

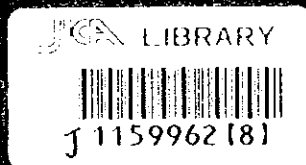
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MINISTRY OF SETTLEMENT AND REGIONAL DEVELOPMENT  
THE REPUBLIC OF INDONESIA

**THE DETAILED DESIGN  
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FLOOD CONTROL, URBAN DRAINAGE AND  
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**FINAL REPORT**

COMPONENT A:  
WEST FLOODWAY / GARANG RIVER IMPROVEMENT

VOLUME: VII DATABOOK



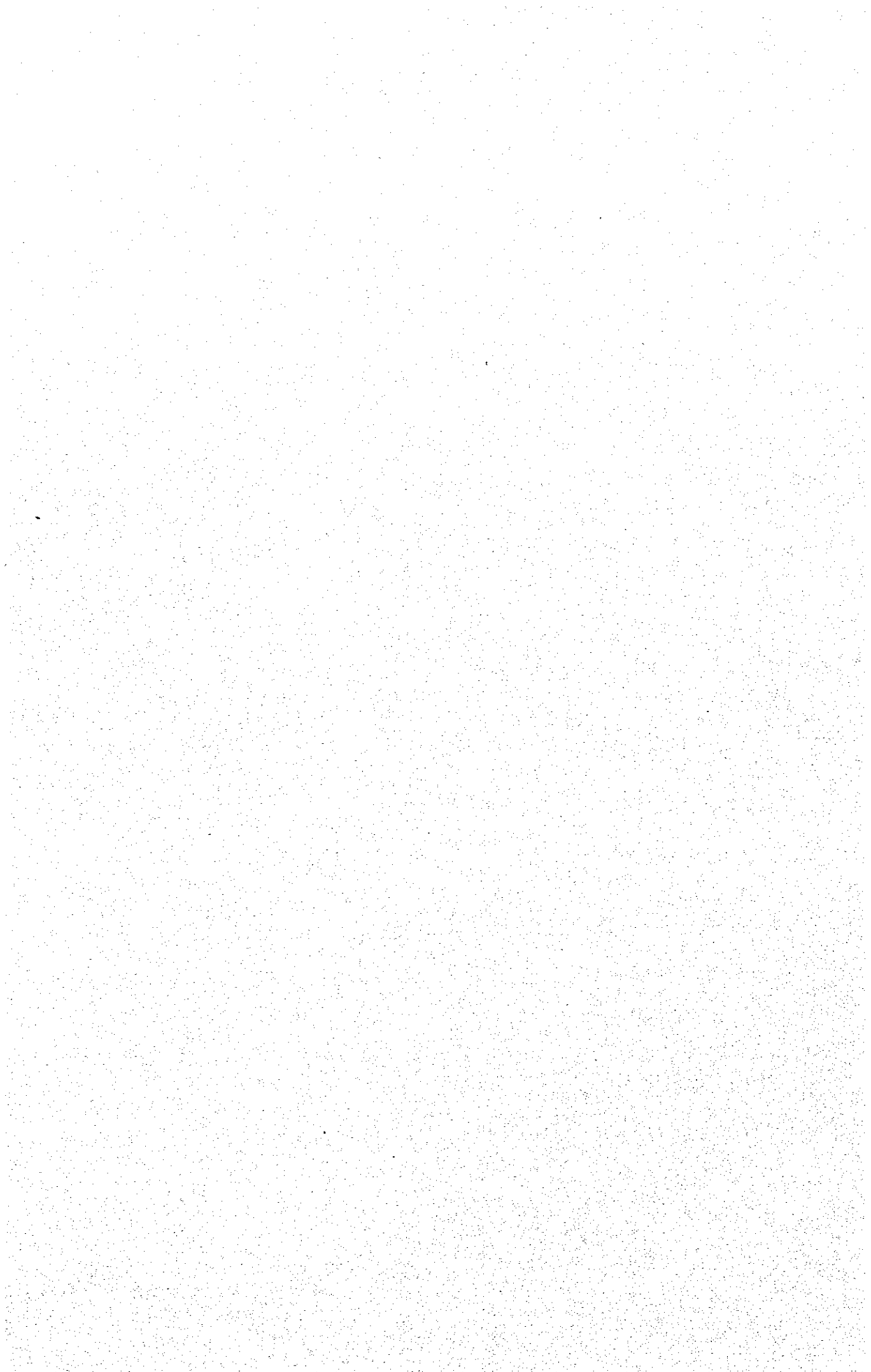
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**PACIFIC CONSULTANTS INTERNATIONAL**

**AND**

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## CONSTITUTION OF THE REPORT

1. SUMMARY
2. COMPONENT A : WEST FLOODWAY/GARANG RIVER IMPROVEMENT

VOLUME I	MAIN REPORT
VOLUME II	DESIGN CRITERIA
VOLUME III	DESIGN NOTES
VOLUME IV	WORK QUANTITY CALCULATION
VOLUME V	CONSTRUCTION PLANNING
VOLUME VI	COST ESTIMATE
VOLUME VII	DATA BOOK

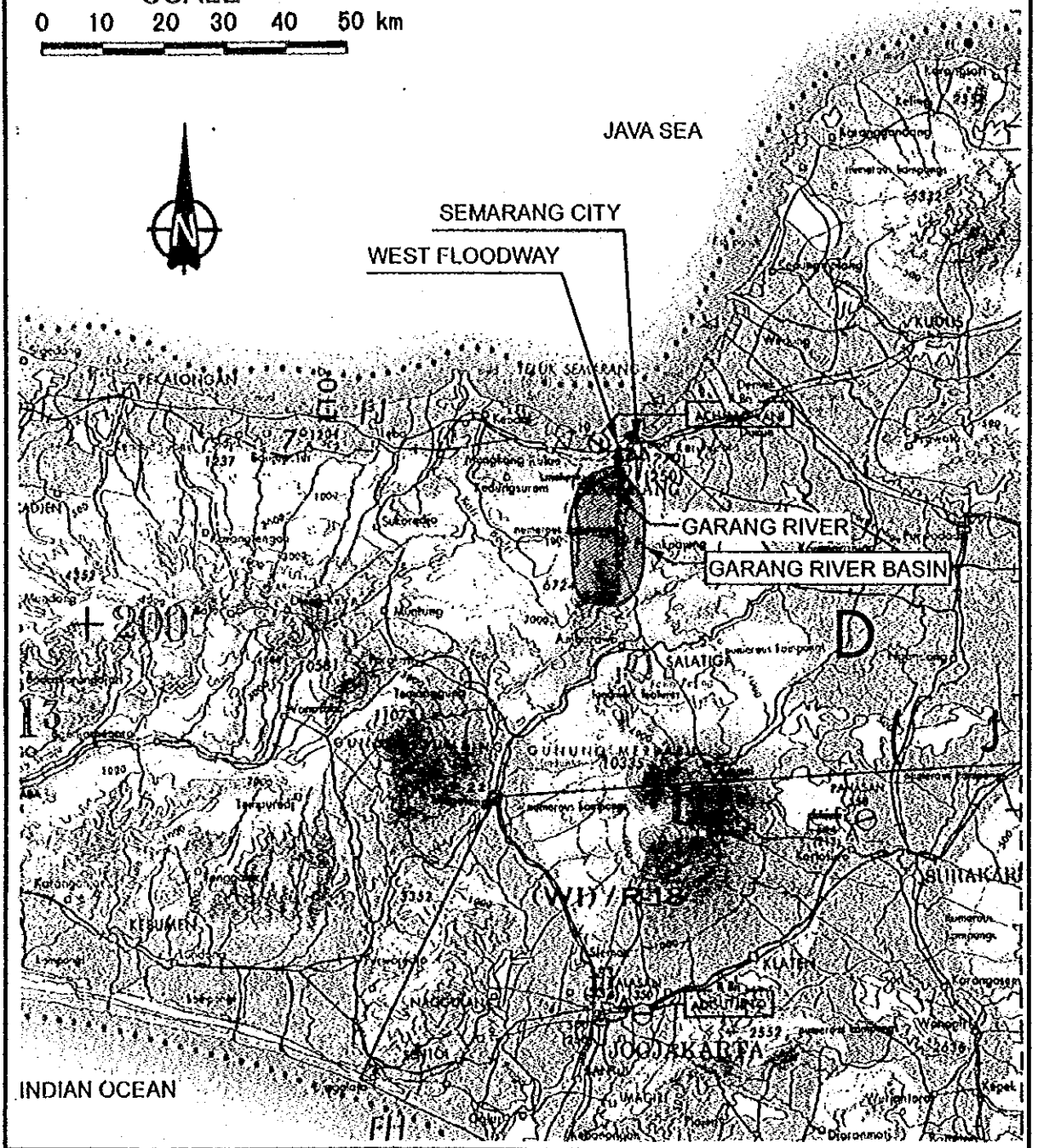
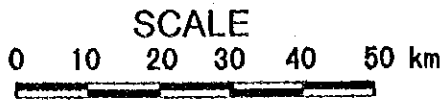
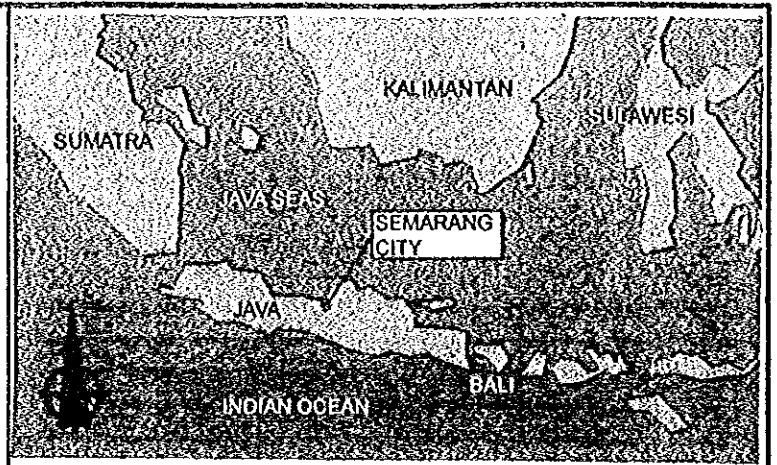
3. COMPONENT B : JATIBARANG MULTIPURPOSE DAM CONSTRUCTION

VOLUME I	MAIN REPORT
VOLUME II	DESIGN CRITERIA
VOLUME III	DESIGN NOTES
VOLUME IV	WORK QUANTITY CALCULATION
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VOLUME VIII	ANNEX

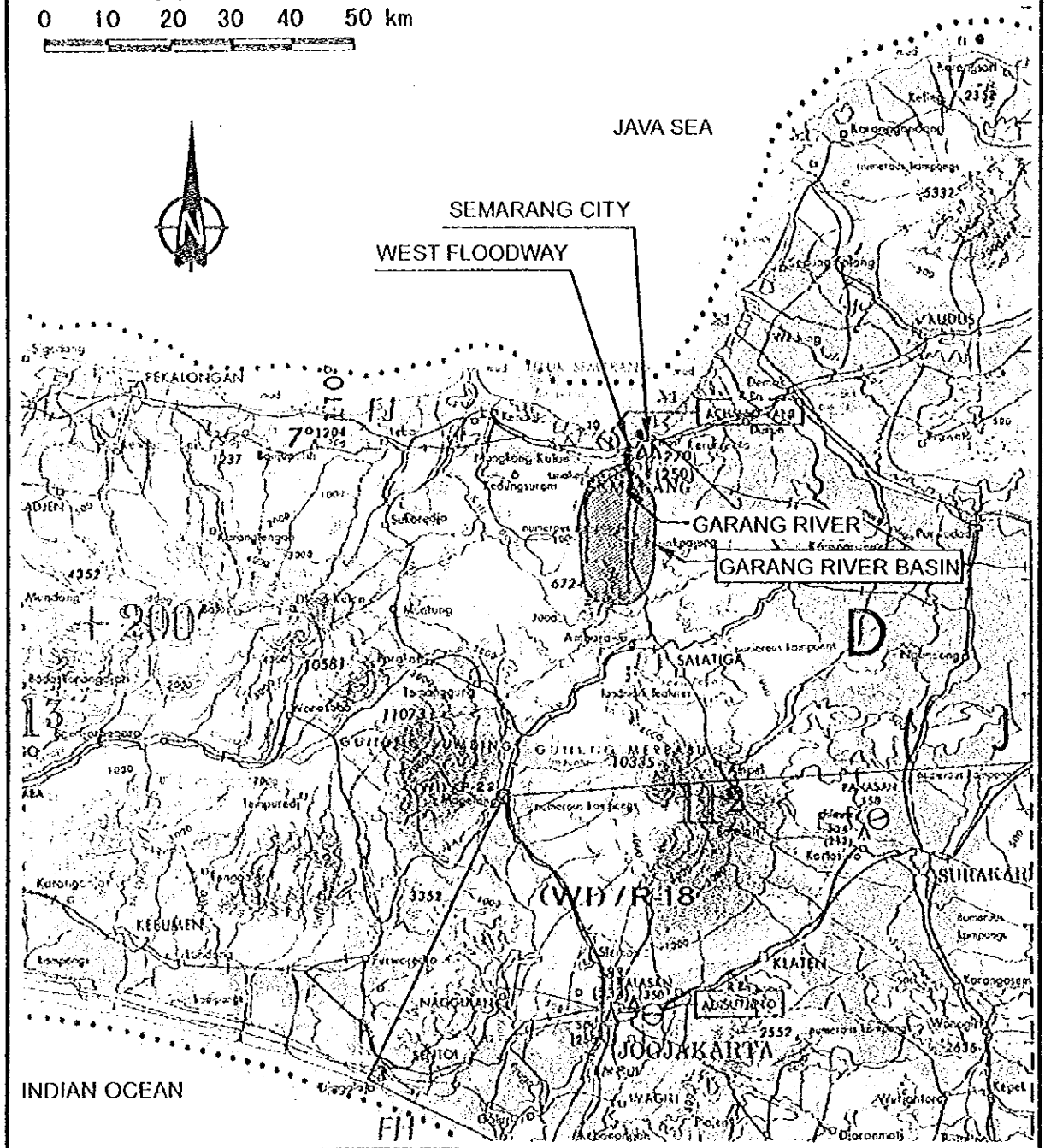
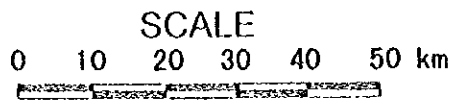
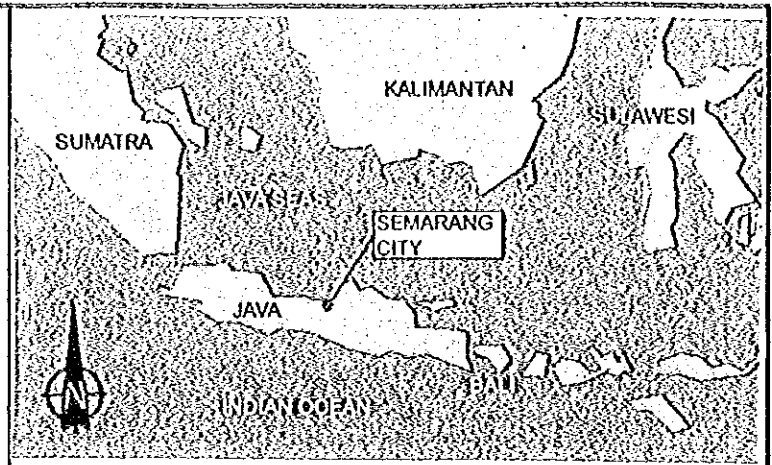
4. COMPONENT C : URBAN DRAINAGE SYSTEM IMPROVEMENT

