TABLES

CHAPTER 2

PRESENT CONDITION OF THE STDY AREA

	:
그렇게 하는 그들은 맛들이 들는데 그들만 다음이 다른 이번 불통으로 모르고 있다. 어때	./
이 이 그는 그들 마음이 그리고 되어 이 가는 다른 아내가 가는 것이 되는 것이 되었다.	
그는 이 이 있는 것이 말한 것이 되었다. 한 경험 전 사람들은 사람들이 되었다. 그는 사람들이 없는 사람들이 다른 사람들이 되었다.	
그들은 그는 일이 많아 한국에 들었다. 안 하나 하지만 하나는 방향인 방향인 사고를 한 모임을 됐다고 했다.	
이 회원으로 그렇게 되고 있는 그를 하면 하는 것이 되었다. 그는 이 사는 그는 이 사람들이 살아 없다.	Ž.
그는 경인의 의행들에 있는 본만에 되고 보여 마음을 받았다. 그는 그는 작은 기로 모르는 살 길이 모르는 살	
그리고 말하는 여러들은 전을 입으라는 말리는 이 회원은 여고에 마르아를 보인 여러 경우를 모고 보면 했다.	erin.
그렇고 하는 그릇이 있을까지 하고요. 한 과 말을 하고 있었다. 그는 하는 하는 하는 것은	
그리아 하면 살아 있는 것이 되었다. 그리는 어린 그리는 사람이 되었다. 그리는 사람들이 얼마를 받는다는 것이다.	
그 어느 그 전략이 얼굴하겠다고 안 먹었다고 말을 살았다면 하는 사람들은 것 같아 말을 하다고 살았다.	
이 사람이 있는 사람이 하면 하는 사람들이 되어 가득하는 경험을 보고 있는 사람들이 되었다.	2
그는 도둑을 막은 하는 사람들은 사람들이 가는 것 같아 들어 하는 것이 되었다. 그렇게 되었다는 것이 되었다.	
그리는 이 경우에 얼마나 하셨습니? 아이트 보고 있는 사람들은 하는 사람들은 사람들이 살았다. 그 그리는 그 그리는 것이다.	
- 마음 경기를 받는 것으로 보고 있는 것이 되었다. 그는 그들은 사람들이 되었는데 보고 있는데 그를 보고 있는데 그를 보고 있다. 그를 보고 있는데 그를 보고 있는데 그를 보고 있다. 	<u>.</u>
그리는 경찰 하시장 등 하시는 이번 경찰 등을 가지 않는 것 같은 이번 이번 사람이 모양하지 않는데	
그렇지도 말한 경우 하루 마시 말라들을 말했다. 그리를 만들어 한 경우를 받는 것이 되는 것이 되는 것이 되는 것이다.	
그리 나는 사람들은 그리는 그리는 이번 사람들은 학생들은 학생들이 되었다. 그리는 사람들은 사람들은 사람들은 그리는 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은	
는 사이들 수 있는 이 사용에 하는 사용을 보고 사용했습니다. 그리고 있다면 하는 사용 보고 하는 사람이 되는 것은 사용이 사용을 가는 것이다. 그들은 사용을 통해 있다면 하는 것은 사용을 보고 있다면 하는 것이 되었습니다.	
그림, 그는 본 경험, 그를 하게 되었다면 보고 하는 사람들이 얼마를 하는 때문에 되는 것을 하셨다.	. i
그는 이 회원들도 중요하는 회사 회사 회사 기업을 받아 있다는 것은 사람들이 되었다.	N)
그 한 일이 있는 사람들이 있을 것이 하고 있다. 그들은 아름이 살아 있는 사람들이 되었다. 그 아름이 살아 살아 살아 있다. 나를 때	
그는 아이들 그리고 있다. 이 살아왔다는 그리고 있다는 아니는 나는 사람들이 모든 사람들이 되었다.	
그리는 말이 살아가 하는 사람들이 되었다면 보다면 하는 것은 사람들이 되었다. 그들은 사람들이 되었다.	
는 사람들이 되는 것이 되는 것이다. 그는 살이 가는 일을 하는 것으로 하는데 하는데 가장이 되었다. 그는 것이라고 있는데 가장이다. 	j.
그 나는 나는 그는 이 경험을 하는데 얼마를 받는 그는 경찰에 받는 사람들은 경찰에 가는 사람들은	
그리는 이 보면도 하면 하나 하나 사람이 되었다. 가지 않는 것 같은 사람들은 사람들이다.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
그리는 이 경험을 하고 있는데, 말로이 본 사람들은 사람이 되었다. 그 사람들은 사람들은 사람들이 가지 않는데 그렇게 되었다.	
그는 물리는 마른물은 건물을 하고 있는데 하는데 하루 하셨다면서 그는 나는 사람들 수 있는데 되었다면 다른 것이다.	
그는 하는 그는 하다는 이 보고를 보고 있다. 그리고 하는 이 이번 그런 그런 그리고 있다. 그리고 있는 이 사람들은 그리고 있다.	
그래 아이는 아이를 가면 되었다. 얼마는 얼마는 얼마를 보냈다면 하는데 말로 하는데 얼마를 하는데 되었다. 얼마를 하는데 얼마를 하는데 얼마를 하는데 되었다.	
그는 그는 그는 그는 그는 그를 보고 있다. 이 그는 것이 되는 것이 되는 것이 되는 것이 되었다. 그는 것이 되었다.	
그는 이렇게 되는 그 사람들은 아내는 사람이 되는 것이 되는 것이 되는 것이 되는 것이 없는 것이다.	Š.
그림들이 나는 동안 사람들이 하는데 동안 아름다를 하게 되었다. 나는 사람들은 사람들은 사람들은 사람들이 되었다.	
- 발생한 경험에 가는 하는 것이 되었다. 항상을 가지 않는 것이 되었다는 것이 되었다는 것이 되었다. 그런 그는 것이 없는 것이 되었다. 그런 것이 되었다는 것이 없는 것이 되었다. 	SET TO SE
마이크 (Particular State of the Control of the Control 	
	Silve Line
는 사람들은 사람들은 사람들은 경기를 가는 것이 되었다. 하는 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은	
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Table 2.1.1 CLIMATOLOGICAL DATA AT BMG-SEMARANG STATION

