	8.18	7.81						
54				9.66	10.26	10.47	11.56	12.20	12.33	12.11	12.78	12.89	12.64	12.69	11.76	11.46	11.66	11.53	10.80	9.43	8.34							
55				8.59	9.33	9.91	10.34	11.31	11.77	12.11	12.69	13.00	12.95	12.59	11.80	12.03	11.90	10.91	10.52	10.27	9.23	9.33						
56				10.49	11.29	10.22	12.01	12.31	12.20	11.37	11.76	11.46	11.38	12.21	12.23	12.20	12.13	10.44	10.54	10.59	9.43	9.18						
57	7.08	7.14	8.77	9.04	9.80	10.36	10.12	11.72	11.80	11.94	12.38	12.73	12.77	12.18	11.48	11.01	11.11	11.19	10.39	9.61	8.91	8.20						
58	6.26	7.34	7.60	9.61	10.25	10.55	10.76	9.65	11.25	11.47	11.43	11.35	12.30	12.61	12.87	12.82	12.12	12.09	11.48	11.47	11.17	9.61						
59																		7.23	6.97	6.74	12.77							
60																		7.66	7.33	7.02	12.87							
61																												
62																												
63																												
64	7.65	8.24	8.49	9.29	9.51	8.89	9.60	10.75	11.76	11.90	12.16	12.54	12.86	12.64	12.00	12.05	12.16	12.08	11.48	10.64	10.00	9.73	8.90	8.25	7.82	7.51	7.32	12.86
65	6.91	7.13	8.08	8.29	9.32	9.35	10.80	11.01	11.21	11.58	11.66	11.62	11.92	12.53	12.35	11.82	11.95	11.91	11.13	10.15	9.10	8.90	8.71	8.25	7.75	7.42	7.12	12.53
66	6.46	7.02	7.72	7.63	8.22	8.79	10.41	12.06	10.99	11.98	12.00	11.94	12.11	12.25	12.75	12.76	12.31	11.87	10.65	10.47	9.23	8.58	7.96	7.72	7.54	7.30	7.03	12.76
67	6.82	6.77	6.99	7.81	8.69	8.70	9.73	10.35	11.34	11.72	12.44	12.39	11.66	11.72	11.71	11.14	11.12	11.49	11.04	10.24	10.24	8.94	8.34	7.92	7.59	7.33	7.11	12.44
68	7.15	7.39	8.03	8.28	8.84	9.76	10.42	10.63	12.10	12.06	12.18	12.62	12.51	11.91	11.84	11.86	11.35	11.84	12.32	11.82	10.09	8.94	8.44	7.94	7.58	7.25	6.96	12.62
69	6.58	6.66	7.85	8.08	7.67	9.66	9.39	11.15	11.46	11.42	12.05	12.23	11.69	11.67	11.97	11.96	11.74	11.21	10.44	9.49	8.84	8.21	7.72	7.48	7.28	7.04	6.85	12.23
70	7.64	7.51	7.90	9.20	10.31	10.27	10.17	10.57	11.59	11.39	12.00	12.48	12.43	12.13	11.71	11.08	11.14	11.77	11.79	11.02	9.44	9.14	8.12	7.49	7.07	6.65	6.34	12.48
71	6.00	6.09	6.61	6.71	7.51	7.37	8.78	11.13	11.15	11.22	11.62	11.48	11.54	12.04	12.08	11.89	10.97	10.74	10.94	10.99	10.28	9.04	8.14	7.45	6.73	6.36	6.20	12.08
72	5.90	6.24	6.24	8.22	8.40	9.29	9.61	9.55	11.06	10.94	10.49	11.86	12.02	11.18	10.45	11.20	11.24	10.62	10.36	9.26	8.87	8.17	7.47	6.85	6.45	6.23	6.15	12.02
73	5.81	6.73	7.65	7.30	9.24	9.07	9.55	11.47	11.93	11.64	10.39	11.50	12.23	12.24	11.39	10.14	11.72	11.70	10.18	10.51	9.28	7.80	7.01	6.54	6.30	6.25	6.16	12.24
74	5.98	6.11	6.76	7.40	8.62	8.48	9.82	9.75	11.12	11.36	11.55	12.05	12.44	12.24	11.40	12.32	11.56	11.28	10.99	9.98	8.98	8.38	7.20	6.34	6.05	5.93	5.86	12.44
75	5.64	5.64	5.90	6.63	6.64	7.86	8.26	9.20	10.19	10.57	11.03	11.81	11.79	11.08	10.93	11.25	11.38	11.12	10.24	10.10	9.79	8.35	7.36	6.72	6.46	6.39	6.33	11.81
76	6.11	6.11	6.25	7.09	7.18	7.22	8.69	10.67	10.50	11.59	11.29	10.96	10.90	11.07	11.47	11.23	10.65	10.47	10.11	9.31	8.73	8.17	7.43	7.12	6.84	6.73	6.45	11.59
77	6.71	8.04	7.79	9.51	9.02	9.24	10.67	10.84	10.90	10.50	11.47	11.55	11.65	12.08	12.20	11.97	11.05	10.96	10.87	10.89	9.25	8.18	7.71	7.24	6.79	6.62	6.56	12.20
78	6.38	6.37	6.47	6.76	7.00	8.59	8.33	10.09	11.41	11.38	10.94	11.22	11.30	11.35	11.09	9.95	10.89	10.88	10.39	9.06	8.62	7.43	7.04	6.96	6.91	6.88	6.86	11.41
79																												
80	6.58	6.69	6.69	6.66	6.79	8.50	7.97	9.71	11.55	11.32	11.60	11.76	11.27	11.64	11.65	11.22	11.10	9.89	9.56	8.27	7.35	7.24	7.18	7.15	7.13	7.09	11.76	
81																												
82																												
83	6.98	7.01	6.99	7.44	8.00	9.11	9.02	9.77	10.67	11.42	11.38	11.56	11.68	10.99	11.32	11.20	12.51	12.19	11.64	10.52	10.26	9.10	8.20	7.65	7.50	7.45	7.41	12.51
84	7.21	7.55	7.50	7.92	8.44	10.09	9.92	11.16	11.28	11.37	12.44	12.50	12.52	11.66	10.78	11.53	12.80	12.76	11.17	9.67	9.93	9.15	8.03	7.59	7.49	7.42	7.37	12.80
85	7.10	7.17	7.74	8.62	8.31	7.98	11.10	10.44	10.76	11.37	11.84	12.40	12.31	10.70	11.64	11.70	11.78	10.77	10.92	10.08	9.69	8.59	8.01	7.55	7.28	7.22	7.17	12.40
86	6.93	6.91	7.61	7.78	7.89	7.68	7.90	8.65	10.40	10.73	10.54	11.22	11.53	11.07	11.13	11.33	11.56	11.71	10.67	10.66	9.94	8.77	8.01	7.61	6.95	6.78	6.73	11.71
87	6.40	6.57	6.69	6.69	6.76	7.50	7.83	9.28	9.88	10.95	10.95	12.40	12.41	12.95	12.63	11.92	11.95	11.64	11.41	10.10	9.05	8.40	7.79	7.35	7.23	7.17	7.12	12.95
88	6.84	6.82	6.87	6.97	8.61	9.98	10.16	9.53	9.97	12.10	12.43	11.72	11.73	11.84	13.41	13.38	12.42	10.81	10.46	10.54	9.33	8.48	7.89	7.79				13.41
89	7.38	7.36	7.45	7.46	7.65	9.30	9.25	10.51	10.53	11.60	11.47	11.48	11.13	10.68	11.12	11.11	11.19	11.46	11.12	10.45	9.79	8.95	8.16	7.81	7.71	7.64	7.60	11.60
90	7.45	7.45	8.18	8.28	8.42	9.11	10.36	10.87	11.04	10.75	11.40	11.93	11.86	11.35	11.24	11.23	10.88	11.32	11.41	11.42	9.99	8.78	8.25	8.05	7.97	7.92	7.88	11.93
91	7.62	7.55	7.56	8.31	9.56	9.26	9.85	10.90	11.35	11.73	12.39	11.77	11.40	11.68	11.65	11.61	11.99	11.14	10.80	9.91	9.87	8.96	8.67	8.65	8.63	8.61	8.69	12.39
1/2Y	6.63	6.85	7.23	7.74	8.25	8.89	9.53	10.22	10.95	11.40	11.54	11.86	11.87	11.69	11.69	11.56	11.56	11.41	10.90	10.35	9.58	8.64	7.97	7.47	7.14	6.96	6.83	12.28
1/5Y	7.15	7.39	7.87	8.54	9.21	9.82	10.31	11.03	11.54	11.80	12.05	12.29	12.37	12.28	12.29	12.19	12.05	11.90	11.43	10.99	10.21	9.22	8.49	7.96	7.64	7.48	7.37	12.70
1/10Y	7.49	7.75	8.30	9.08	9.86	10.43	10.83	11.57	11.93	12.06	12.39	12.57	12.71	12.67	12.68	12.60	12.37	12.22	11.77	11.42	10.63	9.61	8.84	8.29	7.98	7.82	7.72	12.98
1/20Y	7.82	8.10	8.71	9.59	10.47	11.01	11.33	12.08	12.30	12.32	12.71	12.84	13.03	13.04	13.06	12.99	12.68	12.53	12.10	11.82	11.04	9.98	9.17	8.60	8.31	8.15	8.07	13.24