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VOLUME II	DESIGN NOTES
VOLUME III	WORK QUANTITY CALCULATION
VOLUME IV	CONSTRUCTION PLANNING
VOLUME V	COST ESTIMATE
VOLUME VI	DATA BOOK

GENERAL MAP

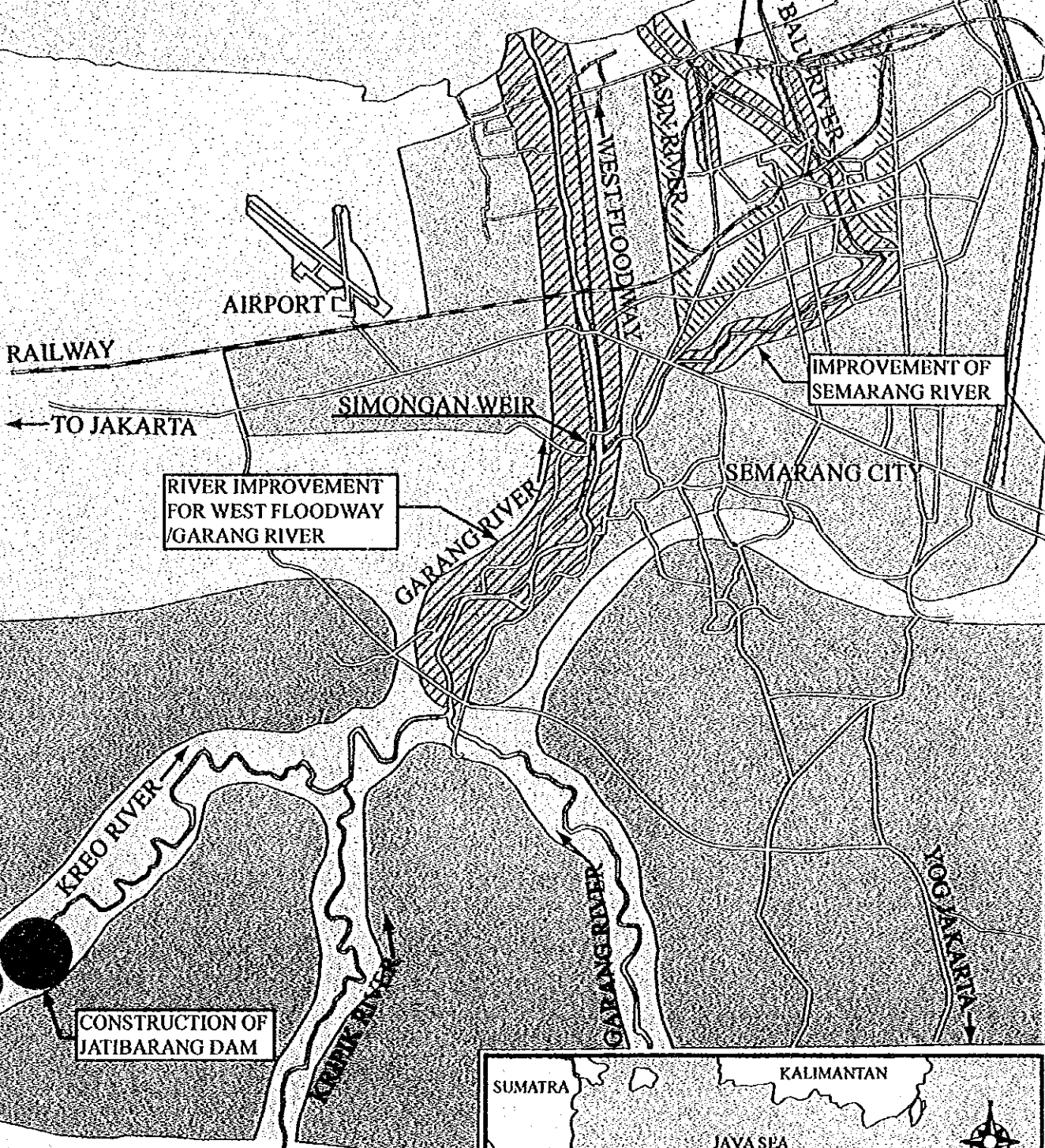


# GENERAL MAP



TARGET AREA FOR URBAN DRAINAGE PLAN

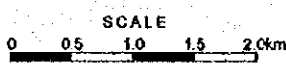
JAVA SEA



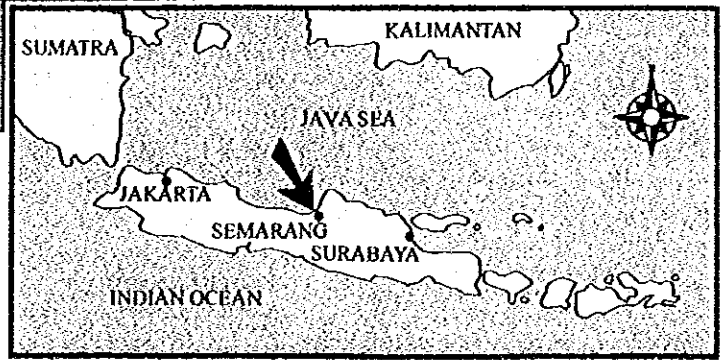
RIVER IMPROVEMENT FOR WEST FLOODWAY /GARANG RIVER

IMPROVEMENT OF SEMARANG RIVER

CONSTRUCTION OF JATIBARANG DAM



LOCATION OF PROJECT SITE



SUMATRA

KALIMANTAN

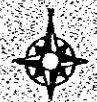
JAVA SEA

JAKARTA

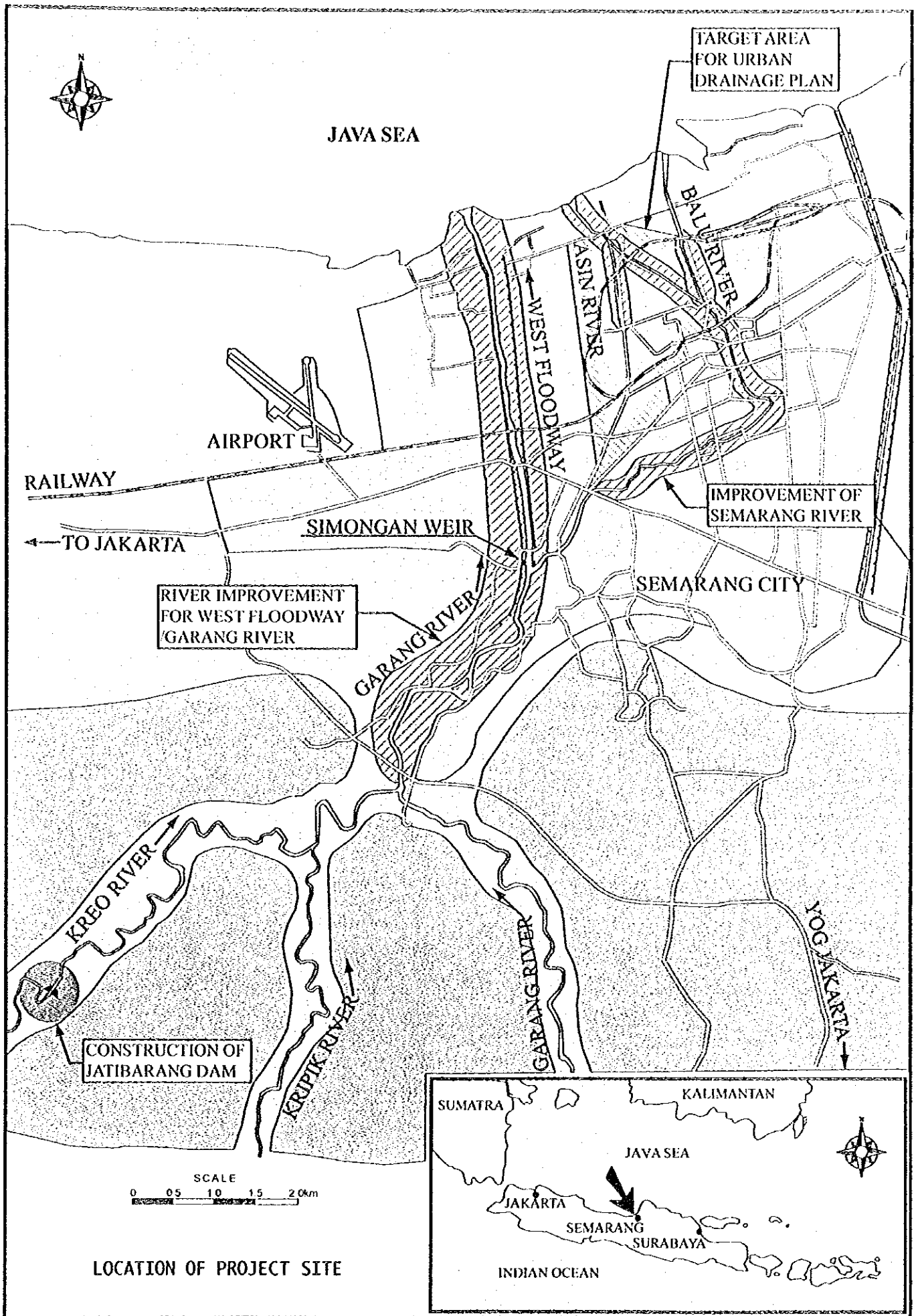
SEMARANG

SURABAYA

INDIAN OCEAN







TARGET AREA FOR URBAN DRAINAGE PLAN

JAVA SEA



AIRPORT

RAILWAY

← TO JAKARTA

SIMONGAN WEIR

RIVER IMPROVEMENT FOR WEST FLOODWAY / GARANG RIVER

IMPROVEMENT OF SEMARANG RIVER

SEMARANG CITY

CONSTRUCTION OF JATIBARANG DAM

SCALE  
0 05 10 15 20km

LOCATION OF PROJECT SITE





# VOLUME VII DATA BOOK

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## 1.1 Climatological Data

Table 1.1. HYDROLOGICAL STATION AND DATA COLLECTION

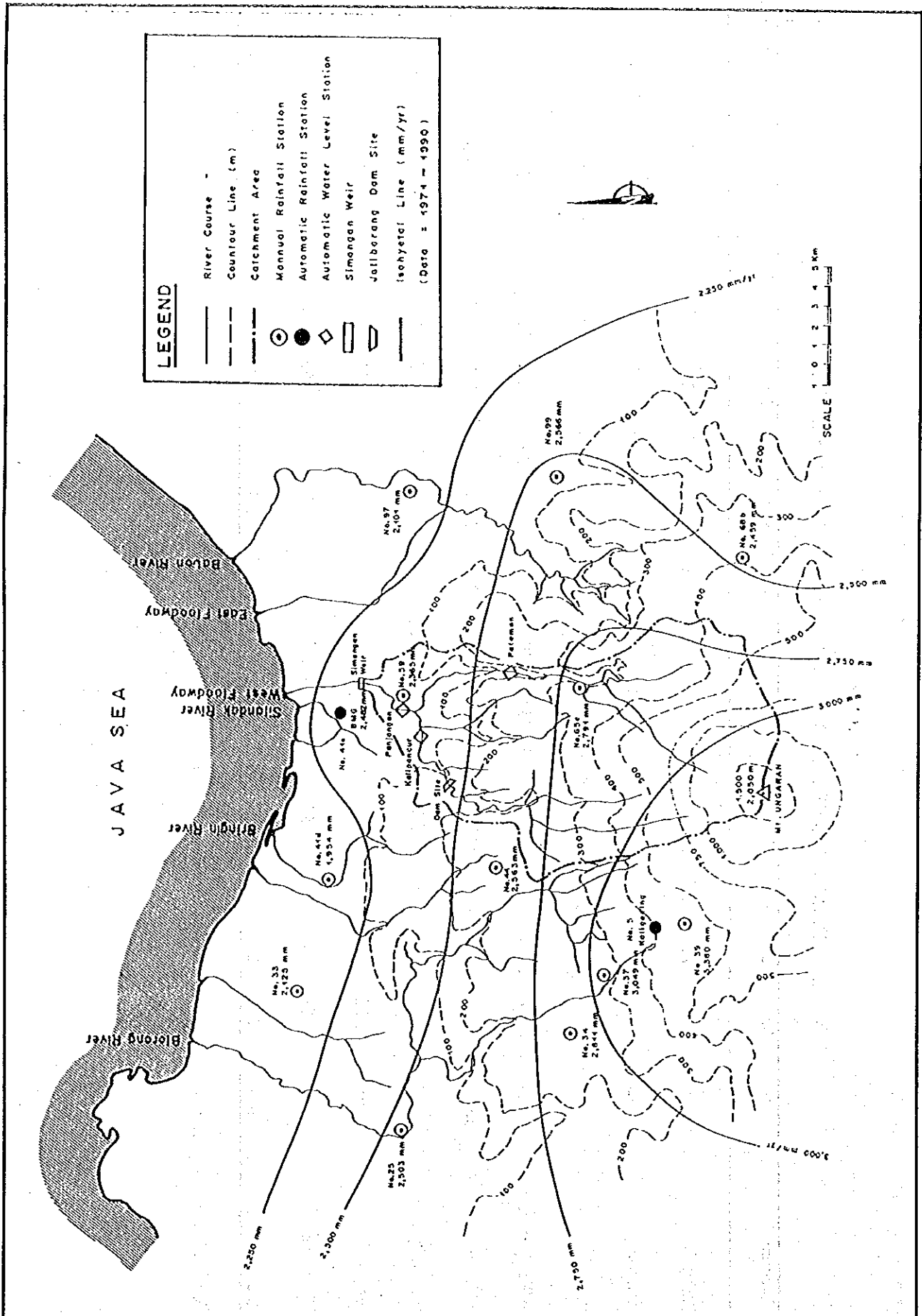
No.	Station	Organization	Start Year	Year of Record												Additional Data		
				67	70	75	80	85	90	91	96							
(1) Daily Rainfall Data													by Feasibility Study in 1993					
25	Kebonadern	PU,BMG	1951	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
33	Karangtengah	PU,BMG	1948	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
34	Ngareanak	PU,BMG	1951	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B
37	Boja	PU,BMG	1969	B	A	A	A	B	A	B	A	A	B	A	A	B	B	B
39	Limbangan	PU,BMG	1951	A	A	A	B	A	B	A	A	A	A	A	A	B	A	A
41d	Bringinmangkang	BMG	1958	B	A	A	B	A	A	A	A	A	A	A	A	A	A	A
41e	BMG Semarang	BMG	1968	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
44	Mijen	PU,BMG	1958	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
59	Candi	BMG	1958	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A
65c	Sumurjurang	PU,BMG	1952	A	A	A	A	A	A	A	A	A	A	B	A	A	A	A
68b	Klepu	BMG	1951	B	A	A	B	B	A	B	A	A	A	B	A	B	B	B
97	Plamongan	PU,BMG	1958	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A
99	Banyumeneng	PU,BMG	1956	B	A	B	A	A	A	A	A	A	A	A	A	A	A	A
(2) Hourly Rainfall Data																		
41e	BMG Semarang	BMG	1959	(1959-1966=A)														
5	Kaligading	IHE	1980															
(3) Daily Discharge Data																		
	Panjang	IHE	1983															
	Patemon	IHE	1992															
	Kalipancur	IHE	1992															
(4) Hourly Water Level Data																		
	Simongan Weir	PU	1987															
			1961															