															. :	
Element	Cuit	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total (/year)	Mean	Data Period
Monthly Rainfall	mm/mon	434	292	274	201	178	100	73	29	92	154	228	285	2378	198.2	1968-1996
Pan Evaporation	mm/day	33	3.7	3.8	4.0	4.3	4.5	8.	5.1	5.7	5.5	4 4		1610	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	- 'op -
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	<u>18</u>	18	15	Ξ	7	9	\$	∞		16	16	156	13.0	- do -
Sunshine Duration	%	38	46	52	59	65	: 65	75	8	74	70	26	46		9.09	- 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	9.1		1.8	- do

Source: Badan Meteorologi dan Geofisika, Stasiun Klimatologi Semarang

Table 2.1.2 GEOLOGICAL STRATA OF STUDY AREA

ЕРОСН	SYMBOL	FORMATION	NAME	LITHOLOGY
	ts		Top Soil Talus dt	Clay, Gravel (angular)
HOLOCENE	o o o rd	•	River Bed dt.	Sand, gravel interbedded silt and clay
	Fd S	<u>-</u>	Flood Plain dt	Sand, gravel, silt and clay
PLEISTOCENE	V V V V V V V V V V V V V La	NOTOPURO	Volcanic breccia	VB; Volcanic Breccia VBs; Tuffaceous sandstone Andesite Exposed Lava Locally
	V V V Dts	DAMAR	Tuffaceous Sandstone	Dts; Tuffaceous sandstone
PLIOCENE	Kc Kcl	KALIBIUK	Blue Claystone	Dtg; Conglomerate Kc; Blue Claystone, marl, Sandstone Kcl Limestone

Table 2.1.3 WATER LEVEL-DISCHARGE RELATION AT SIMONGAN WEIR

	Water	Head	Center Portion	Cido Dortina	
No.	Level	h=H-5.2	Q1 (m3/s)	Side Portion	Discharge
	EL(m)	(m)		Q2 (m3/s)	Q=Q1+Q2
1	5.20	0.00	=1.57*64.6*h^1.5	=1.8*10.4*h^1.5	(m3/s)
1	5.40		0.0	0.0	0.0
2	t .	0.20	9.1	1.7	10.7
1	5.60	0.40	25.7	4.7	30.4
4	5.80	0.60	47.1	8.7	55.8
5	6.00	0.80	72.6	- 13.4	86.0
6	6.20	1.00	101.4	18.7	120.1
7	6.40	1.20	133,3	24.6	157.9
8	6.60	1.40	168.0	31.0	199.0
9	6.80	1.60	205.3	37.9	243.2
10	7.00	1.80	244.9	45.2	290.1
11	7.20	2.00	286.9	52.9	339.8
12	7.40	2.20	331.0	61.1	
13	7.60	2,40	377.1	69.6	392.0
14	7.80	2.60	425.2		446.7
15	8.00	2.80	475.2	78.5	503.7
16	8.20	3.00	527.0	87.7	562.9
17	8.40	3.20		97.3	624.3
18	8.60	3.40	580.6	107.2	687.7
19	8.80		635.8	117.4	753.2
20		3.60	692.8	127.9	820.6
21	9.00	3.80	751.3	138.7	890.0
1.	9.10	3.90	781.1	144.2	925.3
22	9.20	4.00	811.4	149.8	961.1