TABLE 2.2 (annex 1.2.)

Maximum rise in a 3 day interval (mm) decade at Jugini station.

YEAR	14	114	1114	15	115	1115	16	116	1116	17	117	1117	18	118	1118	19	119	1119	110	1110	11110	111	1111	11111	112	1112	11112	MAX
52					0.13	1.08	0.67	0.17	0.88	0.54	0.46	-0.26	0.13	0.23	0.38	0.23	0.00	0.25	0.02	0.15	-0.28	-0.19	-0.34					1.08
53					0.57	1.76	0.78	-0.09	0.95	0.73	0.23	0.11	0.04	0.13	0.29	0.08	0.82	-0.16	0.32	-0.11	-0.18	-0.06	-0.10					1.76
54					0.24	0.77	0.45	1.07	0.33	0.13	0.07	0.27	0.13	0.04	0.24	-0.09	0.04	0.03	0.50	0.14	-0.27	-0.27	-0.26					1.07
55					0.78	0.90	0.74	0.57	0.41	0.29	0.35	0.35	0.17	-0.02	0.18	0.17	0.35	-0.17	0.11	0.24	0.21	-0.01	0.01					0.90
56						0.80	0.55	1.04	0.23	-0.07	0.02	0.57	-0.25	0.63	0.65	0.04	0.32	-0.19	0.11	0.41	0.19	0.02	-0.10	-0.12				1.04
57	0.21	0.19	1.02	0.35	0.76	0.56	0.57	0.77	0.19	0.36	0.29	0.29	0.23	0.04	-0.06	-0.04	0.28	0.40	0.51	0.09	-0.10	-0.06	-0.11	-0.07	-0.05	-0.02	-0.08	1.02
58	0.32	0.48	0.71	1.44	0.48	0.83	0.55	0.41	1.29	0.26	-0.04	0.22	0.54	0.14	0.11	-0.06	0.26	0.20	0.50	0.04	-0.23	-0.15	-0.17	-0.06	-0.06	-0.08	-0.07	1.44
59																												
60																												
61																												
62																												
63																												
64	0.34	0.55	0.17	1.00	0.23	-0.01	0.94	0.99	0.66	0.25	0.23	0.19	0.20	-0.13	0.12	0.25	0.09	0.00	0.03	-0.16	0.08	-0.22	-0.18	-0.11	-0.05	-0.04	0.00	1.00
65	0.19	0.17	0.52	1.16	0.39	0.09	0.98	0.48	0.53	0.34	0.17	0.21	0.55	0.49	-0.02	-0.10	0.40	-0.11	-0.15	-0.25	0.18	0.11	0.00	-0.11	-0.08	-0.06	-0.05	1.16
66	0.21	0.49	0.60	0.06	0.64	0.06	0.79	1.88	0.27	0.98	0.03	0.03	0.21	0.18	0.38	0.05	-0.03	-0.29	0.19	-0.28	-0.07	-0.15	-0.04	0.06	0.01	-0.06	-0.04	1.88
67	0.09	0.01	0.23	0.70	0.83	0.21	0.40	0.41	0.61	0.73	0.87	0.02	0.18	0.17	-0.05	0.06	0.35	0.44	0.25	-0.11	-0.22	-0.16	-0.08	-0.07	-0.02	-0.05	-0.03	0.87
68	0.01	0.54	0.46	0.34	1.05	1.08	1.08	0.44	1.11	0.17	0.20	0.29	-0.13	-0.10	0.23	0.04	0.03	0.50	0.73	-0.44	-0.23	-0.12	-0.13	-0.10	-0.07	-0.07	-0.06	1.11
69	0.08	0.16	0.64	0.54	0.34	1.32	0.51	1.01	0.62	0.33	0.24	0.18	0.07	0.38	0.28	0.05	-0.09	0.02	-0.25	-0.14	-0.11	-0.11	-0.06	-0.03	-0.03	-0.04	-0.03	1.32
70	1.11	0.42	0.49	1.27	1.31	-0.09	0.77	0.51	0.90	0.06	0.52	0.30	-0.04	0.00	-0.07	0.10	0.64	0.40	0.06	-0.44	0.24	0.14	-0.14	-0.09	-0.11	-0.06	-0.03	1.31
71	0.08	0.15	0.33	0.13	0.57	0.15	0.96	1.11	0.06	0.27	0.31	0.02	0.15	0.30	0.09	-0.07	0.02	0.11	0.35	0.26	-0.15	-0.13	0.07	-0.13	-0.02	-0.03	-0.01	1.11
72	0.11	0.39	0.27	1.43	0.39	0.68	0.47	0.64	1.14	-0.02	0.34	0.52	0.34	0.15	0.10	0.56	0.04	0.29	-0.24	0.03	0.22	-0.13	0.15	-0.10	-0.03	-0.01	0.01	1.43
73	0.19	0.52	0.82	0.29	1.05	0.22	0.78	1.37	0.58	-0.28	0.04	1.42	0.32	0.03	-0.24	-0.04	1.15	-0.06	0.08	1.08	-0.22	-0.18	-0.08	-0.06	0.03	0.00	0.00	1.42
74	0.03	0.22	0.90	0.57	1.14	0.00	1.47	0.33	1.45	0.54	0.80	0.38	0.22	-0.24	0.64	0.83	0.02	0.15	-0.07	-0.23	-0.04	0.08	-0.18	-0.06	-0.01	-0.01	0.00	1.47