Note : Symbol=A means complete data. Symbol=B means incomplete data. Symbol=C means intermittent data.

Table 1.2 CLIMATOLOGICAL DATA AT BMG-SEMARANG STATION

Element	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total (/year)	Mean	Data Period
Monthly Rainfall	mm/mon	434	292	274	201	178	100	73	67	92	154	228	285	2378	198.2	1968-1996
Pan Evaporation	mm/day	3.3	3.7	3.8	4.0	4.3	4.5	4.8	5.1	5.7	5.5	4.4	3.8	1610	4.4	1978-1996
Average Temperature	deg. C	26.4	26.4	26.8	27.6	27.9	27.4	27.1	27.2	27.8	28.3	27.8	27.0		27.3	1968-1996
Maximum Temperature	deg. C	29.9	30.0	30.4	31.7	32.5	32.4	32.6	33.2	33.7	33.7	32.3	30.8		31.9	-do.-
Minimum Temperature	deg. C	23.5	23.6	23.9	24.3	24.2	23.2	22.8	22.7	23.0	23.6	23.7	23.7		23.5	-do.-
Relative Humidity	%	84.4	84.1	83.8	79.8	77.2	74.6	72.2	70.7	70.1	71.7	77.3	81.5		77.3	-do.-
Rainy Days	days	22	18	18	15	11	7	6	5	8	11	16	19	156	13.0	-do.-
Sunshine Duration	%	38	46	52	59	65	65	75	81	74	70	56	46		60.6	-do.-
Wind Velocity	m/s	2.0	2.0	1.6	1.6	1.7	1.8	1.9	2.0	2.0	1.8	1.6	1.6		1.8	-do.-

Source : Badan Meteorologi dan Geofisika, Stasiun Klimatologi Semarang



THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. 1.1 LOCATION OF OBSERVATIONS AND ISOHYETAL LINE

## 1.2 Rainfall

Table 1.3 ANNUAL MAXIMUM RAINFALL FOR EACH DURATION AT BMG-SEMARANG STATION

No.	year	Unit : mm													
		5-min.	10-min.	15-min.	30-min.	45-min.	60-min.	120-min.	3-hours	6-hours	12-hours	1-day			
1	1959	20	25	30	50	53	53	55	55	55	55	55	55	75	
2	1960	18	22	32	46	46	47	51	57	67	71	71	71	87	
3	1961	21	26	28	40	43	44	50	66	87	116	116	116	124	
4	1962	11	20	25	30	35	38	45	52	75	76	76	76	100	
5	1963	22	24	25	38	40	40	44	62	70	118	118	118	120	
6	1964	21	31	42	62	78	80	89	91	98	100	100	100	100	
7	1965	11	15	18	28	38	40	41	44	91	125	125	125	166	
8	1966	27	30	34	43	50	54	72	80	90	91	91	91	91	
9	1976	17	20	32	43	59	75	107	107	135	183	183	183	206	
10	1978	17	25	36	60	72	85	98	102	115	115	115	115	115	
11	1979	15	24	29	37	50	56	99	114	126	126	126	126	126	
12	1980	14	28	62	82	82	91	175	185	192	192	192	192	192	
13	1981	20	40	50	65	70	80	113	120	204	228	228	228	253	
14	1982	10	10	16	47	58	69	80	103	131	131	131	131	157	
15	1983	18	36	54	73	83	93	93	96	96	96	96	96	96	
16	1984	16	27	35	47	61	67	79	83	85	81	81	81	91	
17	1985	15	25	35	55	71	96	149	149	149	247	247	247	253	
18	1986	31	46	62	72	86	100	105	123	129	130	130	130	130	
19	1987	27	32	37	60	85	88	93	93	96	138	138	138	138	
20	1988	15	26	36	51	71	81	102	102	117	174	174	174	174	
21	1989	16	26	30	44	55	80	100	100	108	142	142	142	142	
22	1990	10	20	30	50	57	58	66	70	82	100	100	100	115	
23	1991	10	20	30	40	48	49	70	71	125	132	132	132	132	
24	1992	16	21	30	55	75	80	88	94	98	99	99	99	99	
25	1993	22	30	40	75	84	92	108	110	130	182	182	182	238	
26	1994	20	30	36	55	56	68	79	79	86	90	90	90	90	
27	1995	15	22	35	60	67	79	100	100	100	100	100	100	124	
28	1996	25	37	41	66	85	110	114	116	117	117	117	117	117	

Table 1.4 PROBABLE RAINFALL FOR EACH DURATION AT BMG-SEMARANG STATION

(1) Updated		Data N=28 (1959-1966, 1976-1996)											
Return Period T (year)	Gumbel Variable Y	5-min. (mm)	10-min. (mm)	15-min. (mm)	30-min. (mm)	45-min. (mm)	60-min. (mm)	120-min. (mm)	3-hours (mm)	6-hours (mm)	12-hours (mm)	1-day (mm)	
2	0.36651	17.1	25.2	33.7	50.6	60.4	68.2	83.4	89.2	103.9	120.1	130.0	
3	0.90273	19.6	28.8	38.9	57.1	68.0	77.8	98.1	103.7	120.2	142.1	154.0	
5	1.49994	22.5	32.8	44.8	64.4	76.4	88.6	114.5	119.9	138.3	166.6	180.7	
8	2.01342	25.0	36.2	49.8	70.6	83.7	97.9	128.5	133.8	153.8	187.7	203.7	
10	2.25037	26.2	37.8	52.1	73.5	87.0	102.2	135.0	140.2	161.0	197.5	214.3	
20	2.97020	29.6	42.6	59.1	82.2	97.2	115.2	154.7	159.7	182.8	227.0	246.5	
25	3.19853	30.7	44.1	61.3	85.0	100.4	119.3	160.9	165.8	189.8	236.4	256.7	
30	3.38429	31.6	45.3	63.1	87.2	103.1	122.6	166.0	170.9	195.4	244.1	265.0	
40	3.67625	33.0	47.3	65.9	90.8	107.2	127.9	174.0	178.8	204.2	256.1	278.1	
50	3.90194	34.1	48.8	68.1	93.5	110.4	132.0	180.2	184.9	211.1	265.3	288.2	
60	4.08596	35.0	50.0	69.9	95.7	113.0	135.3	185.2	189.9	216.6	272.9	296.4	
80	4.37574	36.4	52.0	72.7	99.3	117.1	140.5	193.2	197.7	225.4	284.8	309.4	
100	4.60015	37.5	53.4	74.9	102.0	120.3	144.6	199.3	203.8	232.2	294.0	319.4	
150	5.00730	39.5	56.2	78.9	106.9	126.0	151.9	210.4	214.8	244.6	310.7	337.6	
200	5.29581	40.9	58.1	81.7	110.4	130.1	157.1	218.3	222.6	253.3	322.6	350.5	
1000	6.90723	48.6	68.8	97.4	130.0	152.9	186.2	262.4	266.2	302.2	388.8	422.6	
	Xo	15.28	22.80	30.16	46.16	55.23	61.53	73.42	79.25	92.81	105.01	113.64	
	1/a	4.83	6.66	9.73	12.14	14.13	18.05	27.36	27.07	30.31	41.08	44.73	

Note :  $X = X_o + Y^*(1/a)$

(2) by Feasibility Study in 1993		Data N=22 (1959-1966, 1976-1990)											
Return Period T (year)	Gumbel Variable Y	5-min. (mm)	10-min. (mm)	15-min. (mm)	30-min. (mm)	45-min. (mm)	60-min. (mm)	120-min. (mm)	3-hours (mm)	6-hours (mm)	12-hours (mm)	1-day (mm)	
2	0.36651	16.7	24.7	33.3	48.4	54.5	64.7	80.0	87.6	103.8	121.2	132.0	
5	1.49994	21.6	31.8	43.8	60.5	66.8	82.4	109.6	116.7	136.2	164.4	177.6	
100	4.60015	34.9	51.3	72.5	93.6	100.5	130.6	190.2	196.2	226.2	280.8	297.6	

Table 1.5 RAINFALL INTENSITY FORMULA FOR SHORT DURATION

( T < 2 hours )

Return Period T (year)	Time (min.)	Probable Data (mm/hr)	by Formula (mm/hr)	Difference (%)	Rainfall Intensity Formula (R=mm/hr, T=min.)
2	5	204.6	195.0	-4.7	$R = 1567.1/(T+11.79)^{0.739}$
	10	151.4	160.9	6.3	
	15	134.9	138.1	2.4	
	30	101.2	99.4	-1.8	
	45	80.5	79.3	-1.5	
	60	68.2	66.7	-2.2	
	120	41.7	42.6	2.2	
5	5	270.2	261.2	-3.3	$R = 1271.9/(T+6.95)^{0.638}$
	10	196.7	209.0	6.3	
	15	179.0	177.2	-1.0	
	30	128.7	127.1	-1.2	
	45	101.9	102.3	0.4	
	60	88.6	87.0	-1.8	
	120	57.2	57.8	1.0	
10	5	313.8	305.6	-2.6	$R = 1230.2/(T+5.20)^{0.600}$
	10	226.7	240.6	6.1	
	15	208.2	202.9	-2.5	
	30	146.9	145.4	-1.0	
	45	116.1	117.6	1.3	
	60	102.2	100.5	-1.7	
	120	67.5	68.0	0.7	
20	5	355.4	348.2	-2.0	$R = 1241.4/(T+4.12)^{0.575}$
	10	255.5	270.8	6.0	
	15	236.2	227.5	-3.7	
	30	164.4	163.0	-0.9	
	45	129.6	132.2	2.0	
	60	115.2	113.4	-1.6	
	120	77.3	77.6	0.4	
25	5	368.8	361.9	-1.9	$R = 1245.5/(T+3.81)^{0.568}$
	10	264.7	280.4	5.9	
	15	245.2	235.3	-4.0	
	30	170.0	168.7	-0.8	
	45	133.9	136.9	2.2	
	60	119.3	117.6	-1.4	
	120	80.5	80.7	0.2	
50	5	409.6	403.9	-1.4	$R = 1273.4/(T+3.06)^{0.550}$
	10	292.7	309.7	5.8	
	15	272.5	259.1	-4.9	
	30	187.0	185.8	-0.6	
	45	147.2	151.2	2.7	
	60	132.0	130.2	-1.4	
	120	90.1	90.2	0.1	
100	5	450.0	445.5	-1.0	$R = 1318.3/(T+2.53)^{0.537}$
	10	320.6	338.8	5.7	
	15	299.7	282.9	-5.6	
	30	204.0	202.9	-0.5	
	45	160.3	165.5	3.2	
	60	144.6	142.8	-1.2	
	120	99.6	99.5	-0.1	



Table 1.6 RAINFALL INTENSITY FORMULA FOR LONG DURATION

(T > 1 hour)