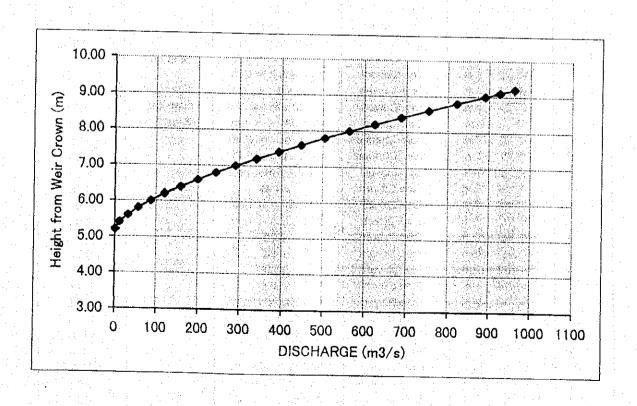


Table 2.1.4 EXISTING DRAINAGE OUTLET

No.	Location	Type of Drainage	Dimension	Type of Gate	Channel Bed
		Channel	WxHxn/Dia.		Elevation (m)
Right Bank	<u> </u>				
R-1	WF.5 +5 m	Open Channel	W ≃ about 10 m	-	-1.42
R-2	WF.53 +12 m	Box Culvert	W 1.00 x H 1.00 x 2	Flap Gate	-0.88
R-3	WF.68 +21 m	Trapezoid	3.7 x 2.9 x 2.2	Flap Gate	0.01
R-4	WF.74 +3 m	Pipe Culvert	φ1, 100	Flap Gate	0.16
R-5	WF.74 +4 m	Box Culvert	W 1.20 x H 1.20	Flap Gate	0.27
R-6	WF.96 +7 m	Box Culvert	W 2.50 x H 2.90 x 2	r lap cato	0.24
R-7	WF.115 +25 m	Box Culvert	W 1.40 x H 1.50 x 2	Log Gate	5.54
R-8	WF.115 +39 m	Box Culvert	W 0.80 x H 0.90	Log Gate	8.61
R-9	WF.122 +14 m	Open Channel		Clido Coto	
R-10	WF.139 +56 m	,	W 1.50 , H 5.40	Slide Gate	5.70
R-11	WF.156 +55 m	Box Culvert	W 1.20 x H 1.20	-	7.39
R 12	WF.160 +21 m	Box Culvert	W 1.00 x H 1.20	Flap Gate	9.65
: 1	'	Box Culvert	W 1.10 x H 1.20	Flap Gate	9.52
R - 13	WF.162 +41 m	Box Culvert	W 1.10 x H 0.60	Flap Gate	9.80
R - 14	WF. 165 +9 m	Box Culvert	W 1.10 x H 0.90	-	8.52
R 15	WF.172 +6 m	Box Culvert	W 1.10 x H 1.10	Flap Gate	10.87
R - 16	WF.172 +10 m	Box Culvert	W 1.00 x H 0.70	Flap Gate	11.22
R - 17	WF.172 +58 m	Box Culvert	W 0.90 x H 0.80	Flap Gate	11.15
R-18	WF.172 +61 m	Box Culvert	W 0.90 x H 1.00	Flap Gate	11.21
R - 19	WF.173 +49 m	Open Channel	W=3.0, H=1.0		8.92
R 20	WF.176 +27 m	Open Channel	W≃1.0, H=1.0	-	7.03
R - 21	WF.176 +46 m	Open Channel	W=1.0, H=1.0	-	7.75
Left Bank					
L - 1	WF.0 -7 - 41 m	Open Channel	M 4.70 H 440		0.45
L-2	WF.2 +33 m	Open Channel	W 1.70, H 1.10	-	-0.45
L-3	WF.4 +26 m	Box Culvert	W 1.70 x H 1.80	1 - 1	-0.95
L-4		Pipe Culvert	φ800	-	0.15
1 1	WF.6 +17 m	Pipe Culvert	φ800	- '	0.46
L-5	WF.10 +10 m	Pipe Culvert	φ800	. •	0.32
L-6	WF.11 +8 m	Pipe Culvert	φ800		0.45
L-7	WF 14 +0 m	Open Channel	B = about 4 m	: -	-0.91
L-8	WF.15 +20 m	Box Culvert	W 1.20 x H 1.50	Stop Log	-0.36
L-9	WF.22 +37 m	Box Culvert	W 1.40 x H 0.80	-	-0.71
L - 10	WF.29 +12 m	Pipe Culvert	φ1700 x 3	Flap Gate	-1.25
L-11	WF.36 +20 m	Box Culvert	W 1.9 x H 1.8 x 8	Flap Gate	-1.47
L-12	WF.74 +9 m	Box Culvert	W 1.50 x H 1.50	Slide Gate	0.22
L - 13	WF.98 +37 m	Open Channel	W 2.70 , H 2.00		5.25
L-14	WF.98 +42 m	Open Channel	W 2.70 , H 2.00	•	5.46
L - 15	WF 129 +3 m	Box Culvert	2.0 x 1.0 x 1.6	-	8.59
L-16	WF.134 +21 m	Pipe Culvert	ф 1000	-	6.80
L - 17	WF.149 +34 m	Box Culvert	W 1.20 x H 1.00	-	7.94
L-18	WF.152 +16 m	Box Culvert	W 1.50 x H 1.00	-	9.03
L-19	WF.154 +47 m	Pipe Culvert	φ800	4	9.69
L - 20	WF.155 +35 m	Pipe Culvert	φ 800	-	9.97
L-21	WF 156 +51 m	Pipe Culvert	φ800	-	10.03
L - 22	WF.158 +1 m	Pipe Culvert	φ 800		9.42
	WF.158 +3 m	Box Culvert	W 1.20 x H 1.60	_	9.70
L - 23	WF.158 +18 m	Box Culvert	W 0.90 x H 2.00	-	10.21
L - 24	WF,160 +7 m	Pipe Culvert	φ500 x 2		11.91
L - 25	WF.161 +51 m	Box Culvert	W 0.80 x H 0.70	_	13.62
L - 26	WF 167 +1 m	Open Channel	W 1.50 , H 1.70		6.69
L - 27	WF.174 +34 m	Open Channel	W 3.0 , H 1.90		5.72
L - 28	WF.177 +37 m	Box Culvert	W 0.40 x H 0.50		12.21
l	<u> </u>	1		1 1	16.61
		and the second s			