75	0.00	0.01	0.38	0.94	0.18	1.06	0.44	0.90	0.62	0.20	0.33	0.43	0.02	-0.11	0.30	0.31	0.24	0.02	0.12	0.26	-0.34	-0.11	-0.08	-0.04	-0.01	-0.01	0.00	1.06
76	0.00	0.00	0.16	0.48	0.19	0.23	0.58	0.98	0.55	1.10	0.11	-0.11	0.57	0.14	0.28	-0.08	0.01	0.15	-0.19	-0.06	0.01	-0.08	-0.05	-0.01	0.08	-0.05	-0.01	1.10
77	0.58	0.95	0.38	1.05	0.22	0.50	0.79	0.51	0.16	0.19	0.42	0.16	0.10	0.34	0.21	0.05	0.31	0.20	0.32	0.08	-0.18	-0.08	0.05	-0.10	-0.03	-0.01	0.02	1.05
78	0.00	0.05	0.25	0.26	0.38	1.14	0.18	1.15	0.82	0.15	0.63	0.34	0.42	0.09	-0.18	0.37	0.61	0.18	-0.34	0.04	-0.24	-0.04	0.00	0.00	0.00	0.00	0.00	1.15
79																												
80																												
81	0.01	0.07	0.16	0.03	0.27	0.14	1.05	0.26	1.49	1.60	0.64	0.27	0.13	0.13	0.30	0.05	0.14	-0.26	0.38	-0.23	-0.07	-0.01	-0.01	0.01	0.01	0.02	-0.01	1.60
82																												
83	0.07	0.04	0.04	0.79	0.91	0.47	0.33	0.78	1.20	0.57	0.40	0.42	0.29	0.04	0.55	0.06	0.86	-0.02	-0.08	0.30	0.47	-0.23	-0.11	-0.02	-0.01	-0.01	0.01	1.20
84	0.02	0.40	0.39	0.30	0.75	1.21	0.57	0.97	0.77	0.60	0.71	0.43	0.07	-0.24	0.22	0.29	0.89	-0.10	-0.31	-0.04	0.69	-0.29	-0.05	-0.02	-0.01	-0.01	-0.01	1.21
85	0.03	0.17	0.37	0.96	0.27	0.57	1.91	0.21	0.44	0.34	0.28	0.36	-0.25	0.02	0.58	0.28	0.16	0.13	0.28	0.07	0.10	-0.12	-0.11	-0.04	-0.01	-0.01	-0.01	1.91
86	0.05	0.00	0.76	0.33	0.31	1.12	0.70	0.59	0.83	0.61	0.38	0.35	0.57	0.03	0.63	0.32	0.40	0.32	0.73	0.04	-0.26	-0.11	-0.07	-0.08	-0.01	-0.01	-0.01	0.83
87	-0.01	0.41	0.37	0.23	0.16	0.90	0.53	0.68	0.54	0.76	0.01	0.82	0.02	0.77	-0.10	0.33	0.13	0.20	0.13	0.01	0.26	-0.12	-0.10	-0.02	-0.01	-0.01	-0.01	0.90
88	-0.01	0.03	0.06	0.10	0.98	1.18	0.45	0.61	0.38	1.64	0.84	0.48	0.07	0.37	0.99	-0.09	-0.26	0.45	0.31	0.58	0.39	-0.08	-0.02	0.10				1.64
89	0.00	0.00	0.11	0.05	0.23	1.63	0.36	1.17	1.10	1.30	0.20	0.13	0.35	0.28	0.34	0.35	0.49	0.73	0.09	0.16	0.08	-0.16	-0.06	-0.01	-0.01	-0.01	0.01	1.63
90	0.03	0.14	0.39	0.15	0.42	0.47	0.56	0.60	0.82	0.27	0.27	0.30	-0.08	0.26	0.35	-0.03	0.31	0.28	0.22	0.22	-0.22	-0.13	-0.03	-0.01	-0.01	-0.01	-0.01	0.82
91	-0.01	-0.01	0.10	1.18	1.06	0.37	0.82	0.87	0.67	0.65	0.59	-0.16	0.61	0.18	0.21	0.51	0.61	0.24	-0.06	0.22	0.11	-0.02	0.00	0.00	0.00	0.00	0.12	1.18
1/20Y	0.10	0.20	0.37	0.52	0.48	0.57	0.66	0.66	0.41	0.30	0.24	0.24	0.15	0.09	0.19	0.11	0.25	0.10	0.10	0.01	-0.05	-0.12	-0.10	-0.06	-0.03	-0.03	-0.02	1.19
1/50Y	0.31	0.42	0.60	0.93	0.78	1.00	0.96	1.01	0.81	0.52	0.51	0.51	0.35	0.30	0.44	0.31	0.53	0.31	0.35	0.27	0.17	-0.03	-0.02	-0.01	-0.01	-0.01	0.01	1.46
1/100Y	0.45	0.56	0.76	1.19	1.29	1.29	1.18	1.25	1.18	1.07	0.67	0.68	0.48	0.44	0.60	0.44	0.72	0.45	0.51	0.45	0.32	0.03	0.03	0.03	0.03	0.01	0.04	1.63
1/200Y	0.58	0.69	0.90	1.45	1.16	1.56	1.36	1.47	1.39	1.33	0.81	0.85	0.61	0.57	0.76	0.56	0.90	0.58	0.67	0.61	0.46	0.09	0.08	0.06	0.05	0.02	0.06	1.80

TABLE 2.3 (Annex 1.2.)

Maximum daily waterlevel per decade at Jugini station.