Return Period T (year)	Time (min.)	Probable Data (mm/hr)	by Formula (mm/hr)	Difference (%)	Rainfall Intensity Formula (R=mm/hr, T=min.)
2	60	68.2	68.8	0.9	$R = 2417.0/(T+10.80)^{0.836}$
	120	41.7	41.2	-1.2	
	180	29.7	30.0	1.0	
	360	17.3	17.2	-0.6	
	720	10.0	9.8	-2.0	
	1440	5.4	5.5	1.9	
5	60	88.6	90.0	1.6	$R = 3245.6/(T+14.75)^{0.831}$
	120	57.2	55.1	-3.7	
	180	40.0	40.6	1.5	
	360	23.0	23.6	2.6	
	720	13.9	13.5	-2.9	
	1440	7.5	7.6	1.3	
10	60	102.2	104.2	2.0	$R = 3721.3/(T+15.67)^{0.826}$
	120	67.5	64.3	-4.7	
	180	46.7	47.5	1.7	
	360	26.8	27.7	3.4	
	720	16.5	15.9	-3.6	
	1440	8.9	9.1	2.2	
20	60	115.2	117.8	2.3	$R = 4202.2/(T+16.63)^{0.824}$
	120	77.3	73.1	-5.4	
	180	53.2	54.2	1.9	
	360	30.5	31.7	3.9	
	720	18.9	18.3	-3.2	
	1440	10.3	10.4	1.0	
25	60	119.3	122.0	2.3	$R = 4430.3/(T+17.47)^{0.826}$
	120	80.5	76.0	-5.6	
	180	55.3	56.3	1.8	
	360	31.6	33.0	4.4	
	720	19.7	19.0	-3.6	
	1440	10.7	10.8	0.9	
50	60	132.0	135.3	2.5	$R = 4923.2/(T+18.23)^{0.824}$
	120	90.1	84.6	-6.1	
	180	61.6	62.8	1.9	
	360	35.2	36.9	4.8	
	720	22.1	21.3	-3.6	
	1440	12.0	12.1	0.8	
100	60	144.6	148.3	2.6	$R = 5426.1/(T+19.02)^{0.824}$
	120	99.6	93.1	-6.5	
	180	67.9	69.3	2.1	
	360	38.7	40.8	5.4	
	720	24.5	23.5	-4.1	
	1440	13.3	13.4	0.8	
1000	60	186.2	191.6	2.9	$R = 7100.8/(T+20.89)^{0.822}$
	120	131.2	121.4	-7.5	
	180	88.7	90.7	2.3	
	360	50.4	53.6	6.3	
	720	32.4	31.0	-4.3	
	1440	17.6	17.7	0.6	

Table 1.7 HOURLY RAINFALL DATA IN ANNUAL MAXIMUM DAILY RAINFALL AT BMG-SEMARANG STATION

Year	Date	Total	Hourly Rainfall (mm)																							
			8:00	9:00	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	1:00	2:00	3:00	4:00	5:00	6:00	7:00
1987	Jan.27	138.0	0	0	0	0	0	4.2	45.8	29	9	7.4	2.2	3.3	2	8	9.5	4.5	9.5	3	0.6	0	0	0	0	
1988	Dec.17	174.6	0	0	0	0	0	0	0	0	0	0	0	0	0	2.6	44.2	10.4	4.2	2.3	4.2	44	13.7	17	29.9	
1989	Feb. 6	141.5	6.5	0	3	5.5	0.3	0.7	0	0.3	0.7	0	4.9	1.6	6.5	8	41	5	2.5	9.7	4	1	28	9	1.5	
1990	Jan.22	115.0	0	0	0	0	0	0	0	0	0.2	4.2	9.6	4	17	14	3.5	15.5	10.5	8.5	8.5	4	0.5	10	3	
1991	Dec.26	132.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	3.9	0.1	35.5	23	27	16.5	11.5	12	1.3	
1992	Mar.11	98.8	0	0	0	0	0	0	0	0	0	0	0	0	40	47	7.3	3.2	0.3	1	0	0	0	0	0	
1993	Jan.28	237.5	1.5	11	4	10.5	33	15	0.2	0	0.3	0	0	24.5	22	16	18	34	10	16	10.5	1	0.5	8	1.5	
1994	Mar. 8	90.0	0	0	0	0	0	0	6	0	6	7	10.5	6	4.5	0	0	0	0	0	0	0	0	0	0	
1995	Dec.12	124.0	1.2	1.3	7.5	1.5	0	4	0	0	0	0	0	2	12.5	51	10	2.5	0.5	0	0	0.5	5	3.5		
1996	Apr.23	116.9	0	0	0	0	0	0	0	0	0	0.6	0	0	0.1	114.4	1.8	0	0	0	0	0	0	0	0	

Unit : mm

Table 1.8 HOURLY RAINFALL RATIO IN ANNUAL MAXIMUM DAILY RAINFALL AND DESIGN STORM

Year	Date	Total	Hourly Rainfall Ratio																				Design Storm			
			-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	Peak	1	2	3	4	5	6	7	8	9	10	11	12
1987	Dec. 4	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.21	0.07	0.05	0.02	0.02	0.01	0.06	0.07	0.03	0.07	0.02	0.00
1988	Jan. 7	1.0	0.00	0.00	0.00	0.00	0.01	0.25	0.06	0.02	0.01	0.02	0.25	0.08	0.10	0.17	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1989	Oct.15	1.0	0.04	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.05	0.06	0.29	0.04	0.02	0.07	0.03	0.01	0.20	0.06	0.01	0.01	0.01	0.05	0.00	0.02
1990	Jan.25	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.03	0.15	0.12	0.03	0.13	0.09	0.07	0.07	0.03	0.00	0.09	0.03	0.02	0.00	
1991	Feb. 7	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.27	0.17	0.20	0.13	0.09	0.09	0.01	0.01	0.01	0.00	0.00	0.00	0.00	
1992	Nov.22	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.48	0.07	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1993	Jan.29	1.0	0.14	0.06	0.00	0.00	0.00	0.00	0.10	0.09	0.07	0.08	0.14	0.04	0.07	0.04	0.00	0.00	0.03	0.01	0.00	0.01	0.00	0.05	0.02	
1994	Mar. 5	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.62	0.08	0.12	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1995	May.10	1.0	0.06	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.02	0.10	0.41	0.08	0.02	0.00	0.00	0.00	0.00	0.04	0.03	0.05	0.14	0.01	0.01	
1996	Apr. 2	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Average(Ai)		1.0	0.02	0.01	0.00	0.00	0.00	0.03	0.02	0.02	0.03	0.07	0.39	0.09	0.07	0.07	0.03	0.02	0.03	0.02	0.02	0.01	0.02	0.03	0.01	
Return Period		Rd(mm)	Design Storm																							
5-year		180.7	3.6	1.8	0.0	0.0	0.0	5.4	3.6	3.6	5.4	12.6	70.5	16.3	12.6	12.6	5.4	3.6	5.4	3.6	1.8	3.6	5.4	1.8	1.8	
10-year		214.3	4.3	2.1	0.0	0.0	6.4	4.3	4.3	6.4	15.0	83.6	19.3	15.0	15.0	6.4	4.3	6.4	4.3	4.3	2.1	4.3	6.4	2.1	2.1	
25-year		256.7	5.1	2.6	0.0	0.0	7.7	5.1	5.1	7.7	18.0	100.1	23.1	18.0	18.0	7.7	5.1	7.7	5.1	5.1	2.6	5.1	7.7	2.6	2.6	
50-year		288.2	5.8	2.9	0.0	0.0	8.6	5.8	5.8	8.6	20.2	112.4	25.9	20.2	20.2	8.6	5.8	8.6	5.8	5.8	2.9	5.8	8.6	2.9	2.9	
100-year		319.4	6.4	3.2	0.0	0.0	9.6	6.4	6.4	9.6	22.4	124.6	28.7	22.4	22.4	9.6	6.4	9.6	6.4	6.4	3.2	6.4	9.6	3.2	3.2	

Note : (Hourly Rainfall in Design Storm)Rs = (Average Ratio)/Ai \* (Probable Rainfall in a dry)Rd

Table 1.9 DAILY RAINFALL AT FLOOD TIME

Unit : mm

Ci=	BMG 0.13	Kaligading 0.12	Sumurjurang 0.58	Mijen 0.17	Thiessen Rt=Sum(Ri*Ci)
1987 Dec. 21	0.0	77.6	142.0	143.0	116.0
1990 Jan. 25	0.7	149.7	185.0	218.0	162.4
1993 Jan. 29	136.0	232.0	172.0	144.0	169.8
1994 Mar. 11	5.5	64.6	81.0	108.0	73.8
1995 Nov. 29	34.9	61.8	49.0	101.0	57.5

Table 1.10(1/2) HOURLY DATA OBSERVED AT FLOOD TIME

Unit : mm

Date	Time	at Simongan Weir		Rainfall (mm)	
		Water Level H(m)	Discharge Q(m <sup>3</sup> /s)	Kaligading R(mm)	Basin Rainfall Rt(mm)
1987 Dec. 21        Dec. 22	15:00			0.0	0.0
	16:00			0.4	0.6
	17:00			6.8	10.2
	18:00			45.3	67.7
	19:00	6.20	55.8	17.8	26.6
	20:00	7.55	327.1	6.6	9.9
	21:00	7.70	365.6	0.7	1.0
	22:00	7.40	290.1	0.0	0.0
	23:00	7.20	243.2	0.0	0.0
	0:00	7.00	199.0	0.0	0.0
	1:00	7.00	199.0	0.0	0.0
	2:00	6.40	86.0	0.0	0.0
	3:00			0.0	0.0
Total			77.6	116.0	
1990 Jan. 25        Jan. 26	17:00			0.0	0.0
	18:00			2.8	3.0
	19:00			8.3	9.0
	20:00			11.2	12.2
	21:00	7.50	314.6	21.0	22.8
	22:00	8.54	605.6	57.0	61.8
	23:00	8.83	697.2	15.0	16.3
	0:00	8.87	710.0	26.0	28.2
	1:00	8.95	737.0	7.3	7.9
	2:00	9.40	890.0	0.2	0.2
	3:00	9.05	769.9	0.5	0.5
	4:00	8.55	609.9	0.4	0.4
	5:00	7.77	383.8	0.0	0.0
6:00	6.98	195.7	0.0	0.0	
7:00	6.20	55.8	0.0	0.0	
8:00			0.0	0.0	
Total			149.7	162.4	

Note:  $Q = (1.57 \cdot 64.6m + 1.8 \cdot 10.4m) \cdot (H - 5.6)^{1.5}$

Table 1.10(2/2) HOURLY DATA OBSERVED AT FLOOD TIME

Unit : mm

Date	Time	at Simongan Weir		Rainfall (mm)		
		Water Level H(m)	Discharge Q(m <sup>3</sup> /s)	Kaligading R(mm)	Basin Rainfall Rt(mm)	
1993 Jan. 29	10:00			0.0	0.0	
	11:00			1.4	1.0	
	12:00			0.4	0.3	
	13:00			0.0	0.0	
	14:00			0.7	0.5	
	15:00			1.2	0.9	
	16:00			1.2	0.9	
	17:00			15.2	11.1	
	18:00	6.60	120.1	9.0	6.6	
	19:00	7.50	314.6	20.0	14.6	
	20:00	7.20	243.2	41.0	30.0	
	21:00	7.80	392.0	10.0	7.3	
	22:00	7.70	365.6	20.0	14.6	
	23:00	8.50	593.3	40.5	29.6	
	Jan. 26	0:00	8.50	593.3	15.5	11.3
		1:00	9.00	753.2	30.5	22.3
		2:00	9.10	786.7	4.7	3.4
3:00		8.70	655.7	4.8	3.5	
4:00		8.20	503.7	7.5	5.5	
5:00		7.60	339.8	7.2	5.3	
6:00		6.80	157.9	1.2	0.9	
7:00				0.0	0.0	
	Total			232.0	169.8	
1994 Mar. 11	11:00			0.0	0.0	
	12:00			29.8	34.0	
	13:00			6.2	7.1	
	14:00	6.70	138.6	23.5	26.8	
	15:00	7.45	302.3	3.3	3.8	
	16:00	7.50	314.6	0.0	0.0	
	17:00	7.20	243.2	0.4	0.5	
	18:00	6.90	178.1	1.4	1.6	
	19:00			0.0	0.0	
		Total			64.6	73.8
1995 Nov. 29	11:00			0.0	0.0	
	12:00			0.8	0.7	
	13:00	6.20	55.8	30.0	27.9	
	14:00	6.60	120.1	31.0	28.8	
	15:00	7.65	352.6	0.0	0.0	
	16:00	7.40	290.1	0.0	0.0	
	17:00	7.10	220.7	0.0	0.0	
	18:00	6.70	138.6	0.0	0.0	
	19:00	6.60	120.1	0.0	0.0	
	20:00	6.40	86.0	0.0	0.0	
	21:00	6.40	86.0	0.0	0.0	
	22:00	6.30	70.4	0.0	0.0	
	23:00	6.30	70.4	0.0	0.0	
	Nov. 30	0:00	6.20	55.8	0.0	0.0
1:00				0.0	0.0	
	Total			61.8	57.5	

Note:  $Q = (1.57 \cdot 64.6m + 1.8 \cdot 10.4m) \cdot (H - 5.6)^{1.5}$

Table 1.11 FREQUENCY OF DAILY RAINFALL

Daily Rainfall		Unit : days							
		> 190mm	> 170mm	> 150mm	> 130mm	> 110mm	> 90mm	> 70mm	
Frequency	1987	1	1	1	3	4	5	13	
	1988	0	0	0	0	0	4	13	
	1989	0	0	0	0	0	1	9	
	1990	0	1	1	1	1	3	7	
	1991	0	0	0	0	0	6	8	
	1992	0	0	0	0	3	4	9	
	1993	0	1	3	3	3	3	5	
	1994	0	0	0	0	0	0	3	
	1995	0	0	0	0	0	0	0	
	1996	0	0	0	0	1	1	1	
Average(days/year)		0.1	0.3	0.5	0.7	1.2	2.7	6.8	
Design Storm for Diversion		Rd =128mm/day (once/year)							

Note : Rainfall Data at Sumurjurang(No.65c) were used

Table 1.12 MONTHLY RAINFALL FOR 30 YEARS AT SUMURJURANG STATION (No.65c)