			Popul	-		Households (HHs)	. 1	Family	Family size (person/IIII)	n/III-1)	Annualay	Annual average growth rate of	th rate of	Population
Province	Area (km²)	1980	1990	1996	1980	1990	198	•			2	rynnlation (%)		density as of
		(persons	-	(persons	(HHs in	(HIIS in	(HITS in	1980	1990	1996			,	1996
		in1,000)	(000,1ni	in1,000)	in 1,000)	in 1,000)	in 1,000)				.8090	96,-06	'80-'96	(persons/kin²)
Sumatera Island	482,393	28,016	36,502	41,840	5,375	7,474	9,202	5.21	88.1	4.55	2.68%	2.30%	2.49%	87
Dista Aceh	55,390	2,611	3,416	3,945	531	697	832	4.92	4.90	4.74	2.72%	2.43%	2.54%	71
Sumatera Utara	71,680	8,361	10,252	11,306	1,548	2,023	2,367	5.40	5.07	4.78	2.06%	1.64%	2.61%	158
Sumatera Barat	42,898	3,407	4,000	4,390	704	898	1,004	4.84	4.61	4.37	1.62%	1.56%	1.90%	102
Riau	94,561	2,168	3,304	4,057	413	629	923	5.25	4.87	4.40	4.30%	3.48%	3.99%	£‡
Jambi	53,436	1,446	2,020	2,459	300	438	577	4.82	4.61	4.26	3.40%	3.33%	3.37%	46
Sumatera Sclatan	109,254	4,630	6,313	7,413	857	1,266	1,631	5.40	4.99	4.55	3.15%	2.71%	2.99%	89
Bengkulu	19,789	768	1,179	1,464	150	252	343	5.12	4:68	4.27	4.38%	3.68%	4.12%	74
Lampung	35,385	4,625	6,018	6,806	872	1,251	1,525	5.30	4.8]	4.46	2.67%	2.07%	2.44%	192
Java Island	127,499	91,270	107,581	116,379	19,623	24,908	28,268	4.65	4.32	4.12	1.66%	1.32%	1.53%	913
DKI Jakarta	664	6,503	8,259	9,341	1,164	1,740	2,117	5.59	4.75	4.41	2.42%	2.43%	2.54%	14,068
Jawa Barat	43,177	27,454	35,384	40,118	6,101	8,180	9,575	4.50	4.33	4.19	2.57%	1.64%	2.61%	929
Jawa Tengah	32,549	25,373	28,521	29,881	5,286	6,414	7,077	4.80	4.45	4.22	1.18%	1.56%	1.90%	816
DI Yogyakarta	3,186	2,751	2,913	2,915	593	729	769	4.64	4.00	3.79	0.57%	3.48%	3.99%	915
Jawa Timur	47,923	29,189	32,504	34,124	6,479	7,845	8,730	4.51	4.14	3.91	1.08%	3.33%	3.37%	712
Nusa Tenggara Island	87,744	8,487	10,165	11,133	1,684	2,136	2,480	5.04	4.76	4.49	1.82%	1.53%	1.71%	127
Bali	5,633	2,470	2,778	2,924	485	109	704	5.09	4.62	4.15	1.18%	0.86%	1.06%	519
Nusa Tenggara Barat	20,153	2,725	3,370	3,708	594	792	883	4.59	4.39	4.20	2.15%	1.60%	1.94%	184
Nusa Tenggara Timur	47,349	2,737	3,269	3,641	496	619	715	5.52	5.28	5.09	1 79%	1.81%	1.80%	77
Тітог Тіти	14,609	555	748	860	109	149	178	5.09	5.02	4.83	3.03%	2.35%	2.77%	59
Kalimantan Island	547,891	6,723	660'6	10,807	1,323	1,942	2,532.	5.04	4.76	6+.4	3.07%	2.91%	3.01%	20
Kalimantan Barat	146,807	2,486	3,229	3,732	458	640	795	5.43	5.05	4.69	2.65%	2.44%	2.57%	25
Kalimantan Tengah	153,564	954	1,396	1,686	186	306	408	5.13	4.56	4.13	3.88%	3.19%	3.62%	=
Kalimantan Selatan	36,535	2,065	2,597	2,960	444	597	748	4.65	4.35	3.96	2.32%	2.21%	2.28%	81
Kalimantan Timur	210,985	1,218	1.877	2,429	235	399	581	5.18	4.70	4.18	4.42%	4.39%	4.41%	12
Sulawesi Island	191,800	10,409	12,521	14,019	1,923	2,558	3,019	5.04	4.76	약. 구	1.86%	1.90%	1.88%	73
Sulawesi Barat	27,488	2,115	2,478	2,686	399	549	637	5.30	4.51	4.22	1.60%	1.35%	1.51%	86
Sulawesi Tengah	63,689	1,290	1,711	1,997	233	347	438	5.54	4.93	4.56	2.86%	2.61%	2.77%	31
Sulawesi Selatan	62,483	6,062	6,982	7,693	1,117	1,399	1,605	5.43	4.99	4.79	1.42%	1.63%	1.50%	123
Sulawesi Tenggara	38,140	942	1,350	1,643	174	263	339	5.41	5.13	4.85	3.66%	3.33%	3.54%	£ 7
Maluku and Irian Jaya	499,852	2,585	3,507	4,163	445	677	900	11.60	10.35	9.27	3.10%	2.90%	3.02%	x 0
Maluku	17,871	1,411	1,858	2,142	229	344	435	6.16	5.40	4.92	2.79%	2.40%	2.64%	28
Irian Jaya	421,981	1,174	1 649	2,021	216	333	465	5.44	4.95	4.35	3.46%	3.45%	3.45%	5
Total in Indonesia	1,937,179	147,490	179,375	198,341	30,373	369'68	10+'9+	98.₽	4.52	4.27	1.98%	7.69%	1.87%	102
Source - Indonesia in Bioures (Indonesia Dalam Anaka)	(Indoposia Dala		1996 Central Statistic Bureau of Indonesia	Statistic R	ronn of Inde	nosia								