YEAR	14	114	1114	15	115	16	116	1116	17	117	18	118	19	119	110	1110	111	1111	112	1112	max	max(-88)							
52				7.06	9.40	10.27	9.69	10.43	11.29	12.20	11.96	10.72	12.17	12.16	12.15	11.95	11.44	11.28	9.79	8.70		12.20 12.20							
53				7.15	9.52	10.31	10.17	10.43	11.40	11.87	12.23	12.23	12.07	12.00	11.56	11.51	9.65	8.18	7.81		12.23 12.23								
54				9.70	10.28	10.49	11.56	12.20	12.35	12.10	12.79	12.91	12.64	11.75	11.47	11.67	11.57	10.96	9.42	8.33		12.91 12.91							
55				8.62	9.44	9.96	10.37	11.31	11.77	12.11	12.68	13.01	12.95	12.60	11.81	12.04	11.89	10.90	10.53	10.31	10.24	9.33							
56				10.47	11.34	10.24	12.00	12.32	12.21	11.34	11.81	11.45	11.39	12.21	12.24	12.22	12.15	10.43	10.59	10.64	9.43	8.42							
57	7.10	7.14	8.81	9.07	9.73	10.41	10.13	11.70	11.83	11.96	12.40	12.73	12.78	12.19	11.48	11.01	11.13	11.26	10.42	9.62	8.91	8.18							
58	6.27	7.33	7.62	9.68	10.32	10.80	9.63	11.27	11.49	11.45	11.36	12.30	12.61	12.88	12.13	12.10	11.51	11.51	7.56	7.33	7.02	8.79							
59																						8.12							
60																													
61																													
62																													
63																													
64	7.80	8.24	8.52	9.34	9.55	8.90	9.57	10.82	11.76	11.91	12.16	12.52	12.87	12.63	12.02	12.05	12.17	12.10	11.49	10.63	9.99	9.74	8.90	8.24	7.83	7.51	7.31	12.87 12.87	
65	6.92	7.14	8.12	8.35	9.35	9.38	10.82	11.05	11.21	11.58	11.67	11.64	11.91	12.54	12.34	11.81	11.98	11.91	11.12	10.10	9.10	8.93	8.71	8.24	7.75	7.42	7.13	7.13	12.54 12.54
66	6.49	7.04	7.75	7.63	8.23	8.81	10.67	12.13	11.00	11.99	12.01	11.95	12.11	12.25	12.75	12.77	12.31	11.93	10.70	10.48	9.23	8.56	7.95	7.74	7.53	7.30	7.02	7.02	12.77 12.77
67	6.84	7.40	8.07	8.28	8.88	9.78	10.44	10.63	12.13	12.10	12.18	12.62	12.53	11.91	11.86	11.37	11.86	11.37	11.81	10.09	8.94	8.45	7.94	7.58	7.25	7.34	7.11	7.11	12.46 12.46
68	7.18	7.40	8.07	8.12	7.70	9.69	9.39	11.16	11.48	11.42	12.04	12.24	11.69	11.72	11.97	11.99	11.73	11.23	10.43	9.48	8.84	8.20	7.72	7.48	7.29	7.05	6.84	6.84	12.62 12.62
69	6.61	6.65	7.86	8.12	7.70	9.69	9.39	11.16	11.48	11.42	12.04	12.24	11.69	11.72	11.97	11.99	11.73	11.23	10.43	9.48	8.84	8.20	7.72	7.48	7.29	7.05	6.84	6.84	12.24 12.24
70	6.71	7.54	7.92	9.25	10.35	10.26	10.14	10.58	11.62	11.40	12.00	12.49	12.45	12.13	11.78	11.10	11.12	11.82	11.78	11.02	9.43	9.18	8.12	7.48	7.07	6.66	6.34	6.34	12.49 12.49
71	5.99	6.13	6.64	6.73	7.57	7.38	8.75	11.15	11.16	11.21	11.64	11.47	11.54	12.05	12.12	11.89	10.98	10.74	10.99	10.99	10.29	9.03	8.17	7.43	6.73	6.36	6.20	6.20	12.12 12.12
72	5.87	6.25	6.25	8.22	8.43	9.37	9.68	9.49	11.07	10.96	10.48	11.89	12.04	11.16	10.46	11.21	11.24	10.63	10.34	9.24	8.92	8.16	7.46	6.85	6.45	6.24	6.15	6.15	12.04 12.04
73	5.78	6.73	7.74	7.29	9.04	9.59	11.51	11.96	11.67	10.41	11.51	12.24	12.26	11.39	10.13	11.75	11.71	10.20	10.70	9.24	7.80	7.01	6.55	6.29	6.25	6.16	6.16	12.26 12.26	
74	6.00	6.20	6.82	7.47	8.66	8.48	9.95	9.81	11.20	11.38	11.55	12.06	12.47	12.24	11.32	12.36	11.57	11.31	10.97	9.97	8.98	8.40	7.16	6.34	6.05	5.93	5.85	5.85	12.47 12.47
75	5.64	5.64	6.01	6.66	6.66	7.93	8.32	9.20	10.20	10.57	11.08	11.83	11.81	11.07	10.96	11.23	11.40	11.14	10.28	10.12	9.79	8.34	7.37	6.72	6.46	6.38	6.34	6.34	11.83 11.83
76	6.12	6.11	6.26	7.13	7.18	7.24	8.67	10.73	10.52	11.60	11.26	10.98	10.91	11.07	11.48	11.24	10.64	10.48	10.11	9.31	8.74	8.20	7.42	7.12	6.85	6.72	6.45	6.45	11.60 11.60
77	6.75	8.10	7.76	9.57	9.01	9.28	10.69	10.89	10.91	10.50	11.48	11.56	11.66	12.08	12.22	11.98	11.07	10.98	10.86	10.92	9.25	8.19	7.73	7.24	6.79	6.62	6.56	6.56	12.22 12.22
78	6.39	6.38	6.49	6.77	7.10	8.64	8.37	10.14	11.45	11.42	10.91	11.25	11.29	11.36	11.08	9.97	10.91	10.93	10.39	9.06	8.65	7.42	7.04	6.96	6.92	6.89	6.86	6.86	11.45 11.45
79																													
80	6.58	6.70	6.73	6.70	6.90	6.95	8.58	7.97	9.72	11.61	11.35	11.62	11.77	11.26	11.65	11.67	11.24	11.17	9.94	9.53	8.28	7.35	7.25	7.19	7.15	7.14	7.09	7.09	11.77 11.77
81																													
82	6.97	7.03	7.00	7.43	8.01	9.14	9.05	9.83	10.70	11.43	11.40	11.58	11.73	10.99	11.34	11.21	12.54	12.17	11.63	10.58	10.31	9.10	8.20	7.65	7.50	7.45	7.41	7.41	12.54 12.54
83	7.22	7.60	7.55	7.93	8.48	10.09	9.96	11.17	11.34	11.37	12.44	12.52	12.52	11.66	10.78	11.56	12.81	12.78	11.20	9.65	9.98	9.14	8.03	7.59	7.50	7.42	7.37	7.37	12.81 12.81
84	7.11	7.15	7.78	8.68	8.34	7.91	11.15	10.42	10.78	11.35	11.85	12.42	12.36	10.69	11.69	11.68	11.80	10.78	10.96	10.07	9.76	8.56	8.01	7.55	7.28	7.22	7.17	7.17	12.42 12.42
85	6.94	6.91	7.70	7.80	7.94	7.69	7.88	8.63	10.37	10.74	10.55	11.25	11.56	11.08	11.15	11.36	11.56	11.75	10.76	10.69	9.94	8.77	8.01	7.61	6.94	6.78	6.73	6.73	11.75 11.75
86	6.40	6.58	6.75	6.71	6.77	7.54	7.83	9.40	9.87	10.96	10.96	12.43	12.44	12.95	12.67	11.93	11.96	11.67	11.45	10.08	9.10	8.39	7.79	7.34	7.23	7.17	7.12	7.12	12.95 12.95
87	6.40	6.58	6.75	6.71	6.77	7.54	7.83	9.40	9.87	10.96	10.96	12.43	12.44	12.95	12.67	11.93	11.96	11.67	11.45	10.08	9.10	8.39	7.79	7.34	7.23	7.17	7.12	7.12	12.95 12.95
88	6.85	6.83	6.87	6.97	8.71	10.02	10.18	9.57	10.04	12.22	12.47	11.73	11.75	11.85	13.43	13.39	12.43	10.78	10.52	10.61	9.40	8.48	7.89	7.83					13.43 13.43
89	7.38	7.36	7.46	7.48	7.67	9.41	9.25	10.51	11.62	11.49	11.49	11.17	10.71	11.11	11.19	11.19	11.48	11.16	10.47	9.79	8.94	8.15	7.81	7.71	7.64	7.60	7.60	7.60	11.62 11.62
90	7.46	7.43	8.18	8.32	8.41	9.10	10.34	10.94	11.05	10.75	11.38	11.96	11.87	11.38	11.25	11.25	10.88	11.33	11.43	10.02	8.78	8.25	8.05	7.97	7.92	7.88	7.88	7.88	11.96 11.96
91	7.62	7.55	7.57	8.26	9.57	9.36	9.88	10.92	11.39	11.73	12.40	11.76	11.41	11.70	11.67	11.57	12.03	11.13	10.79	10.00	9.91	8.95	8.67	8.65	8.63	8.61	8.71	8.71	12.40 12.40
x2	6.64	6.86	7.26	7.76	8.27	8.92	9.56	10.24	10.97	11.41	11.55	11.87	11.88	11.70	11.70	11.57	11.57	11.42	10.92	10.36	9.60	8.64	7.97	7.47	7.14	6.96	6.83	6.83	12.30 12.27
x5	7.18	7.40	7.90	8.58	9.24	9.85	10.35	11.06	11.56	11.82	12.06	12.30	12.39	12.28	12.30	12.19	12.06	11.91	11.45	11.01	10.24	9.23	8.49	7.96	7.65	7.48	7.37	7.37	12.71 12.65
x10	7.53	7.76	8.33	9.12	9.88	10.47	10.88	11.60	11.95	12.09	12.40	12.58	12.72	12.67	12.69	12.61	12.39	12.24	11.79	11.44	10.67	9.61	8.84	8.29	7.98	7.8			