Year	Unit: mm												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1967	394.0	566.4	383.0	487.0	91.0	0.0	0.0	0.0	0.0	17.0	116.0	450.0	2504.4
1968	664.0	369.7	369.0	404.0	262.0	297.0	211.0	144.0	99.0	52.0	259.0	361.4	3492.1
1969	456.0	719.0	754.0	766.0	28.0	90.0	57.0	0.0	16.0	172.0	224.0	443.0	3725.0
1970	454.0	308.0	444.0	367.0	248.0	186.0	160.0	0.0	124.0	119.0	379.0	778.0	3567.0
1971	786.0	518.0	462.0	439.0	226.0	309.0	28.0	0.0	56.0	272.0	326.0	300.3	3722.3
1972	668.0	336.0	545.0	74.0	154.0	18.0	0.0	0.0	0.0	0.0	180.0	242.0	2217.0
1973	524.0	222.0	326.5	226.0	204.0	108.7	144.0	22.0	144.0	319.8	387.2	323.0	2951.2
1974	549.0	259.0	671.0	318.0	154.0	16.0	44.0	72.0	96.0	373.0	214.0	439.0	3205.0
1975	373.0	259.0	569.0	362.0	223.0	51.3	0.0	25.0	270.0	255.0	439.0	278.7	3105.0
1976	952.0	442.0	668.0	67.0	18.0	33.0	3.0	16.0	0.0	57.0	269.0	228.0	2753.0
1977	433.0	323.0	633.0	210.0	161.0	117.0	0.0	0.0	0.0	0.0	150.0	470.0	2497.0
1978	764.0	462.0	443.0	88.0	102.0	129.0	83.0	37.0	212.0	139.0	143.0	254.0	2856.0
1979	608.0	633.0	440.0	477.0	266.0	131.0	41.0	20.0	105.0	110.0	216.0	159.0	3206.0
1980	734.0	315.0	331.0	399.0	254.0	0.0	71.0	126.0	36.0	176.0	379.0	566.0	3387.0
1981	402.0	378.0	98.0	0.0	201.5	112.4	203.4	0.0	0.0	0.0	64.0	412.0	1871.3
1982	364.0	263.0	626.0	525.0	0.0	0.0	0.0	0.0	0.0	0.0	124.0	250.0	2152.0
1983	436.0	217.0	191.0	301.0	355.0	19.0	0.0	0.0	0.0	363.0	296.0	87.0	2265.0
1984	228.0	516.0	243.0	111.0	56.0	70.0	87.0	51.0	426.0	84.0	232.0	391.0	2495.0
1985	63.0	245.0	152.0	218.0	35.0	0.0	94.8	79.0	114.6	215.2	260.8	306.4	1783.8
1986	592.6	245.0	568.0	209.0	72.0	223.0	44.0	101.0	119.0	94.0	147.0	199.0	2613.6
1987	765.0	660.0	291.0	55.0	116.0	45.0	73.0	0.0	0.0	6.0	301.0	745.0	3057.0
1988	566.0	589.0	442.0	345.0	190.0	31.0	33.0	20.0	26.0	220.0	192.0	884.0	3538.0
1989	374.0	730.0	513.0	347.0	244.0	218.0	118.0	12.0	48.0	150.0	329.0	358.0	3441.0
1990	760.0	237.0	287.0	157.0	93.0	168.0	56.0	74.0	46.0	49.0	182.0	604.0	2713.0
1991	840.0	415.0	176.0	353.0	150.3	5.0	13.1	0.0	0.0	12.1	273.9	335.9	2574.3
1992	382.0	281.0	405.0	367.0	250.0	141.0	7.0	253.0	180.0	254.0	120.0	410.0	3050.0
1993	755.0	384.0	252.0	307.0	61.0	165.0	52.0	32.0	64.0	23.0	145.0	228.0	2468.0
1994	640.0	300.0	575.0	211.0	59.0	3.0	2.0	14.0	0.0	103.0	306.0	435.0	2642.0
1995	397.0	356.0	457.0	75.0	171.0	215.0	0.0	0.0	65.4	76.0	380.0	531.0	2723.4
1996	319.0	726.0	350.0	72.0	95.0	28.0	30.0	87.0	83.0	213.0	259.0	527.0	2789.0
Average	541.4	409.1	422.2	277.9	151.1	97.6	55.2	39.5	77.7	130.8	243.1	399.9	2845.5

Note : After supplementation of missing data

Table 1.13 (I/11) RAINFALL DATA (YEAR 1987)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	8	27	-	5	8	20	-	-	9	-	32
2	3	-	8	-	-	-	15	-	-	-	-	-
3	22	-	4	-	17	-	-	-	-	-	-	14
4	-	11	25	4	-	-	-	-	-	-	7	18
5	9	-	-	37	7	-	-	-	-	-	-	15
6	-	-	-	-	-	-	-	-	-	-	-	22
7	-	3	13	-	-	-	-	-	-	-	14	-
8	-	4	-	-	6	-	-	-	-	-	-	25
9	7	45	11	61	33	-	-	-	-	-	8	20
10	10	-	33	-	-	-	-	-	-	-	-	23
11	28	25	-	-	18	-	-	-	-	-	-	14
12	69	20	-	-	-	-	-	-	-	-	-	24
13	24	-	-	2	-	-	-	-	-	-	-	9
14	26	28	-	-	-	-	-	-	-	-	-	13
15	11	30	-	-	-	-	-	-	-	-	-	6
16	8	41	10	-	7	2	-	-	-	-	-	48
17	-	27	-	-	-	-	-	N	N	6	12	-
18	18	48	-	-	-	-	-	-	-	-	13	22
19	60	3	-	-	-	-	-	I	I	6	18	20
20	-	-	30	-	-	-	-	-	-	-	22	36
21	47	48	-	16	-	-	-	H	H	-	35	40
22	-	9	-	37	-	-	-	-	-	-	43	143
23	2	22	35	39	-	-	-	I	I	-	32	25
24	26	33	-	-	-	-	-	-	-	-	-	18
25	2	-	-	-	-	-	-	L	L	-	-	-
26	17	8	-	-	-	14	18	-	-	-	9	22
27	103	-	25	-	-	-	-	-	-	-	-	-
28	5	-	25	-	8	-	-	-	-	-	-	8
29	7	-	19	-	32	-	-	-	-	-	-	6
30	20	-	-	4	16	-	-	-	-	7	-	-
31	27	-	-	-	-	-	-	-	-	-	-	5
<b>Jumlah</b>	551	413	265	200	149	24	53	0	0	28	213	628
<b>Banyaknya Hari Hujan</b>	23	18	13	8	10	3	3	0	0	4	11	25

Alamat :

Pengamat :

Table 1.13 (2/11) RAINFALL DATA (YEAR 1988)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	44	16	-	84	-	-	-	-	-	-	32
2	-	37	-	18	10	-	12	6	-	26	17	19
3	-	28	18	-	-	-	8	4	-	4	-	45
4	16	-	35	-	-	-	4	-	-	-	12	-
5	32	65	40	-	-	-	-	-	-	-	-	65
6	25	46	-	36	25	-	-	-	8	-	40	-
7	36	37	-	42	-	-	-	-	-	-	-	-
8	27	24	14	25	-	-	-	8	-	-	43	123
9	21	-	22	-	20	-	-	-	4	-	-	173
10	17	40	-	48	-	-	-	-	-	-	8	-
11	18	33	20	-	14	22	4	-	-	-	-	45
12	31	47	-	-	-	-	-	-	2	16	-	117
13	25	50	19	16	-	-	-	-	-	12	11	175
14	14	-	33	-	-	-	-	-	-	-	33	12
15	60	-	28	13	-	-	-	-	-	74	-	33
16	24	23	-	18	-	-	-	-	-	4	18	65
17	60	12	35	-	-	-	-	-	10	16	-	32
18	28	28	40	-	-	-	-	-	-	-	30	24
19	22	22	87	25	-	-	-	-	-	-	25	20
20	30	-	-	27	-	25	-	-	-	22	-	65
21	30	-	45	-	25	2	-	-	-	-	-	125
22	34	-	12	22	-	-	-	-	-	12	40	125
23	45	50	18	-	-	-	-	-	-	-	-	60
24	14	-	24	-	-	-	-	-	-	-	45	75
25	145	-	30	-	20	-	-	-	-	-	22	27
26	25	25	85	-	-	-	-	-	-	-	-	-
27	-	28	35	-	-	-	-	-	-	-	50	33
28	65	8	21	-	-	-	-	-	-	18	18	-
29	-	-	-	30	-	-	-	-	-	-	-	-
30	25	-	12	-	-	-	-	-	-	-	-	-
31	27	-	-	-	-	-	-	-	-	38	-	-
<b>Jumlah</b>	896	647	689	320	198	49	28	18	24	242	412	1490
<b>Banyaknya Hari Hujan</b>	26	19	22	12	7	3	4	3	4	11	15	22

Alamat :

Pengamat :



Table 1.13 (3/11) RAINFALL DATA (YEAR 1989)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	35	67	13	-	15	-	-	-	6	-	9
2	21	95	42	-	-	18	-	-	-	11	-	-
3	-	74	76	24	27	21	-	-	-	-	-	13
4	-	83	23	4	-	-	-	-	-	-	1	-
5	36	124	44	-	15	-	-	-	-	-	-	-
6	-	136	87	47	-	-	-	71	-	-	-	27
7	-	94	-	36	-	10	87	-	-	-	4	-
8	42	96	32	-	-	-	-	-	-	-	18	17
9	-	72	52	4	-	-	-	-	-	-	-	8
10	15	33	12	-	12	-	-	-	-	-	-	17
11	-	12	-	-	-	15	-	-	-	-	8	-
12	18	26	10	17	-	7	-	-	-	2	-	15
13	34	52	14	-	-	5	5	-	-	-	60	72
14	-	14	26	-	30	3	-	-	-	-	94	-
15	-	28	-	-	44	9	34	-	-	-	17	-
16	-	23	-	16	31	-	-	-	-	37	22	4
17	-	116	-	-	-	4	-	-	-	14	4	-
18	27	28	-	-	-	-	-	-	-	-	-	12
19	22	17	22	-	-	-	26	-	-	19	-	-
20	-	25	-	-	-	-	-	-	-	1	-	3
21	-	12	-	14	-	9	9	4	-	-	-	-
22	-	8	33	3	-	-	-	-	-	-	-	-
23	6	-	25	11	-	-	-	-	-	-	-	13
24	-	-	-	3	15	-	-	-	-	7	27	-
25	75	-	-	7	-	-	3	-	-	-	-	7
26	-	-	12	3	-	6	9	-	-	-	12	12
27	-	-	-	-	-	-	-	-	-	-	17	-
28	-	77	-	35	20	-	-	3	-	8	-	-
29	6	-	-	-	-	-	-	7	-	-	6	-
30	18	-	-	6	-	-	-	-	-	22	11	-
31	8	-	28	-	-	-	-	-	-	-	-	-
<b>Jumlah</b>	328	1280	605	243	194	122	173	85	0	127	301	229
<b>Banyaknya Hari Hujan</b>	13	23	17	16	8	12	7	4	0	10	14	14

Alamat :

Pengamat :

Table 1.13 (4/11) RAINFALL DATA (YEAR 1990)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	42	-	17	14	-	52	-	-	-	-	-	-
2	-	33	8	1	-	2	-	-	-	-	32	-
3	2	-	59	-	-	4	4	42	-	-	-	3
4	2	-	3	5	25	-	-	-	-	-	-	70
5	16	-	14	-	5	23	-	-	3	-	-	19
6	74	2	5	-	-	-	-	27	-	-	-	115
7	-	21	-	8	-	-	-	-	-	-	-	1
8	3	-	9	12	-	-	-	2	-	-	-	15
9	23	28	24	-	-	-	-	-	-	-	-	-
10	57	-	7	-	17	-	-	-	4	-	-	-
11	-	-	-	-	-	-	-	9	-	-	-	18
12	1	-	8	-	3	2	-	-	-	-	5	9
13	-	-	-	54	-	-	-	20	-	-	-	43
14	-	-	26	-	-	-	-	-	-	-	-	-
15	-	-	10	3	-	-	-	-	-	-	20	-
16	34	3	-	-	-	-	-	-	-	-	-	-
17	113	-	-	12	-	-	-	-	-	14	-	8
18	1	-	122	2	-	2	-	-	-	-	-	11
19	41	26	16	-	-	5	-	-	-	-	3	2
20	-	8	4	26	-	-	-	-	-	-	-	-
21	31	2	-	-	10	-	-	-	1	-	-	58
22	18	-	-	-	-	-	27	20	6	-	7	15
23	15	4	-	-	-	6	-	-	7	-	-	50
24	2	-	-	8	-	49	2	15	-	-	53	78
25	-	-	-	-	-	60	-	-	-	-	4	3
26	218	-	-	30	53	-	-	-	8	3	43	31
27	55	-	57	7	-	-	-	-	-	-	6	11
28	-	17	-	-	-	-	-	-	-	-	-	38
29	-	-	-	-	9	5	-	-	-	21	3	-
30	-	-	-	-	17	-	-	-	4	21	-	-
31	-	-	-	-	3	-	-	-	-	22	-	22
Jumlah	748	144	389	182	142	210	33	135	33	81	176	620
Banyaknya Hari Hujan	19	10	16	13	9	11	3	7	7	5	10	21

Alamat :

Pengamat :

Table 1.13 (5/11) RAINFALL DATA (YEAR 1991)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	72	-	-	9	-	-	-	-	-	-	-	5
2	8	-	-	10	85	-	-	-	-	-	-	-
3	1	13	-	16	-	-	-	-	-	-	-	7
4	-	-	-	-	-	-	-	-	-	-	38	28
5	8	4	1	9	-	-	-	-	-	-	36	18
6	2	-	-	8	-	-	-	-	-	-	-	25
7	7	7	-	17	-	-	-	-	-	-	3	22
8	7	8	74	-	-	-	-	-	-	-	-	19
9	9	32	-	-	-	-	-	-	-	-	-	-
10	130	19	-	-	-	-	-	-	-	-	34	2
11	9	20	-	-	43	-	-	-	-	-	-	9
12	-	28	23	-	10	-	-	-	-	-	-	22
13	-	15	-	-	-	-	-	-	-	-	11	-
14	-	5	-	44	-	-	-	-	-	4	25	-
15	4	-	30	13	-	-	-	-	-	-	10	-
16	1	-	16	8	-	-	-	-	-	-	15	-
17	2	5	-	2	-	-	-	-	-	-	-	-
18	48	30	16	20	-	-	-	-	-	-	-	-
19	-	38	-	-	-	-	-	-	-	5	-	3
20	-	-	36	-	-	-	-	-	-	-	4	8
21	16	19	-	178	-	-	12	-	-	-	4	4
22	-	6	-	-	-	8	-	-	-	2	-	-
23	21	40	-	-	-	-	-	-	-	-	-	-
24	13	62	-	10	-	-	-	-	-	-	12	25
25	2	71	-	9	-	-	-	-	-	-	17	-
26	31	-	-	7	-	-	-	-	-	-	5	99
27	-	15	2	-	-	-	-	-	-	-	15	2
28	20	15	5	-	-	-	-	-	-	-	2	6
29	3	-	2	8	-	-	-	-	-	-	3	4
30	-	-	-	-	-	-	-	-	-	-	3	-
31	50	-	10	-	-	-	-	-	-	-	-	-
<b>Jumlah</b>	<b>464</b>	<b>452</b>	<b>215</b>	<b>368</b>	<b>138</b>	<b>8</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>237</b>	<b>308</b>
<b>Banyaknya Hari Hujan</b>	<b>22</b>	<b>20</b>	<b>11</b>	<b>16</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>17</b>	<b>18</b>