AREA AND POPULATION IN CENTRAL JAVA

Kabupaten/Kotamadya Auea (km²) Kabupaten (Regency) 2,143 Cilacaj 2,143 Banjumas 1,328 Purbalinga 778 Banjumegan 1,070 Kebumen 1,283 Wossesbo 985 Magelang 1,086 Boyolali 1,015 Sukobasjo 655	1980	(persons in1,000) 1,459 1,459 1,459 1,551 773 1,151 1,151 1,151 1,017 1,017 1,002 1,180 650 650 650 650 650 650 650 650 650 65	(persons in1,000) 1,535 1,402 786 808 808 1,182 773 705 1,038 888 1,204 727	1990 1590 1590 1590 1590 1590 1590 1590	1995 (Hila in 1,000)	1990 1995	1995	Armual avera	Atmul average growth rate of population (%) 80-50	opulation (%) '80-'95	density as of 1995 (persons/km²)
	Of Ivi	1,459 1,459 1,459 1,151 1,151 1,151 1,151 1,101 1,101 1,101 1,180 696 696 696 1,026 1,026 1,026 1,026	1,535 1,535 1,402 1,402 1,182 1,182 733 703 1,038 888 888 888	1,000) 1,000) 326 304 159 178	3.48			06-08.	\$0-06	80-95	(persons/km²)
		1,459 1,331 736 773 1,131 724 671 1,017 870 1,180 636 636 1,026 1,026 1,026 1,026	1,535 1,402 786 808 808 1,182 705 705 1,038 888 888 1,204 727	326 304 159 178	348						
		1,459 1,351 773 1,131 724 671 1,017 870 1,180 656 656 1,026 1,026 1,026 1,026	1,535 1,402 786 808 808 1,132 705 1,038 888 888 1,204 7,27	326 304 159 178	348						
		1,351 773 1,131 724 671 1,017 870 1,180 696 696 1,026 1,026 1,026 1,026 1,026 1,026	1,402 786 808 1,182 705 1,038 888 888 1,204 7,27	304		4.48	4.41	0.82%	1.02%	0.89%	716
		756 773 1,131 724 671 1,017 870 1,180 656 656 707 707 845	786 808 1,182 705 1,038 888 888 1,204 7,27	159	317	4.44	4.42	96.00%	0.74%	0.89%	1,056
		773 1,131 724 671 1,017 870 1,180 656 656 1,026 1,026	808 1,182 733 705 1,038 888 888 1,204 7,27 7,204	178	165	4.75	4.76	1.20%	0.78%	1.06%	1,010
		1,131 724 671 1,017 870 1,180 656 656 1,026 1,026	1,182 703 1,038 888 1,204 1,204 1,050		176	4.34	4.59	1.32%	0.89%	1.17%	755
	1	724 671 1,017 870 1,180 656 656 1,026 707 845	733 705 1,038 888 1,204 7,27 1,050	320	2:44	3.60	4.84	1.04%	0.53%	0.87%	921
		1,017 1,017 870 1,180 656 1,026 1,026	1,038 888 1,204 727 1,050	158	165	4.58	4,44	0.42%	0.26%	0.36%	708
		1,017 870 8,1,180 696 696 1,026 707 845	1,038 888 1,204 727 1,050	140	146	4.79	4.83	1.12%	0.99%	1.07%	716
		870 1,180 696 1,026 707 845	888 1,204 727 1,050	235	238	4.33	4.36	0.84%	0.41%	0.70%	956
		1,180 696 1,026 707 845	1,204	161	661	4.55	4.46	1.03%	0.40%	0.82%	875
		696 1,026 707 845	1,050	250	257	4.72	4.68	0.83%	0.41%	0.69%	1,835
		1,026	1,050	140	159	4.97	4.57	1.41%	0.89%	1.24%	1,557
Wonogin 1,822		707	.,,	203	213	5.05	4.93	0.74%	0.47%	0.65%	576
Karanganyar 772		845	7	138	162	5.12	4.59	1.49%	1.01%	1.33%	964
	6 765		863	180	061	4.69	4.54	1.00%	0.43%	0.71%	216
Grobogan 1,976	1,020	1,176	1,242	262	300	4.49	4.14	1.44%	1.09%	1.32%	629
Blora 1,794	869 +	757	783	179	185	4.23	4.26	0.82%	0.79%	0.81%	439
Rembang 1,014	443	511	526	115	120	4.44	4.38	1.44%	0.56%	1.15%	519
Pati 1,491	126	1,070	1,110	259	275	4.13	4.04	0.97%	0.74%	0.89%	744
Kudus 425	5 537	019	635	127	141	4.80	4.50	1.27%	0.83%	1.13%	1,494
Jepara 1,004	701	776	827	136	203	4.08	4.07	1.03%	1.28%	1.11%	824
Demak 897	7 645	807	854	187	199	4.32	4.29	2.27%	1,15%	1.90%	952
Semarang 982	2 709	277	763	170	174	4.54	4.39	0.86%	-0.23%	0.50%	. 177
Temanggung 870	558	909	632	128	136	4.73	4.65	0.84%	0.82%	0.83%	726
Kendal 1,002	701	789	819	181	981	4.36	4.40	1.20%	0.74%	1.04%	817
987 T89	531	593	616	. 130	135	4.56	4.56	1.10%	0.79%	1.00%	781
Pekalongan 836	5 653	701	734	142	146	404	5.03	0.72%	0.92%	0.78%	878
Permalang 1,012	5 949	1,085	1,147	217	237	\$.00	4.84	1.34%	1.13%	1.27%	1,133
Tegai 880	1,103	1,242	1,268	263	272	4.72	4.66	1.19%	0.43%	0.94%	1,441
Brebes 1,658	1,267	1.529	1,546	334	342	4.58	4.52	1.90%	0.23%	1.34%	932
pallty}							1			700	0000
	22	117	115	26	26	4.50	4.42	1 1000	0.43%	-0.43%	5,385
Surakana Surakana		78	1.13		9	4 78	1.77	0.80%	10.50%	3.97%	7.944
2.00		1.147	1,221	251	274	4.57	4.46	1.42%	1.26%	1.37%	3,265
		235	242	48	51	4.90	4.75	5,89%	0.57%	4.08%	5,378
Tegal 34	132	230	230	48	617	4.79	4.69	\$ 69%	0.04%	3.77%	6.765
Total in Central Java 32,549 2	25,403	5,403 28,582	29,651	6,310	6,576	17.69	17.24	1.19%	0.74%	1.04%	911