TABLE 3 (Annex 1.2.)

Return period and expected peak water level at Jugini based on the Gumbel distribution (88 value not included).

RETURN PERIOD	PEAK LEVEL MPWD AT JUGINI
x1.01	11.63
x1.05	11.77
x1.1	11.85
x1.2	11.95
x1.5	12.21
x2	12.27
x3	12.45
x4	12.57
x5	12.65
x6	12.72
x7	12.78
x8	12.83
x9	12.87
x10	12.91
x12	12.97
x14	13.03
x16	13.07
x18	13.11
x20	13.15
x25	13.23
x30	13.29
x35	13.34
x40	13.39
x45	13.43
x50	13.47
x60	13.53
x70	13.58
x80	13.63
x90	13.67
x100	13.70
x125	13.78
x150	13.84
x200	13.94
x250	14.02
x300	14.08

TABLE 4 (Annex 1.2) pg 1.

Subcompartmental waterlevels related to Jugini station waterlevel during 1991 monsoon.
(based on model run base situation)

month	date	sc1	sc2	sc3	sc4	sc5	sc6	sc7	sc8	sc9	sc10	sc11	sc12	sc13	sc14	sc15	sc16
6	14	-0.61	-0.61	-0.56	-0.57	-0.45	-0.38	0.1	0.03	0.61	0.61	0.4	-0.31	-0.44	-0.39	-0.68	-0.27
6	15	-0.81	-0.81	-0.78	-0.77	-0.66	-0.6	-0.05	-0.21	0.37	0.37	0.16	-0.46	-0.58	-0.58	-0.94	-0.36
6	16	-1.19	-1.19	-1.17	-1.14	-1.04	-0.98	-0.17	-0.52	0.01	-0.01	-0.26	-0.71	-0.79	-1.06	-1.26	-0.47
6	17	-1.29	-1.29	-1.29	-1.22	-1.06	-1	-0.07	-0.39	-0.05	-0.07	-0.32	-0.63	-0.79	-1.06	-1.37	-0.31
6	18	-1.23	-1.23	-1.22	-1.16	-0.97	-0.87	0.02	-0.19	0.07	0.06	-0.22	-0.55	-0.79	-1.03	-1.4	-0.24
6	19	-1.31	-1.31	-1.3	-1.24	-0.99	-0.89	-0.04	-0.22	0.07	0.06	-0.3	-0.6	-0.87	-1.14	-1.52	-0.29
6	20	-1.52	-1.52	-1.51	-1.44	-1.14	-1.01	-0.1	-0.32	0	-0.01	-0.42	-0.7	-1.01	-1.34	-1.78	-0.38
6	21	-1.67	-1.67	-1.67	-1.56	-1.17	-0.99	-0.04	-0.27	0.08	0.06	-0.41	-0.69	-1.12	-1.48	-2.02	-0.39
6	22	-1.74	-1.74	-1.75	-1.62	-0.98	-0.91	-0.13	-0.27	0.2	0.19	-0.38	-0.7	-1.21	-1.58	-2.21	-0.42
6	23	-1.67	-1.67	-1.67	-1.55	-0.88	-0.81	-0.11	-0.22	0.33	0.33	-0.29	-0.63	-1.22	-1.57	-2.23	-0.35
6	24	-1.48	-1.48	-1.48	-1.4	-0.75	-0.63	-0.03	-0.12	0.41	0.41	-0.19	-0.53	-1.16	-1.45	-2.18	-0.26
6	25	-1.29	-1.29	-1.28	-1.24	-0.59	-0.54	0.07	-0.02	0.46	0.46	-0.11	-0.44	-1.08	-1.33	-2.01	-0.18
6	26	-1.16	-1.16	-1.15	-1.13	-0.48	-0.44	0.14	0.07	0.48	0.48	-0.07	-0.39	-1.01	-1.22	-1.87	-0.13
6	27	-1.05	-1.05	-1.04	-1.05	-0.34	-0.33	0.19	0.12	0.49	0.49	-0.05	-0.35	-0.93	-1.07	-1.8	-0.1
6	28	-0.96	-0.96	-0.95	-0.97	-0.3	-0.24	0.24	0.16	0.49	0.49	-0.02	-0.33	-0.88	-1.04	-1.63	-0.08
6	29	-0.88	-0.88	-0.86	-0.9	0.23	-0.12	0.25	0.22	0.49	0.49	-0.01	-0.31	-0.82	-0.95	-1.51	-0.06
6	30	-0.81	-0.81	-0.8	-0.84	-0.35	-0.3	0.24	0.2	0.48	0.48	0.02	-0.28	-0.71	-0.82	-1.27	-0.03
7	1	-0.81	-0.81	-0.79	-0.82	-0.35	-0.28	0.27	0.2	0.48	0.48	0	-0.32	-0.72	-0.82	-1.27	-0.07
7	2	-0.85	-0.85	-0.83	-0.85	-0.42	-0.32	0.23	0.14	0.44	0.44	0	-0.32	-0.73	-0.84	-1.28	-0.07
7	3	-0.87	-0.87	-0.85	-0.86	-0.43	-0.33	0.22	0.14	0.43	0.43	0.01	-0.32	-0.75	-0.88	-1.29	-0.1