Alamat :

Pengamat :

Table 1.13 (6/11) RAINFALL DATA (YEAR 1992)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	-	31	6	-	1	-	-	-	-	9	4
2	-	-	-	12	-	6	10	-	-	-	-	3
3	-	12	-	-	-	-	-	23	-	36	-	5
4	-	-	-	24	22	2	-	-	-	2	-	35
5	-	41	-	-	-	-	-	-	44	37	-	4
6	2	-	-	-	-	-	-	5	-	-	-	13
7	-	-	1	-	1	75	-	-	-	3	-	-
8	21	-	5	9	-	12	-	-	20	16	-	4
9	5	-	12	6	-	-	-	-	-	-	-	-
10	58	2	86	15	-	6	-	-	-	-	-	43
11	5	-	51	-	20	-	-	-	10	-	-	42
12	13	-	4	51	10	-	-	-	1	-	13	5
13	-	8	14	6	5	-	-	-	-	3	-	10
14	-	-	-	9	14	-	-	-	-	6	19	4
15	-	-	-	4	85	-	6	-	-	-	-	70
16	-	4	3	-	20	-	-	-	-	-	1	30
17	-	-	25	-	5	-	-	-	-	-	1	6
18	-	2	30	-	-	-	-	-	-	-	7	4
19	-	-	75	-	-	-	-	-	-	5	-	-
20	29	-	10	-	-	-	-	-	-	-	2	-
21	-	64	-	1	-	-	-	-	-	-	1	-
22	-	19	2	-	4	-	-	-	-	-	3	-
23	30	-	-	-	-	-	-	47	-	1	-	-
24	-	3	18	31	-	-	-	-	-	2	4	-
25	-	-	4	-	5	-	-	-	18	53	73	29
26	-	-	-	-	20	-	-	-	-	-	1	-
27	-	-	-	19	-	-	-	3	37	28	-	-
28	-	-	-	18	15	-	15	-	-	-	-	-
29	43	-	3	3	60	-	10	1	-	44	3	-
30	27	-	-	-	17	-	-	-	-	15	16	3
31	-	-	-	-	-	-	-	77	-	2	-	-
<b>Jumlah</b>	<b>233</b>	<b>155</b>	<b>374</b>	<b>214</b>	<b>303</b>	<b>102</b>	<b>41</b>	<b>156</b>	<b>130</b>	<b>253</b>	<b>153</b>	<b>314</b>
<b>Banyakaya Hari Hujan</b>	<b>10</b>	<b>9</b>	<b>17</b>	<b>15</b>	<b>15</b>	<b>6</b>	<b>4</b>	<b>6</b>	<b>6</b>	<b>15</b>	<b>14</b>	<b>18</b>

Alamat :

Pengamat :

Table 1.13 (7/11) RAINFALL DATA (YEAR 1993)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	48	-	25	-	-	-	-	-	-	3	-
2	-	10	9	2	-	-	-	-	-	-	-	14
3	-	3	-	66	-	-	-	-	-	-	-	2
4	-	24	-	-	-	-	-	-	-	-	-	5
5	3	16	-	-	44	-	-	1	-	-	-	-
6	-	63	-	25	6	3	-	-	-	-	-	-
7	-	15	6	58	-	14	-	-	64	-	-	-
8	-	36	27	19	-	99	-	-	43	11	4	4
9	14	17	-	4	-	-	-	-	19	-	6	10
10	5	9	-	-	7	-	-	6	-	-	-	9
11	-	4	-	-	5	-	-	-	-	15	-	-
12	-	3	-	20	-	29	2	-	-	-	-	-
13	6	1	-	-	-	-	-	-	-	-	-	-
14	17	2	-	2	-	-	-	-	-	3	-	-
15	-	6	-	40	-	-	-	-	-	-	26	4
16	-	48	-	23	-	49	-	9	-	-	-	-
17	36	-	5	-	-	-	-	-	-	-	4	-
18	-	-	-	2	-	12	-	-	-	-	7	2
19	-	-	11	-	-	-	-	-	-	22	-	-
20	-	-	14	7	-	-	-	-	-	-	-	-
21	4	-	-	-	-	-	-	-	-	-	-	65
22	54	-	10	54	-	3	3	-	6	-	-	25
23	59	-	27	25	-	-	-	11	-	-	13	2
24	79	-	8	16	-	-	-	7	-	-	15	37
25	26	12	-	3	-	-	-	-	-	-	-	-
26	1	3	28	-	-	-	-	-	-	-	-	-
27	1	15	-	-	-	-	-	-	-	-	-	-
28	25	8	77	-	-	-	-	-	-	-	-	4
29	130	-	-	20	7	-	-	-	-	-	-	58
30	144	-	8	-	-	-	-	-	-	-	7	-
31	143	-	-	-	-	-	-	4	-	-	-	-
Jumlah	747	343	230	411	69	209	5	38	132	51	85	241
Banyaknya Hari Hujan	17	20	12	18	5	7	2	6	4	4	9	14

Alamat :

Pengamat :

Table 1.13 (8/11) RAINFALL DATA (YEAR 1994)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	-	-	-	-	-	-	-	-	-	-	-
2	20	5	13	-	-	-	-	-	-	-	-	36
3	5	25	2	-	-	-	-	2	-	-	3	2
4	15	-	8	-	3	-	-	-	-	-	22	8
5	2	2	1	-	6	-	-	-	-	-	27	2
6	-	-	20	-	-	-	-	-	-	-	11	-
7	5	10	25	-	5	-	-	-	-	-	4	25
8	-	1	29	-	17	-	-	-	-	-	-	-
9	10	5	65	-	-	-	-	-	-	-	-	20
10	-	40	14	-	-	-	-	-	-	-	-	-
11	45	-	2	-	-	-	-	-	-	7	-	25
12	-	-	108	-	39	-	-	-	-	14	-	60
13	8	13	25	-	-	-	-	-	-	-	-	6
14	21	17	3	-	-	-	-	-	-	-	17	-
15	136	-	-	-	-	-	-	-	-	-	3	-
16	18	-	21	-	-	-	-	-	-	-	2	25
17	10	1	25	-	-	-	N	-	N	-	4	-
18	17	-	-	-	-	-	-	-	-	42	-	5
19	86	4	-	-	-	-	I	-	I	-	-	16
20	4	1	-	2	-	2	-	-	-	-	-	10
21	-	-	-	-	-	-	H	-	H	-	14	22
22	2	3	120	-	-	-	-	-	-	-	-	18
23	8	-	64	-	-	-	I	-	I	-	5	74
24	10	-	6	-	-	-	-	-	-	-	5	-
25	44	-	63	-	-	-	L	-	L	-	-	-
26	31	-	51	-	-	-	-	-	-	-	-	-
27	-	39	19	-	-	-	-	-	-	-	3	-
28	1	2	31	-	-	-	-	-	-	-	-	-
29	2	-	18	-	-	-	-	-	-	12	16	-
30	15	-	-	-	-	-	-	-	-	-	-	41
31	21	-	3	-	-	-	-	-	-	7	-	20
Jumlah	536	168	736	2	70	2	0	2	0	82	136	415
Banyaknya Hari Hujan	24	15	24	1	5	1	0	1	0	5	14	18

Alamat :

Pengamat :

Table 1.13 (9/11) RAINFALL DATA (YEAR 1995)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

HUJAN DALAM MILIMETER (mm)

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	11	-	-	-	-	8	-	-	-	-	-	-
2	-	-	-	-	-	85	-	-	-	-	-	-
3	-	14	12	3	-	-	-	-	-	-	-	1
4	-	30	17	16	-	-	-	-	-	-	4	3
5	-	32	18	-	-	-	7	-	-	-	30	4
6	9	15	9	-	-	35	9	-	-	-	2	10
7	-	-	-	5	-	-	-	-	-	-	-	18
8	-	16	-	-	39	-	-	-	-	-	36	3
9	52	22	58	6	-	-	-	-	-	5	27	5
10	3	4	2	10	-	-	12	-	-	-	54	9
11	7	70	9	12	70	-	-	-	-	-	49	-
12	49	48	-	1	-	-	-	-	-	7	78	-
13	-	-	-	-	-	-	-	-	-	-	8	90
14	-	22	18	-	-	48	-	-	-	-	-	11
15	22	-	7	15	-	-	-	-	-	-	1	-
16	14	5	1	2	-	16	-	-	-	-	27	4
17	5	-	95	-	-	15	-	N	-	-	-	4
18	8	-	7	-	-	-	-	-	-	-	16	-
19	-	8	20	-	-	13	-	I	-	-	-	-
20	-	36	30	3	-	-	-	-	-	-	-	-
21	24	-	-	-	-	30	-	H	-	-	50	22
22	-	-	-	-	16	6	-	-	-	-	11	8
23	-	-	55	-	-	48	-	I	-	-	-	-
24	-	-	22	-	-	-	-	-	19	-	-	-
25	25	-	-	-	-	-	-	L	41	6	33	10
26	10	27	-	-	-	-	-	-	-	-	10	75
27	-	3	24	-	-	16	-	-	-	20	30	40
28	90	1	-	-	-	-	-	-	-	-	34	5
29	-	-	10	17	-	-	-	-	-	5	2	-
30	8	-	-	8	2	-	-	-	-	-	101	2
31	-	-	-	-	20	-	-	-	-	11	-	-
Jumlah	337	353	414	98	147	320	28	0	60	54	603	324
Banyaknya Hari Hujan	15	16	18	12	5	11	3	0	2	6	20	19

Alamat :

Pengamat :

Table 1.13 (10/11) RAINFALL DATA (YEAR 1996)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	3	45	22	16	-	-	-	-	-	-	30	4
2	1	33	-	2	-	-	-	-	-	14	-	15
3	36	-	-	-	2	-	-	-	-	28	10	20
4	-	25	6	-	4	-	-	-	-	-	-	-
5	10	11	6	-	-	-	-	-	-	11	-	2
6	18	-	17	-	-	-	-	-	-	7	7	10
7	-	5	4	4	-	-	-	-	-	15	2	8
8	12	-	10	-	-	-	-	30	-	50	3	16
9	25	36	17	-	-	12	-	-	15	-	11	5
10	-	8	-	-	-	23	-	55	16	-	40	35
11	-	9	-	-	-	-	-	-	-	-	22	23
12	12	5	7	-	-	-	-	2	-	-	-	59
13	-	70	-	-	-	-	5	1	-	-	-	6
14	-	46	14	-	-	-	-	-	-	8	-	18
15	-	-	-	16	-	-	-	-	-	9	5	20
16	11	-	-	5	-	-	-	19	-	15	7	-
17	42	2	2	8	-	-	-	-	-	-	-	4
18	-	19	-	12	-	-	-	-	-	2	-	8
19	19	120	3	-	17	-	-	-	-	15	-	7
20	-	48	-	-	6	-	-	-	-	-	-	-
21	11	10	19	14	-	-	-	-	-	-	2	-
22	19	-	-	20	-	-	-	27	-	-	5	9
23	-	-	-	9	18	-	-	-	-	2	50	13
24	19	17	5	7	-	-	-	-	34	-	7	-
25	3	22	-	-	-	-	-	-	-	2	2	6
26	48	15	-	-	-	-	12	-	-	10	-	9
27	-	20	-	-	22	-	-	-	-	60	-	5
28	-	13	-	-	-	-	-	16	-	-	-	-
29	3	40	18	-	-	-	-	-	-	17	-	2
30	-	-	-	-	-	-	-	-	-	11	-	40
31	-	-	-	-	-	-	-	-	-	14	-	1
<b>Jumlah</b>	292	619	150	113	69	35	17	150	65	290	203	345
<b>Banyaknya Hari Hujan</b>	17	22	14	11	6	2	2	7	3	18	15	25

Alamat :

Pengamat :



Table 1.13 (11/11) RAINFALL DATA (YEAR 1997)

Tempat pemeriksaan : Mijen, Tinggi diatas muka laut : 228 meter, Kecamatan : Mijen, Kotamadya : Semarang  
 Letaknya tempat pemeriksaan : 0,5 km, sebelah Selatan dari Kantor Camat : Mijen

**HUJAN DALAM MILIMETER**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	10	-	110	-	2	-	-	-	-	-	-	-
2	58	-	17	-	6	-	-	-	-	-	-	-
3	17	3	8	-	-	-	-	-	-	-	-	-
4	-	-	3	8	-	-	-	-	-	-	-	-
5	9	9	-	-	-	-	-	-	-	-	-	-
6	33	-	4	-	-	-	-	-	-	-	-	-
7	22	41	-	-	-	-	-	-	-	-	-	-
8	34	-	3	-	-	-	-	-	-	-	-	-
9	8	-	1	14	-	-	-	-	-	-	-	-
10	13	-	13	-	-	-	-	-	-	-	-	-
11	27	-	16	-	30	-	-	-	-	-	-	-
12	15	14	13	6	52	-	-	-	-	-	-	-
13	43	25	8	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	25	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	16	-	-	N	N	-	-	-	-	-
18	15	10	47	11	-	-	-	-	-	-	-	-
19	84	5	-	-	-	I	I	-	-	-	-	-
20	71	2	29	-	20	-	-	-	-	-	-	-
21	13	-	11	-	-	H	H	-	-	-	-	-
22	42	9	18	-	29	-	-	-	-	-	-	-
23	-	-	2	-	-	I	I	-	-	-	-	-
24	5	-	-	3	-	-	-	-	-	-	-	-
25	105	1	-	-	-	L	L	-	-	-	-	-
26	-	-	-	-	3	-	-	-	-	-	-	-
27	29	5	3	-	-	-	-	-	-	-	-	-
28	15	-	-	-	-	-	-	-	-	-	-	-
29	7	-	27	10	5	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	3	-	-	-	-	-	-	-	-	-
<b>Jumlah</b>	<b>675</b>	<b>124</b>	<b>352</b>	<b>52</b>	<b>172</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Banyaknya Hari Hujan</b>	<b>22</b>	<b>11</b>	<b>20</b>	<b>6</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Alamat :