T - 2 - 6

Table 2.2.3

AREA AND POPULATION IN SEMARANG CITY

			1	Population (persons)			Househo	Households (HHs)		1	mily crae	Family eize (nercon/HH)		Annual average	Population
Kecamatan (District)	Area (km²)	1985	1990	19931)	1996	1985	1990	1993 ¹⁾	1996	1985	1990	1993	1996	growth rate of population (%)	density as of
Mijen	57.55	35,364	37,276	32,767	35,726	7,595	5,919	7,954	8,527	4.66	6.30	4.12	4.19	2.92%	621
Gunungpati	52.63	38,185	43,946	48,591	54,237	7,862	10,797	11,378	12,907	4.86	4.07	4.27	4.20	3.73%	1,031
Semarang Selatan	5.92	196,660	204,491	79,743	79,138	37,852	41,036	17,344	18,076	5.20	4,98	09,4	4.38	-0.25%	13.368
Banyumanik	27.73			81,561	93,681	•		19,025	20,713			4.29	4.52	4.73%	3.378
Gajahmungkur	10.78	•	.:	52,711	54,625			10,941	11,506			4.82	4.75	1.20%	5.067
Genuk	27.39	85,417	137,504	48,631	55,872	18,092	31,622	10,777	12,034	4.72	4.35	4.51	4.62	4.74%	2.040
Pedurungan	20.72	•		98,134	117,770			22,852	27,594			4.29	4.27	6.27%	5.684
Gayamsari	5.26		•	54,355	61,182			12,327	13,509			4.41	4.53	4.02%	11.632
Semarang Timur	7.12	205,428	201,280	96,260	88,413	46,573	43,162	20,848	20,153	4.41	4.66	4.62	4.39	-2.79%	12.418
Candisari	6.80			76,006	76,640	٠	•	15,780	16,521			4.82	2.4	0.28%	11.271
Tembalang	44.20		•	79,148	85,402	•	•	16,646	18,386			4.75	2.	2.57%	1.932
Semarang Utara	10.97	169,330	152,457	122,705	129,299	34,366	35,182	27,090	27,816	4.93	4.33	4.53	4.65	1.76%	11.787
Semarang Tengah	5.14	72,473	62,756	84,652	81,283	14,669	13,048	20,030	19,247	4.94	4.81	4.23	4.22	-1.34%	15,814
Semarang Barat	19.96	248,254	251,707	132,754	139,189	49,876	53,656	28,083	29,519	4,98	4.69	4.73	4.72	1.59%	6.973
Ngaliyan	39.97			68,917	76,753	:		15,811	16,682			4.36	4.60	3.65%	1.920
Tugu	39.97	248,254	251,707	132,754	139,189	49,876	53,656	28,083	29,519	4.98	4.69	4.73	4.72	3.14%	3,482
Total in Central Java	382.11	1,299,365	1,343,124	1,177,562	1,368,399	266,761	288,078	284,969	302,709	4.87	4.66	4.13	4.52	2.06%	3,581

Note: 1) The administration units belonging to several districts had been revised at the end of 1992. So the new administration system is used since 1993.

-: Lack of data

n.a.: Not available Source: Semarang City in Figures (Kotamadya Semarang Dalam Angka) 1985, 1990, 1993, and 1996, Statistic Office of Semarang City. Data Monografi Kotamadya Dati II Semarang 1996, BAPPEDA Kotamadya Dati II Semarang.

Item	1985 1)	1995 2)	1996 3)	
Labour Force Participation (Current) of the Household Population, 10 Years & Over in Both Sexes	tion, 10 Years & Over in Both Se	exes.		
Household Population	110,441,199	152,514,964	154,464,763	
Economic active population	59,598,626	86,361,261	90,109,582	
(Labour force in total)	53.96%	56.62%	58.34%	
Participation rate (%)				
Actual Labour Force Situation				
Employed force	57,802,801 (100.00%)	80,110,060 (100.00%)	85,701,813 (100.00%)	(%)
Employed rate (%)	96.99%	92.76%	95.11%	
Unemployed force	1,795,825	6,251,201	4,407,769	
Unemployed rate (%)	3.01%	7.24%	4.89%	
Consensity Fundaved Persons by Major Industrial Granns in				
.1	(Share in %)	(Share in %)	(Share in %)	(% 5
Agriculture, forestry, hunting & fishery	31,593,314 (54.66%)	35,233,270 (43.98%)	37,720,251 (44.01%)	
Mining & quarrying	390,661 (0.68%)	643,332 (0.80%)	774,211 (0.90%)	
Manufacturing	6,021,929 (10.42%)	10,127,047 (12.64%)	10,773,038 (12.57%)	
Electricity, gas & water	61,666 (0.11%)	216,128 (0.27%)	164,142 (0.19%)	
Construction Wholesales, retail trade, hotel and restaurant	2,146,210 (3.71%)	3,768,080 (4.70%)	3,796,228 (4.43%)	
	8,553,919 (14.80%)	13,883,682 (17.33%)	16,102,552 (18.79%)	
Transportation, storage & communication	1,796,112 (3.11%)	3,458,155 (4.32%)	3,942,799 (4.60%)	
Finance, insurance, real estate, & business services	112,859 (0.20%)	658,497 (0.82%)	689,733 (0.80%)	
Public services	7,125,419 (12.33%)	12,121,869 (15.13%)	11,728,495 (13.69%)	
Others	712 (0.00%)	(0.00%)	10,364 (0.01%)	
Source				
Statistics of Indonesia 1985, Central Statistic Bureau of Indonesia	Sia			
2) Statistics of Indonesia 1995, Central Statistic Bureau of Indonesia	210			
3) Statistics of Internata 1770, Central Statistic Lancau of America	DIG.			