7	4	-0.91	-0.91	-0.89	-0.9	-0.48	-0.37	0.19	0.1	0.4	0.4	-0.04	-0.36	-0.75	-0.88	-1.29	-0.1
7	5	-1.13	-1.13	-1.11	-1.09	-0.69	-0.56	0.06	-0.07	0.28	0.27	-0.2	-0.51	-0.86	-1.01	-1.49	-0.25
7	6	-1.24	-1.24	-1.23	-1.2	-0.73	-0.64	0.08	-0.1	0.29	0.28	-0.22	-0.54	-0.95	-1.14	-1.57	-0.26
7	7	-1.35	-1.35	-1.34	-1.29	-0.74	-0.66	0.07	-0.09	0.33	0.32	-0.23	-0.55	-1.03	-1.26	-1.72	-0.27
7	8	-1.53	-1.53	-1.52	-1.46	-0.85	-0.77	-0.07	-0.2	0.29	0.29	-0.32	-0.65	-1.18	-1.45	-1.92	-0.36
7	9	-1.67	-1.67	-1.67	-1.59	-0.88	-0.83	-0.17	-0.29	0.3	0.29	-0.35	-0.7	-1.3	-1.61	-2.06	-0.42
7	10	-1.72	-1.72	-1.72	-1.64	-0.9	-0.89	-0.22	-0.32	0.34	0.33	-0.33	-0.69	-1.39	-1.7	-2.2	-0.42
7	11	-1.75	-1.75	-1.75	-1.68	-0.95	-0.89	-0.25	-0.35	0.35	0.34	-0.34	-0.72	-1.47	-1.78	-2.3	-0.44
7	12	-1.77	-1.77	-1.77	-1.72	-0.94	-0.92	-0.29	-0.36	0.34	0.34	-0.34	-0.74	-1.52	-1.81	-2.34	-0.46
7	13	-1.86	-1.86	-1.86	-1.81	-1.04	-1	-0.33	-0.41	0.32	0.31	-0.38	-0.8	-1.62	-1.89	-2.46	-0.51
7	14	-1.89	-1.89	-1.88	-1.83	-1.01	-0.97	-0.32	-0.38	0.34	0.34	-0.37	-0.81	-1.66	-1.89	-2.48	-0.5
7	15	-1.83	-1.83	-1.83	-1.8	-0.94	-0.9	-0.29	-0.34	0.36	0.36	-0.36	-0.81	-1.64	-1.81	-2.41	-0.49
7	16	-1.73	-1.73	-1.72	-1.72	-0.84	-0.81	-0.23	-0.26	0.38	0.38	-0.32	-0.76	-1.56	-1.68	-2.27	-0.45
7	17	-1.66	-1.66	-1.65	-1.67	-0.77	-0.77	-0.18	-0.23	0.38	0.38	-0.32	-0.75	-1.51	-1.62	-2.19	-0.45
7	18	-1.61	-1.61	-1.6	-1.62	-0.77	-0.74	-0.15	-0.21	0.39	0.39	-0.31	-0.74	-1.46	-1.55	-2.06	-0.44
7	19	-1.53	-1.53	-1.52	-1.51	-0.76	-0.73	-0.2	-0.22	0.35	0.35	-0.29	-0.75	-1.34	-1.39	-1.79	-0.46
7	20	-1.32	-1.32	-1.31	-1.37	-0.63	-0.6	-0.1	-0.13	0.38	0.39	-0.21	-0.66	-1.27	-1.34	-1.63	-0.39
7	21	-1.15	-1.15	-1.15	-1.21	-0.51	-0.48	0	-0.03	0.42	0.42	-0.17	-0.55	-1.13	-1.21	-1.45	-0.3
7	22	-1.09	-1.09	-1.08	-1.14	-0.5	-0.47	0	-0.03	0.39	0.39	-0.17	-0.52	-1.07	-1.15	-1.36	-0.29
7	23	-1.09	-1.09	-1.09	-1.13	-0.55	-0.53	-0.04	-0.09	0.34	0.35	-0.2	-0.54	-1.03	-1.1	-1.34	-0.32
7	24	-1.05	-1.05	-1.05	-1.08	-0.54	-0.52	-0.04	-0.07	0.36	0.36	-0.18	-0.5	-0.97	-1.04	-1.31	-0.28
7	25	-0.97	-0.97	-0.96	-1	-0.48	-0.46	0.03	-0.02	0.38	0.38	-0.13	-0.42	-0.89	-0.96	-1.24	-0.21
7	26	-0.8	-0.8	-0.79	-0.81	-0.34	-0.31	0.17	0.12	0.46	0.46	-0.01	-0.31	-0.68	-0.75	-0.99	-0.1
7	27	-0.75	-0.75	-0.74	-0.77	-0.32	-0.29	0.2	0.13	0.43	0.43	0	-0.31	-0.65	-0.71	-0.93	-0.08
7	28	-0.7	-0.7	-0.69	-0.72	-0.28	-0.23	0.22	0.19	0.43	0.43	0	-0.29	-0.61	-0.67	-0.89	-0.08
7	29	-0.65	-0.65	-0.64	-0.68	-0.25	-0.22	0.24	0.16	0.43	0.43	0	-0.28	-0.58	-0.64	-0.85	-0.08
7	30	-0.63	-0.63	-0.62	-0.65	-0.27	-0.26	0.14	0.1	0.43	0.43	0	-0.28	-0.58	-0.64	-0.85	-0.08

TABLE 4 (Annex 1.2) pg 2.