Pengamat :

Table 1.14 (1/10) RAINFALL DATA (YEAR 1987)

Tempat pemeriksaan : Sumur Jurang, Tinggi diatas muka laut : 338 meter, Kecamatan : Gunung Pati,  
Kotamadya : Semarang, Letaknya tempat pemeriksaan : 3 km, sebelah Timur dari Kantor Camat : Gunung Pati

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	-	65	-	10	-	18	-	-	-	-	-
2	-	-	-	-	12	-	-	-	-	-	-	37
3	-	-	31	-	-	25	-	-	-	-	-	58
4	-	-	-	-	-	-	-	-	-	-	-	7
5	43	-	-	-	4	-	-	-	-	-	-	24
6	-	200	20	-	-	-	-	-	-	-	-	33
7	-	-	-	-	-	10	-	-	-	-	33	-
8	-	60	-	-	9	-	-	-	-	-	-	32
9	34	-	-	-	62	-	-	-	-	-	7	5
10	15	-	-	-	7	-	-	-	-	-	-	8
11	12	33	15	-	-	-	-	-	-	-	-	50
12	-	-	-	-	-	-	-	-	-	-	-	75
13	19	125	-	-	-	-	-	-	-	-	-	10
14	107	-	-	-	-	-	-	-	-	-	-	3
15	70	26	-	-	-	-	-	-	-	-	-	-
16	33	68	-	-	-	-	-	-	-	-	-	87
17	-	58	-	-	-	-	-	-	-	-	-	-
18	19	18	-	25	-	-	-	-	-	-	-	25
19	132	-	-	-	-	-	-	-	-	-	79	-
20	-	18	85	18	-	-	-	-	-	-	-	63
21	-	18	8	-	-	-	-	-	-	-	66	13
22	-	-	-	-	-	-	-	-	-	-	46	142
23	70	-	23	-	-	-	-	-	-	-	29	10
24	87	13	11	12	-	-	-	-	-	-	-	6
25	-	-	-	-	-	-	-	-	-	-	16	-
26	24	-	-	-	-	10	55	-	-	-	-	6
27	86	23	-	-	-	-	-	-	-	-	-	-
28	-	-	33	-	-	-	-	-	-	-	25	28
29	-	-	-	-	12	-	-	-	-	-	-	-
30	14	-	-	-	-	-	-	-	-	6	-	1
31	-	-	-	-	-	-	-	-	-	-	-	22
<b>Jumlah</b>	765	660	291	55	116	45	73	0	0	6	301	745
<b>Banyaknya Hari Hujan</b>	15	12	9	3	7	3	2	0	0	1	8	23

Alamat :

Pengamat :

Table 1.14 (2/10) RAINFALL DATA (YEAR 1988)

Tempat pemeriksaan : Sumurjurang, Tinggi diatas muka laut : 338 meter, Kecamatan : Gunung Pati,  
 Kolamadya : Semarang, Letaknya tempat pemeriksaan : 3 km, sebelah Timur dari Kantor Camat : Gunung Pat

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	-	-	-	-	-	-	-	-	-	-	2
2	-	8	3	57	-	-	-	5	-	2	-	13
3	51	-	-	40	-	-	-	3	-	2	-	-
4	46	12	-	-	14	-	27	-	-	-	-	1
5	-	98	52	-	64	-	-	-	7	-	-	15
6	-	6	24	-	-	-	-	-	-	-	-	-
7	46	56	6	77	-	-	6	-	-	-	-	55
8	65	-	-	19	32	-	-	12	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	92
10	6	57	39	79	-	6	-	-	-	-	-	56
11	-	87	-	16	19	25	-	-	-	-	-	39
12	5	21	15	-	-	-	-	-	-	19	-	107
13	4	21	-	-	18	-	-	-	-	6	-	80
14	30	22	12	-	1	-	-	-	-	-	-	5
15	-	11	24	-	17	-	-	-	-	47	-	9
16	3	23	-	41	-	-	-	-	-	-	-	18
17	69	5	-	-	-	-	-	-	13	-	-	78
18	-	-	56	-	7	-	-	-	-	-	-	-
19	40	14	74	-	-	-	-	-	1	-	-	12
20	9	-	-	-	18	-	-	-	-	-	-	-
21	11	-	-	16	-	-	-	-	-	-	-	81
22	14	-	6	-	-	-	-	-	-	14	-	29
23	-	89	-	-	-	-	-	-	-	-	-	54
24	-	-	46	-	-	-	-	-	-	-	-	61
25	69	-	16	-	-	-	-	-	-	-	-	-
26	10	29	61	-	-	-	-	-	-	17	-	35
27	-	16	2	-	-	-	-	-	5	-	-	20
28	16	14	6	-	-	-	-	-	-	-	-	22
29	4	-	-	-	-	-	-	-	-	17	-	-
30	11	-	-	-	-	-	-	-	-	21	-	-
31	7	-	-	-	-	-	-	-	-	75	-	-
<b>Jumlah</b>	<b>516</b>	<b>589</b>	<b>442</b>	<b>345</b>	<b>190</b>	<b>31</b>	<b>33</b>	<b>20</b>	<b>26</b>	<b>220</b>	<b>0</b>	<b>884</b>
<b>Banyaknya Hari Hujan</b>	<b>20</b>	<b>18</b>	<b>16</b>	<b>8</b>	<b>9</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>10</b>	<b>0</b>	<b>22</b>

Alamat :

Pengamat :

Table 1.14 (3/10) RAINFALL DATA (YEAR 1989)

Tempat pemeriksaan : Sumurjurang, Tinggi diatas muka laut : 338 meter, Kecamatan : Gunung Pati,  
Kotamadya : Semarang, Letaknya tempat pemeriksaan : 3 km, sebelah Timur dari Kantor Camat : Gunung Pat

HIJAN DALAM MILIMETER (mm)

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	13	-	-	58	-	29	-	-	-	-	-	45
2	-	69	23	-	-	71	-	-	-	-	-	32
3	41	42	20	21	-	-	-	-	-	16	-	-
4	45	-	55	-	25	2	-	-	-	-	-	19
5	-	95	54	5	2	-	-	-	-	-	-	4
6	6	77	-	-	-	-	-	-	-	-	-	-
7	-	35	-	64	-	-	-	-	-	-	-	3
8	72	14	43	-	-	-	79	-	-	-	-	6
9	27	72	45	-	-	-	-	-	-	-	21	85
10	6	1	-	-	64	13	12	-	-	-	3	6
11	-	25	-	3	-	22	-	-	-	-	-	6
12	15	13	-	13	-	23	2	-	-	-	25	-
13	2	15	12	11	-	-	-	-	-	-	9	-
14	3	7	-	-	-	-	-	-	-	-	18	23
15	-	35	-	-	8	4	-	-	-	-	41	18
16	-	-	26	-	37	4	-	-	-	19	39	34
17	-	15	3	6	-	2	-	-	-	-	38	-
18	24	23	-	-	-	-	-	-	-	5	26	-
19	-	35	-	39	4	-	-	-	-	-	-	-
20	-	4	-	-	45	-	4	-	3	6	-	-
21	-	-	29	-	-	37	-	-	-	7	-	-
22	-	80	41	29	-	-	-	-	2	3	-	-
23	-	6	45	8	-	-	-	-	-	5	24	-
24	-	12	-	13	13	-	-	-	-	-	28	-
25	69	-	5	23	3	-	-	-	-	17	4	-
26	-	-	10	6	8	-	11	-	-	-	15	-
27	-	55	41	-	-	-	7	-	-	-	-	-
28	-	-	7	-	-	11	3	-	-	11	15	-
29	19	-	-	48	-	-	-	-	43	60	11	5
30	27	-	54	-	-	-	-	-	-	1	12	-
31	5	-	-	-	35	-	-	-	-	-	-	72
<b>Jumlah</b>	<b>374</b>	<b>730</b>	<b>513</b>	<b>347</b>	<b>244</b>	<b>218</b>	<b>118</b>	<b>0</b>	<b>48</b>	<b>150</b>	<b>329</b>	<b>358</b>
<b>Banyaknya Hari Hujan</b>	<b>15</b>	<b>21</b>	<b>17</b>	<b>15</b>	<b>11</b>	<b>11</b>	<b>7</b>	<b>0</b>	<b>3</b>	<b>11</b>	<b>16</b>	<b>14</b>

Alamat :

Pengamat :

Table 1.14 (4/10) RAINFALL DATA (YEAR 1990)

Tempat pemeriksaan : Sumurjurang, Tinggi diatas muka laut : 338 meter, Kecamatan : Gunung Pati,  
Kotamadya : Semarang, Letaknya tempat pemeriksaan : 3 kni, sebelah Timur dari Kantor Camat : Gunung Pat

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	57	-	-	-	-	-	-	-	-	-	2
2	4	7	-	-	-	-	-	-	-	-	-	-
3	-	29	-	-	-	-	-	-	-	-	-	-
4	2	1	-	-	-	-	-	-	-	-	-	69
5	23	1	5	-	-	-	-	-	-	-	-	14
6	56	2	7	-	-	-	-	-	-	-	-	63
7	51	-	18	-	-	-	-	-	-	-	-	7
8	2	3	-	-	-	-	-	-	-	-	-	-
9	-	5	-	-	-	-	-	-	-	-	-	20
10	38	21	-	-	-	-	-	-	-	-	-	-
11	32	-	-	32	-	-	-	-	-	-	-	-
12	-	-	-	4	-	-	-	-	-	-	-	44
13	6	-	-	5	-	-	-	-	-	-	-	23
14	-	18	20	-	-	-	-	-	-	-	-	27
15	5	15	26	-	-	-	-	-	-	-	-	6
16	27	-	-	-	-	-	-	-	-	-	-	8
17	10	-	-	-	-	-	-	-	-	-	-	-
18	-	75	-	44	-	-	-	-	-	-	-	45
19	3	10	-	-	-	-	-	-	-	-	-	2
20	-	-	6	-	-	-	-	-	-	-	-	8
21	98	8	-	6	-	-	-	-	-	-	-	12
22	-	-	-	-	-	-	-	-	-	-	-	9
23	23	-	-	2	-	-	-	-	-	-	-	54
24	15	-	-	-	-	-	-	-	-	-	-	85
25	3	-	-	-	-	-	-	-	-	-	-	77
26	185	-	22	-	-	-	-	-	-	-	-	3
27	74	14	15	-	-	-	-	-	-	-	-	6
28	98	21	38	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	20
<b>Jumlah</b>	<b>755</b>	<b>287</b>	<b>157</b>	<b>93</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>604</b>
<b>Banyaknya Hari Hujan</b>	<b>20</b>	<b>16</b>	<b>9</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22</b>

Alamat :

Pengamat :

Table 1.14 (5/10) RAINFALL DATA (YEAR 1991)

Tempat pemeriksaan : Sumurjurang, Tinggi diatas muka laut : 338 meter, Kecamatan : Gunung Pati,  
Kotamadya : Semarang, Letaknya tempat pemeriksaan : 3 km, sebelah Timur dari Kantor Camat : Gunung Pat

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	91	-	9	2	-	-	-	-	-	-	-	5.5
2	50	-	-	12	92.7	-	-	-	-	-	-	-
3	36	2	-	3	-	-	-	-	-	-	-	7.6
4	28	-	4	-	-	-	-	-	-	-	41.4	30.5
5	90	11	-	50	-	-	-	-	-	-	39.2	19.6
6	11	9	-	9	-	-	-	-	-	-	-	27.3
7	5	64	-	-	-	-	-	-	-	-	3.3	24
8	5	20	-	-	-	-	-	-	-	-	-	20.7
9	33	-	45	-	-	-	-	-	-	-	-	-
10	91	10	-	-	-	-	-	-	-	-	37.1	2.2
11	-	2	-	-	46.9	-	-	-	-	-	-	9.8
12	1	27	-	-	10.9	-	-	-	-	-	-	24
13	-	31	-	-	-	-	-	-	-	-	12	-
14	-	-	-	33	-	-	-	-	-	4.4	27.3	-
15	-	-	25	-	-	-	-	-	-	-	10.9	-
16	32	-	9	12	-	3	-	-	-	-	16.4	-
17	-	83	-	-	-	-	-	-	-	-	-	-
18	29	1	5	16	-	2	-	-	-	-	-	-
19	-	22	-	-	-	-	-	-	-	5.5	-	3.3
20	27	-	55	14	-	-	-	-	-	-	12	8.7
21	25	4	6	6	-	-	13.1	-	-	-	12	4.4
22	48	2	9	84	-	-	-	-	-	2.2	-	-
23	26	24	-	12	-	-	-	-	-	-	-	-
24	3	54	-	12	-	-	-	-	-	-	13.1	27.3
25	10	26	-	12	-	-	-	-	-	-	18.5	-
26	16	1	-	-	-	-	-	-	-	-	5.5	107.9
27	9	-	-	24	-	-	-	-	-	-	16.4	2.2
28	5	24	9	-	-	-	-	-	-	-	2.2	6.5
29	97	-	-	50	-	-	-	-	-	-	3.3	4.4
30	15	-	-	2	-	-	-	-	-	-	3.3	-
31	57	-	-	-	-	-	-	-	-	-	-	-
<b>Jumlah</b>	<b>840</b>	<b>417</b>	<b>176</b>	<b>353</b>	<b>150.5</b>	<b>5</b>	<b>13.1</b>	<b>0</b>	<b>0</b>	<b>12.1</b>	<b>273.9</b>	<b>335.9</b>
<b>Banyaknya Hari Hujan</b>	<b>25</b>	<b>19</b>	<b>10</b>	<b>17</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>17</b>	<b>18</b>

Alamat :

Pengamat :

Table 1.14 (6/10) RAINFALL DATA (YEAR 1992)