Item	19801)	1988 2)	1995 3)
Labour Force Participation (Current) of the Househol	it) of the Household Population, 10 Years & Over in Both Sexes.	ver in Both Sexes.	
Household Population (10-years & over)	18,392,419	21,251,543	23,650,214
Economic active population (Labour force in total) Participation rate (%)	10,101,217 54,92%	13,396,583 <i>63.04%</i>	14,642,604 61.91%
Actual Labour Force Situation			
Employed force	9,966,183 (100.00%)	13,125,717 (100.00%)	14,062,056 (100.00%)
Employed rate (%)	98.66%	97.98%	96.04%
Unemployed force	135,034	270,766	580,548
Unemployed rate (%)	1.34%	2.02%	3.96%
Currently Employed Persons by Major Industrial			
	(Share in %)	(Share in %)	(Share in %)
Agriculture, forestry, hunting & fishery	5,408,177 (54.27%)	6,562,533 (50.00%)	6,466,506 (45.99%)
Mining & quarrying	47,336 (0.47%)	(0.00%)	138,817 (0.99%)
Manufacturing	1,191,985 (11.96%)	(1,118,780, (10.81%)	1,881,367 (13.38%)
Electricity, gas & water	9,148 (0.09%)	(0.00%)	
Construction Wholesales, retail trade, hotel and resta	344,369 (3.46%)	(0.00%)	670,068 (4.77%)
	1,433,316 (14.38%)	(0.00%)	2,415,213 (17.18%)
Transportation, storage & communication	_	∠ 2,320,670 (17.68%)	422,517 (3.00%)
Finance, insurance, real estate, & business services	31,463 (0.32%)	(0.00%)	65,413 (0.47%)
Public services	1,219,549 (12.24%)	1,940,913 (14.79%)	1,881,043 (13.38%)
Others	59,080 (0.59%)	879,912 (6.70%)	79,299 (0.56%)
Source:			
1) Central Java in Figures (Jawa Tengah Dalam Angka) 1985, Statistic Office of Central Java Province	1985, Statistic Office of Centra	Il Java Province	
2) Central Java in Figures (Jawa Tengah Dalam Angka) 1990, Statistic Office of Central Java Province	1990, Statistic Office of Centra	al Java Province	
3) Central Java in Figures (Jawa Tengah Dalam Angka) 1995, Statistic Office of Central Java Province	1995, Statistic Office of Centra	il Java Province	

Table 2.2.6

LABOUR FORCE IN SEMARANG CITY

Item	1985 1)	1990 4)	1995	1896 2
Labour Force Participation (Current) of the Househol	ld Population, 10 Years & Over in Both Sexes	Over in Both Sexes.		
Household Population (10-years & over)	835,577	893,708	993,298	1,016,433
Economic active population	510,821 (100.00%)	631,885 (100.00%)	840,903 (100.00%)	822,176 (100.00%)
(Labour force in total)	61.13%	70.70%	84.66%	80.89%
Participation rate (%)				· .
Consist of:				
Farmer	30,910 (6.05%)	32,957 (5.22%)	29,966 (3.56%)	28,749 (5.63%)
Farm Labour	31,399 (6.15%)	30,995 (4.91%)	29,980 (3.57%)	32,771 (6.42%)
Fishery	1,002 (0.20%)	1,815 (0.29%)	2,861 (0.34%)	2,852 (0.56%)
Enterpreneur	5,087 (1.00%)	10,389 (1.64%)	17,761 (2.11%)	15,442 (3.02%)
Manufacturing	90,744 (17.76%)	143,434 (22.70%)	169,212 (20.12%)	175,361 (34.33%)
Construction	83,696 (16.38%)	95,464 (15.11%)	109,328 (13.00%)	105,080 (20.57%)
Trader	38,264 (7.49%)	43,941 (6.95%)	70,468 (8.38%)	73,505 (14.39%)
Transportation & communication	16,537 (3.24%)	16,934 (2.68%)	27,137 (3.23%)	26,806 (5.25%)
Public servants & personnal services	82,326 (16.12%)	82,233 (13.01%)	89,560 (10.65%)	90,270 (17.67%)
Pensionary	24,742 (4.84%)	26,884 (4.25%)	31,759 (3.78%)	27,804 (5.44%)
Other activities	106,114 (20.77%)	145,839 (23.08%)	263,172 (31.30%)	243,536 (47.68%)
Actual Labour Force Situation				
Emploment force	451,599 (100.00%)	414,965 (100.00%)	677,713 (100.00%)	655,326 (100.00%)
Employment rate (%)	88.41%	65.67%	80.59%	79.71%
Unemployment force	59,222	216,920	163,190	166,850
Unemployment rate (%)	11.59%	34.33%	19.41%	20.29%