Subcompartmental waterlevels related to Jugini station waterlevel during 1991 monsoon.
(based on model run base situation)

month	date	sc1	sc2	sc3	sc4	sc5	sc6	sc7	sc8	sc9	sc10	sc11	sc12	sc13	sc14	sc15	sc16
7	31	-0.66	-0.66	-0.64	-0.66	-0.35	-0.35	0.09	0.02	0.39	0.4	-0.03	-0.31	-0.56	-0.62	-0.86	-0.11
8	1	-0.68	-0.68	-0.67	-0.68	-0.43	-0.41	0.06	-0.03	0.37	0.37	-0.05	-0.34	-0.57	-0.64	-0.89	-0.12
8	2	-0.79	-0.79	-0.77	-0.77	-0.57	-0.54	0	-0.12	0.3	0.3	-0.13	-0.41	-0.62	-0.72	-0.99	-0.19
8	3	-0.97	-0.97	-0.96	-0.95	-0.76	-0.74	-0.08	-0.25	0.19	0.19	-0.25	-0.53	-0.73	-0.87	-1.17	-0.28
8	4	-1.16	-1.16	-1.15	-1.12	-0.93	-0.9	-0.15	-0.35	0.12	0.11	-0.33	-0.62	-0.84	-1.04	-1.36	-0.35
8	5	-1.41	-1.41	-1.4	-1.35	-1.08	-1.06	-0.19	-0.45	0.05	0.04	-0.43	-0.72	-1	-1.26	-1.65	-0.44
8	6	-1.59	-1.59	-1.58	-1.5	-1.09	-1.09	-0.17	-0.42	0.11	0.1	-0.43	-0.74	-1.13	-1.42	-1.89	-0.46
8	7	-1.67	-1.67	-1.67	-1.57	-1.02	-1.04	-0.24	-0.41	0.2	0.2	-0.39	-0.73	-1.21	-1.52	-2.04	-0.46
8	8	-1.63	-1.63	-1.63	-1.54	-0.94	-0.92	-0.2	-0.33	0.29	0.28	-0.31	-0.65	-1.23	-1.53	-2.08	-0.39
8	9	-1.58	-1.58	-1.57	-1.49	-0.83	-0.85	-0.18	-0.29	0.31	0.31	-0.29	-0.63	-1.2	-1.39	-2.11	-0.37
8	10	-1.56	-1.56	-1.55	-1.5	-0.87	-0.85	-0.21	-0.31	0.3	0.3	-0.31	-0.65	-1.26	-1.54	-2.13	-0.39
8	11	-1.56	-1.56	-1.55	-1.51	-0.87	-0.86	-0.23	-0.33	0.3	0.3	-0.31	-0.65	-1.28	-1.55	-2.14	-0.41
8	12	-1.57	-1.57	-1.56	-1.52	-0.87	-0.87	-0.25	-0.34	0.3	0.29	-0.31	-0.67	-1.3	-1.55	-2.16	-0.42
8	13	-1.59	-1.59	-1.58	-1.55	-0.9	-0.89	-0.28	-0.37	0.29	0.28	-0.33	-0.69	-1.33	-1.58	-2.18	-0.44
8	14	-1.59	-1.59	-1.59	-1.55	-0.9	-0.89	-0.29	-0.38	0.28	0.28	-0.33	-0.69	-1.34	-1.58	-2.19	-0.45
8	15	-1.59	-1.59	-1.58	-1.55	-0.9	-0.88	-0.29	-0.37	0.28	0.28	-0.33	-0.7	-1.35	-1.59	-2.17	-0.45
8	16	-1.54	-1.54	-1.53	-1.51	-0.92	-0.84	-0.27	-0.35	0.29	0.29	-0.31	-0.67	-1.31	-1.52	-2.11	-0.43
8	17	-1.51	-1.51	-1.5	-1.49	-0.8	-0.82	-0.26	-0.34	0.29	0.29	-0.31	-0.67	-1.3	-1.5	-2.07	-0.43
8	18	-1.57	-1.57	-1.56	-1.55	-0.9	-0.88	-0.31	-0.39	0.26	0.26	-0.35	-0.71	-1.34	-1.56	-2.11	-0.47
8	19	-1.65	-1.65	-1.64	-1.62	-0.95	-0.95	-0.36	-0.44	0.23	0.23	-0.38	-0.76	-1.39	-1.62	-2.17	-0.51
8	20	-1.64	-1.64	-1.63	-1.6	-0.91	-0.93	-0.33	-0.41	0.27	0.27	-0.34	-0.73	-1.39	-1.61	-2.16	-0.48
8	21	-1.58	-1.58	-1.58	-1.55	-0.92	-0.88	-0.29	-0.36	0.29	0.29	-0.31	-0.7	-1.35	-1.57	-2.11	-0.45
8	22	-1.5	-1.5	-1.49	-1.48	-0.83	-0.82	-0.25	-0.32	0.3	0.3	-0.29	-0.66	-1.29	-1.49	-2.01	-0.42
8	23	-1.41	-1.41	-1.4	-1.4	-0.77	-0.75	-0.2	-0.27	0.32	0.32	-0.25	-0.62	-1.22	-1.39	-1.91	-0.38
8	24	-1.3	-1.3	-1.29	-1.3	-0.69	-0.67	-0.14	-0.2	0.34	0.34	-0.22	-0.56	-1.14	-1.3	-1.79	-0.33
8	25	-1.15	-1.15	-1.15	-1.16	-0.55	-0.54	-0.03	-0.1	0.39	0.39	-0.14	-0.47	-1.02	-1.17	-1.6	-0.23
8	26	-0.99	-0.99	-0.98	-1	-0.47	-0.42	0.06	0.01	0.43	0.43	-0.07	-0.38	-0.87	-0.98	-1.4	-0.15
8	27	-0.93	-0.93	-0.92	-0.94	-0.42	-0.41	0.06	-0.01	0.39	0.4	-0.08	-0.39	-0.81	-0.9	-1.31	-0.17
8	28	-0.95	-0.95	-0.94	-0.97	-0.51	-0.48	0.01	-0.07	0.34	0.34	-0.14	-0.45	-0.85	-0.99	-1.31	-0.22
8	29	-1.06	-1.06	-1.05	-1.06	-0.68	-0.6	-0.08	-0.18	0.27	0.27	-0.22	-0.53	-0.87	-0.99	-1.41	-0.29
8	30	-1.12	-1.12	-1.11	-1.09	-0.7	-0.69	-0.11	-0.23	0.26	0.26	-0.22	-0.55	-0.87	-0.99	-1.5	-0.31
8	31	-1.16	-1.16	-1.15	-1.13	-0.75	-0.73	-0.14	-0.25	0.25	0.25	-0.22	-0.56	-0.9	-1.03	-1.55	-0.33
9	1	-1.11	-1.11	-1.1	-1.08	-0.63	-0.67	-0.08	-0.19	0.3	0.3	-0.18	-0.51	-0.87	-1.02	-1.5	-0.27
9	2	-1.18	-1.18	-1.17	-1.15	-0.75	-0.74	-0.13	-0.25	0.25	0.25	-0.24	-0.57	-0.91	-1.06	-1.57	-0.33
9	3	-1.24	-1.24	-1.23	-1.19	-0.81	-0.79	-0.12	-0.27	0.26	0.25	-0.25	-0.59	-0.94	-1.09	-1.63	-0.34
9	4	-1.31	-1.31	-1.3	-1.26	-0.85	-0.82	-0.15	-0.29	0.24	0.24	-0.28	-0.61	-0.99	-1.16	-1.71	-0.36
9	5	-1.38	-1.38	-1.37	-1.33	-0.86	-0.85	-0.17	-0.31	0.24	0.24	-0.28	-0.63	-1.05	-1.24	-1.74	-0.38
9	6	-1.44	-1.44	-1.43	-1.39	-0.88	-0.86	-0.22	-0.32	0.25	0.25	-0.27	-0.64	-1.11	-1.32	-1.81	-0.41
9	7	-1.43	-1.43	-1.43	-1.38	-0.86	-0.84	-0.22	-0.32	0.25	0.25	-0.27	-0.64	-1.13	-1.28	-1.71	-0.4
9	8	-1.38	-1.38	-1.38	-1.34	-0.81	-0.79	-0.19	-0.32	0.25	0.24	-0.31	-0.66	-1.12	-1.29	-1.69	-0.38
9	9	-1.43	-1.43	-1.42	-1.4	-0.85	-0.83	-0.22	-0.32	0.25	0.24	-0.31	-0.66	-1.17	-1.36	-1.8	-0.42
9	10	-1.66	-1.66	-1.65	-1.62	-1.05	-1.03	-0.41	-0.51	0.15	0.15	-0.44	-0.81	-1.37	-1.61	-2.07	-0.57
9	11	-1.86	-1.86	-1.86	-1.8	-1.19	-1.18	-0.53	-0.64	0.14	0.13	-0.49	-0.9	-1.52	-1.81	-2.3	-0.65
9	12	-1.92	-1.92	-1.91	-1.85	-1.18	-1.18	-0.54	-0.63	0.17	0.17	-0.45	-0.89	-1.58	-1.88	-2.41	-0.64
9	13	-1.85	-1.85	-1.84	-1.8	-1.11	-1.08	-0.47	-0.54	0.22	0.21	-0.4	-0.84	-1.58	-1.85	-2.38	-0.59
9	14	-1.7	-1.7	-1.69	-1.67	-0.95	-0.94	-0.37	-0.42	0.25	0.25	-0.34	-0.77	-1.48	-1.7	-2.2	-0.52
9	15	-1.51	-1.51	-1.5	-1.51	-0.81	-0.8	-0.26	-0.31	0.29	0.29	-0.25	-0.69	-1.33	-1.47	-1.91	-0.45