Tempat pemeriksaan : Sumurjurang, Tinggi diatas muka laut : 338 meter, Kecamatan : Gunung Pati,  
Kotamadya : Semarang, Letaknya tempat pemeriksaan : 3 km, sebelah Timur dari Kantor Camat : Gunung Pat

**HUJAN DALAM MILIMETER (mm)**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	-	25	25	-	3	-	-	-	-	10	-
2	15	15	46	48	-	78	-	5	-	29	-	-
3	-	16	6	-	-	-	-	-	-	5	-	41
4	-	-	-	8	-	5	-	-	-	-	-	46
5	5	36	-	-	-	-	-	-	-	11	3	37
6	-	19	-	-	-	22	-	-	27	21	-	12
7	-	-	-	-	3	-	-	-	3	17	-	-
8	21	-	11	-	-	5	-	-	-	75	-	-
9	16	-	29	6	-	4	-	-	8	12	-	-
10	119	-	15	122	15	16	-	-	23	2	-	18
11	-	-	7	-	3	-	-	-	-	-	-	16
12	8	-	-	30	-	-	-	-	53	8	-	89
13	38	-	31	7	2	-	-	-	1	22	3	65
14	6	41	15	-	15	-	-	-	-	5	-	2
15	3	11	-	14	62	-	-	-	-	-	-	5
16	-	5	18	58	-	-	-	3	-	-	-	38
17	4	-	-	-	-	-	-	-	-	-	-	-
18	-	13	18	2	-	-	-	45	-	-	9	-
19	-	9	103	-	-	-	-	-	11	4	-	-
20	-	48	10	-	-	-	-	-	-	4	-	-
21	-	28	16	14	-	-	-	3	-	-	5	-
22	-	30	-	4	5	-	-	-	-	-	10	-
23	41	-	-	7	-	-	-	113	-	-	6	-
24	-	-	-	-	-	-	-	-	-	7	5	-
25	-	-	26	-	21	-	-	3	43	14	39	-
26	-	-	-	5	14	-	-	19	-	-	-	-
27	-	7	11	15	83	-	-	3	-	-	5	-
28	-	3	-	2	-	-	7	-	11	-	-	-
29	23	-	13	-	5	8	-	-	-	7	21	-
30	83	-	-	-	22	-	-	5	-	11	4	41
31	-	-	5	-	-	-	-	54	-	-	-	-
<b>Jumlah</b>	<b>382</b>	<b>281</b>	<b>405</b>	<b>367</b>	<b>250</b>	<b>141</b>	<b>7</b>	<b>253</b>	<b>180</b>	<b>254</b>	<b>120</b>	<b>410</b>
<b>Banyaknya Hari Hujan</b>	<b>13</b>	<b>14</b>	<b>18</b>	<b>16</b>	<b>12</b>	<b>8</b>	<b>1</b>	<b>10</b>	<b>9</b>	<b>17</b>	<b>12</b>	<b>12</b>

Alamat :

Pengamat :

Table 1.14 (7/10) RAINFALL DATA (YEAR 1993)

Tempat pemeriksaan : Sumurjurang, Tinggi diatas muka laut : 338 meter, Kecamatan : Gunung Pati,  
 Kotamadya : Semarang, Letaknya tempat pemeriksaan : 3 km, sebelah Timur dari Kantor Camat : Gunung Pat

HUJAN DALAM MILIMETER (mm)

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	26	33	46	-	14	-	-	-	-	-	35	-
2	-	-	6	-	-	-	-	-	-	-	-	55
3	-	5	-	13	-	-	-	-	-	-	-	-
4	-	15	-	-	-	-	26	-	-	-	-	3
5	11	18	-	-	42	-	-	-	-	-	-	17
6	-	41	-	5	-	6	4	-	11	-	-	-
7	5	7	56	17	-	5	-	-	3	-	-	-
8	5	35	9	-	-	3	-	-	9	-	-	3
9	20	18	-	-	-	71	-	-	32	-	-	15
10	21	8	24	42	-	-	-	-	-	-	-	-
11	5	-	1	3	-	29	-	-	-	-	10	-
12	-	9	3	17	-	18	-	-	-	-	-	-
13	-	-	7	7	-	-	-	-	-	-	-	-
14	-	-	-	64	-	-	-	-	-	17	-	-
15	-	11	-	9	-	-	-	-	-	-	14	-
16	-	-	2	6	-	3	-	9	-	-	-	-
17	12	-	12	-	-	19	-	-	9	-	18	-
18	3	-	8	10	-	11	-	-	-	-	-	-
19	6	-	-	-	-	-	-	-	-	6	48	15
20	16	-	-	37	-	-	-	3	-	-	-	-
21	-	150	-	-	-	-	-	-	-	-	-	36
22	51	-	9	13	-	-	8	12	-	-	-	6
23	69	-	3	-	-	-	15	-	-	-	6	12
24	69	-	-	13	-	-	-	-	-	-	11	20
25	21	19	-	-	-	-	-	-	-	-	3	-
26	2	2	13	-	2	-	-	-	-	-	-	-
27	-	12	3	-	-	-	-	-	-	-	-	-
28	8	-	39	-	9	-	-	-	-	-	-	3
29	72	-	-	31	-	-	-	-	-	-	-	43
30	172	-	-	-	-	-	-	-	-	-	-	-
31	162	-	1	-	-	-	-	8	-	-	-	-
<b>Jumlah</b>	<b>756</b>	<b>383</b>	<b>242</b>	<b>287</b>	<b>67</b>	<b>165</b>	<b>53</b>	<b>32</b>	<b>64</b>	<b>23</b>	<b>145</b>	<b>228</b>
<b>Banyaknya Hari Hujan</b>	<b>20</b>	<b>15</b>	<b>17</b>	<b>15</b>	<b>4</b>	<b>9</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>2</b>	<b>8</b>	<b>12</b>

Alamat :

Pengamat :



Table 1.14 (8/10) RAINFALL DATA (YEAR 1994)

Tempat pemeriksaan : Sumurjurang, Tinggi diatas muka laut : 338 meter, Kecamatan : Gunung Pati, Kotamadya : Semarang, Letaknya tempat pemeriksaan : 3 km, sebelah Timur dari Kantor Camat : Gunung Pat

HUJAN DALAM MILIMETER (mm)

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	-	-	7	-	-	-	-	-	-	-	45
2	16	-	18	-	-	-	-	-	-	-	-	-
3	15	13	4	-	-	-	-	5	-	-	34	-
4	-	24	3	50	-	-	-	6	-	-	50	4
5	31	-	1	-	12	-	-	-	-	-	32	6
6	-	7	51	-	-	-	-	-	-	-	-	-
7	11	11	34	-	-	-	-	-	-	-	-	24
8	-	30	36	-	-	-	-	-	-	-	-	27
9	54	7	21	-	-	-	-	-	-	-	-	-
10	16	34	4	24	-	-	-	-	-	-	5	38
11	43	-	26	3	-	-	-	-	-	12	-	47
12	16	70	81	-	18	-	-	-	-	14	-	15
13	-	-	21	4	-	-	-	-	N	-	3	-
14	67	23	-	8	-	-	-	-	-	-	1	-
15	71	-	21	28	-	3	2	-	I	-	46	28
16	54	-	5	13	-	-	-	-	-	-	-	46
17	33	-	23	48	-	-	-	-	H	-	10	5
18	28	-	-	2	-	-	-	-	-	25	-	-
19	46	7	10	-	-	-	-	-	I	-	-	-
20	4	8	-	-	-	-	-	-	-	-	2	60
21	-	8	-	18	-	-	-	-	L	-	7	21
22	-	12	-	-	-	-	-	-	-	-	-	53
23	54	16	34	-	-	-	-	-	-	-	11	9
24	2	-	36	2	-	-	-	-	-	-	-	-
25	23	-	36	-	-	-	-	-	-	-	25	-
26	13	-	26	-	-	-	-	-	-	-	-	-
27	-	30	27	4	-	-	-	-	-	-	4	-
28	9	-	35	-	-	-	-	3	-	-	11	-
29	6	-	22	-	-	-	-	-	-	52	3	-
30	16	-	-	-	23	-	-	-	-	-	62	-
31	12	-	-	-	-	-	-	-	-	-	-	7
Jumlah	640	300	575	211	53	3	2	14	0	103	306	435
Banyaknya Hari Hujan	23	15	23	13	3	1	1	3	0	4	16	16

Alamat :

Pengamat :

Table 1.14 (9/10) RAINFALL DATA (YEAR 1995)

Tempat pemeriksaan : Sumurjurang, Tinggi diatas muka laut : 338 meter, Kecamatan : Gunung Pati,  
Kotamadya : Semarang, Letaknya tempat pemeriksaan : 3 km, sebelah Timur dari Kantor Camat : Gunung Pat

HUJAN DALAM MILIMETER (mm)

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	-	-	-	-	6	2	-	-	-	-	-	-
2	-	2	9	-	-	4	-	-	-	-	-	-
3	-	14	29	17	-	-	-	-	-	-	1	10
4	-	59	6	8	-	-	-	-	-	-	2	8
5	5	34	13	-	5	-	-	-	-	-	13	5
6	3	5	15	3	-	39	-	-	-	-	-	39
7	34	5	33	5	-	3	-	-	-	-	18	18
8	18	-	-	-	-	5	-	-	-	-	28	19
9	32	22	45	8	24	-	-	-	-	-	-	3
10	-	-	31	-	-	11	-	-	-	7	16	-
11	3	52	13	-	39	16	-	-	-	-	14	-
12	18	26	-	-	12	2	-	-	-	13	3	31
13	3	-	-	-	6	4	N	N	-	9	11	21
14	3	-	6	-	-	25	-	-	-	-	-	-
15	13	7	-	11	-	44	I	I	-	-	3	33
16	5	-	7	8	-	2	-	-	-	-	22	23
17	5	23	69	-	-	3	H	H	-	16	5	35
18	7	-	21	-	-	6	-	-	-	-	-	-
19	-	-	-	-	34	-	I	I	-	5	-	14
20	-	13	29	-	-	-	-	-	-	-	22	8
21	-	39	34	-	8	11	L	L	-	-	32	29
22	55	23	-	-	-	9	-	-	-	-	1	55
23	-	4	27	-	-	1	-	-	-	-	-	49
24	-	-	40	7	-	-	-	-	20.7	-	15	22
25	53	-	-	-	-	-	-	-	44.7	18	41	48
26	4	3	-	-	-	-	-	-	-	-	16	8
27	-	4	9	-	-	-	-	-	-	8	68	44
28	54	21	3	-	-	5	-	-	-	-	-	12
29	4	-	18	-	-	23	-	-	-	-	49	2
30	69	-	-	8	3	-	-	-	-	-	-	-
31	9	-	-	-	36	-	-	-	-	-	-	-
<b>Jumlah</b>	<b>397</b>	<b>356</b>	<b>457</b>	<b>75</b>	<b>173</b>	<b>215</b>	<b>0</b>	<b>0</b>	<b>65.4</b>	<b>76</b>	<b>380</b>	<b>536</b>
<b>Banyaknya Hari Hujan</b>	<b>20</b>	<b>18</b>	<b>20</b>	<b>9</b>	<b>10</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>7</b>	<b>20</b>	<b>23</b>

Alamat :

Pengamat :

Table 1.14 (10/10) RAINFALL DATA (YEAR 1995)

Tempat pemeriksaan : Sumurjurang, Tinggi diatas muka laut : 338 meter, Kecamatan : Gunung Pati,  
Kotamadya : Semarang, Letaknya tempat pemeriksaan : 3 km, sebelah Timur dari Kantor Camat : Gunung Pat

**HUJAN DALAM MILIMETER**

Tanggal Menakar	JAN.	FEB.	MARET	APRIL	MEI	JUNI	JULI	AGS.	SEPT.	OKT.	NOV.	DES.
1	3	60	29	-	-	-	-	6	2	-	3	5
2	12	16	40	-	-	-	-	-	-	4	15	15
3	25	2	-	-	-	-	-	-	-	26	36	123
4	-	17	17	-	-	-	-	-	-	13	-	-
5	17	29	-	-	13	-	-	-	-	1	-	4
6	8	18	12	1	-	-	-	-	-	-	-	8
7	21	47	46	2	-	-	-	-	-	-	-	12
8	25	11	23	-	-	8	-	34	-	41	47	27
9	10	23	31	-	-	7	-	-	3	1	26	55
10	-	66	3	-	-	11	-	15	47	-	28	-
11	-	21	2	-	-	-	-	9	-	5	9	10
12	-	17	-	8	-	-	4	-	-	-	-	52
13	-	29	-	-	-	-	12	-	-	-	-	7
14	-	42	11	-	-	-	-	-	-	-	2	12
15	1	45	53	11	-	-	-	-	-	-	-	14
16	-	-	-	13	7	-	-	-	-	9	10	-
17	3	19	-	5	-	-	-	-	-	2	-	8
18	4	-	-	3	-	-	-	-	-	-	-	-
19	10	-	-	-	3	-	-	2	25	-	6	25
20	38	46	-	19	3	-	-	-	-	4	-	6
21	26	53	12	10	-	-	-	-	-	-	5	-
22	5	11	21	-	-	-	-	-	-	4	29	14
23	2	2	14	-	23	-	-	16	6	4	9	44
24	17	18	6	-	-	-	1	-	-	-	8	-
25	6	-	3	-	-	2	-	-	-	25	23	3
26	43	25	9	-	44	-	8	-	-	8	3	1
27	21	57	7	-	2	-	-	-	-	26	-	-
28	17	5	-	-	-	-	-	5	-	3	-	6
29	-	47	2	-	-	-	5	-	-	8	-	-
30	5	-	-	-	-	-	-	-	-	25	-	23
31	-	-	-	-	-	-	-	-	-	8	-	52
<b>Jumlah</b>	<b>319</b>	<b>726</b>	<b>341</b>	<b>72</b>	<b>95</b>	<b>28</b>	<b>30</b>	<b>87</b>	<b>83</b>	<b>217</b>	<b>259</b>	<b>526</b>
<b>Banyaknya Hari Hujan</b>	<b>22</b>	<b>25</b>	<b>19</b>	<b>9</b>	<b>7</b>	<b>4</b>	<b>5</b>	<b>7</b>	<b>5</b>	<b>19</b>	<b>16</b>	<b>23</b>

Alamat :

Pengamat :