TABLE 4 (Annex 1.2) pg 3.

Subcompartmental waterlevels related to Jugini station waterlevel during 1991 monsoon.
(based on model run base situation)

month	date	sc1	sc2	sc3	sc4	sc5	sc6	sc7	sc8	sc9	sc10	sc11	sc12	sc13	sc14	sc15	sc16
9	16	-1.37	-1.37	-1.36	-1.39	-0.72	-0.71	-0.2	-0.25	0.29	0.29	-0.26	-0.64	-1.25	-1.38	-1.76	-0.41
9	17	-1.33	-1.33	-1.32	-1.34	-0.75	-0.72	-0.22	-0.27	0.27	0.27	-0.27	-0.64	-1.19	-1.3	-1.66	-0.42
9	18	-1.32	-1.32	-1.31	-1.34	-0.76	-0.74	-0.22	-0.28	0.26	0.26	-0.29	-0.63	-1.2	-1.36	-1.62	-0.41
9	19	-1.27	-1.27	-1.26	-1.28	-0.69	-0.69	-0.17	-0.24	0.29	0.29	-0.24	-0.59	-1.13	-1.26	-1.58	-0.36
9	20	-1.15	-1.15	-1.14	-1.17	-0.6	-0.57	-0.09	-0.14	0.33	0.34	-0.16	-0.5	-1.03	-1.14	-1.47	-0.28
9	21	-1.04	-1.03	-1.03	-1.05	-0.49	-0.48	-0.01	-0.07	0.36	0.36	-0.14	-0.45	-0.94	-1.04	-1.35	-0.23
Summary		-0.61	-0.61	-0.56	-0.57	0.23	-0.12	0.27	0.22	0.61	0.61	0.4	-0.28	-0.44	-0.39	-0.68	-0.03
max		-1.92	-1.92	-1.91	-1.85	-1.19	-1.18	-0.54	-0.64	-0.05	-0.07	-0.49	-0.9	-1.66	-1.89	-2.48	-0.65
min		-1.31	-1.31	-1.30	-1.28	-0.74	-0.71	-0.10	-0.20	0.31	0.30	-0.23	-0.58	-1.08	-1.26	-1.72	-0.33

TABLE 5 (Annex 1.2.)

Approximate relation between the flooded area in the Tangail compartment and the waterlevel at Jugini gauging station.

SUB-COMPARTMENT	WATER LEVEL IN SUB-COMPARTMENT BY % FLOODED AREA			LEVEL DIF. IN M BETWEEN JUGINI & SUB-COMPTMT	WATER LEVEL AT JUGINI BY % FLOODED AREA / SUB-COMPTMT		
	20 %	50 %	80 %		20 %	50 %	80 %
1	9	9.6	10.4	1.3	10.3	10.9	11.7
2	8.9	9.3	9.9	1.3	10.2	10.6	11.2
3	9.1	9.5	9.9	1.3	10.4	10.8	11.2
4	9.3	9.8	10.4	1.3	10.6	11.1	11.7
5	9.2	10	10.7	0.7	9.9	10.7	11.4
6	9.8	10.3	11	0.7	10.5	11	11.7
7	10.1	10.5	11.1	0.1	10.2	10.6	11.2
8	9.9	10.5	11.5	0.2	10.1	10.7	11.7
9	10.7	11.5	12.1	-0.3	10.4	11.2	11.8
10	10.2	11.1	11.8	-0.3	9.9	10.8	11.5
11	9	9.6	10.4	0.2	9.2	9.8	10.6
12	9.5	10.2	11.2	0.6	10.1	10.8	11.8
13	10	10.7	11.4	1.1	11.1	11.8	12.5
14	9.4	9.9	10.5	1.3	10.7	11.2	11.8
15	9.1	9.7	10.3	1.7	10.8	11.4	12
MEAN VALUE AT JUGINI IN MPWD:					10.3	10.9	11.6



TABLE 6 (Annex 1.2)

Silt factors in the Tangail area.

WATERWAY	1992 GAUGE NO	KHAL CAPA. [M ³ /S]	LOCATION	F-VALUE	MEAN
SADULLAPUR KHAL AT ENAYETPUR	G30	25	SIDE + 1 M	0.361	
SADULLAPUR KHAL AT ENAYETPUR	G30	25	BOTTOM ORIGINAL	0.354	
SADULLAPUR KHAL AT ENAYETPUR	G30	25	BOTTOM (HOLE-0.75)	0.399	0.371
BINNAFAIR K.AT SANTOSH BRIDGE	G22	50	SIDE + 1 M	0.428	
BINNAFAIR K.AT SANTOSH BRIDGE	G22	50	SIDE + 1M (HOLE-0.1)	0.360	
BINNAFAIR K.AT SANTOSH BRIDGE	G22	50	BOTTOM WET	0.398	0.395
LOHAJANG AT KAGMARI BRIDGE	G3	150	SIDE + 2.5M (PLAIN)	0.352	
LOHAJANG AT KAGMARI BRIDGE	G3	150	SIDE + 1M (HOLE-O.1)	0.369	
LOHAJANG AT KAGMARI BRIDGE	G3	150	BOTTOM WET	0.408	0.376