Semarang City in Figures (Kotamadya Daerah Tingkat II Semarang Dalam Angka) 1990, Statistic Office of Semarang City
 Semarang City in Figures (Kotamadya Daerah Tingkat II Semarang Dalam Angka) 1996, Statistic Office of Semarang City

Table 2.2.7 ECONOMIC ACTIVE POPULATION BY DISTRICTS AND WORKING GROUP IN SEMARANG CITY

Kecamatan	Year	Farmer	Farm Jabour	Fishe- ries	Enter- preneur	Manu- facture	Cons- truction	Trader	Trans-	Public	Pensio-	Others	Total
Mijen	1993	4,971	8,958		359	!		T	port	Officer	naries		
Mijeri	1994	5.333	8,346	-	179	1,636	1,564	1,144	610 706	700 875	203 567	3,612	23,7
	1995	5.712	6.875	-	195	1,425	1,302	1,523	762	956	612	7,276 4,874	27,1 24,2
	1996	4.211	6,706	-	298	5.045	3,704	1,705	549	704	346	4,120	27.3
Gunungpah	1993	13,297	8,294	-	127	1.862	1,996	1,568	391	1.257	143	2,592	31,5
	1994	16,554	10,366		158	2,166	2,553	1,998	510	1,570	187	3,281	39,3
*	1995	13,394	8,387	-	129	1,762	2,094	1,637	422	1,275	168	2,663	31,9
Banyumanik	1996 1993	13,506	8,495 314		134	1,894	2,207	1,699	428	1,296	237	1,998	31,8
Daily dittalling	1994	356	512		12 25	3,453 5,807	12,144 20,394	1,572 2,673	350 584	12,297	4.328	8,017	42,7
	1995	2,093	1,580		215	13,228	7,781	2,103	1,730	20,637 13,971	7,263 4,338	13,462	71,7 58,3
	1996	1,803	4,553	-	249	15,076	7,305	3,291	1,125	13,268	3,065	13,404	63.1
Tembalang	1993	815	1,274	-	89	10,447	7,774	1,084	829	8,006	787	1.844	32,9
	1994	1,018	1,790	-	217	21,491	16,580	2,220	1,730	17,195	3,425	2,102	67,7
	1995	1,650	2,982	-	157	11,427	14,086	3,698	1,207	5,275	2,308	18,491	61,2
Dadum	1996	1,492	2.967	.	163	11,572	14,026	3,913	1,196	5,311	2,382	19,246	62,2
Pedurungan	1993	1,389	3,150 3,045		521	16,503	8,574	2,632	2,207	7,944	1,024	14,209	58.1
	1995	1,273	2,949		85 187	24,393 27,357	17,289	3,504	2,322	9,114	1,172	16,466	78,8
	1996	1,234	2,939		95	19,591	16,730 12,735	3,941 4,431	2,848 3,265	9,357	1,461 1,405	14,343	80,4 66,7
Genuk	1993	3,776	2,711	5	158	8,173	3,066	1,733	3,205	985	258	10,637	36,1
	1994	3,262	2,319	6	987	12,855	4.212	1,629	638	1,303	902	11,530	39,6
	1995	2,584	1,796	•	806	10.077	3,784	1,456	537	1,051	729	12,148	34.9
	1996	3,401	2,613	•	871	13,743	4,396	1,884	602	1,373	197	13,068	42,1
Semarang Timur	1993	-			1,273	12.831	3,870	5,849	2,283	4,463	2,359	15,232	48.1
	1994				2,292	13,725	3,991	16.738	4,746	3,613	1,300	32,831	7 9.2
	1995 1996	-		 -	2,326	13,809	4,124	18.820	4,787	3,624	1,302	21,869	70,6
Semarang Utara	1993	- -	2	2526	2.314	13.768	4,120	16.613	4,545	3.361	1.178	25,258	71,1
Demarang Otala	1994			2,536	1,559	22,416	7,140	5,508	3,874	8,629	3.885	38,225	93,7
4	1995			2,750	1,689	24,306	7,744	5,977	4,196	9,358	4,214	41,446	101,6
	1996		2	2,596	5,484	24,315	10.935	6,339	3,689	9,913	2,501	31,494	97.2
Semarang Tengah	1993			2,566	5,414	24,223	10,932	6,341	3,615	9,916	2,509	34,730	100,2
Ocusatistic Leinkan	1994		-		1,827	4,203	3,531	6,255	1,253	3,315	1,646	20,562	42,5
in the total	1995		-		2,819	6,740	7,778	9,897	2,815	3,972	3,187	33,621	70,8
	1996			-	3,778	6,543	5,833	5,968	2,120	3,149	1,622	36,564	65,5
Semarang Selatan	1993				1,650 455	5,449 8,086	3,013 6,478	6,877 3,511	1,979 708	3,011	1,646	18,617	42,2
3	1994	1 2	. 5	-	780	14,109	11,842	9,363	1,659	8,767 12,391	2,627 4,510	5,069 12,349	35,7 67,0
	1995	-	-		483	9,123	7,849	5,391	933	7,688	2,852	7,734	42,5
	1996	•	-	-	479	10,173	9,126	5,543	988	6,842	2,602	12,132	47,8
Gayamsari	1993	46	133	34	617	8,968	6,848	1,274	755	3,280	741	5,866	28,5
	1994	63	184	48	849	12,339	9,427	1.762	1,040	4,516	1,021	8,070	39,3
	1995	46	135	36	619	8,982	6,861	1,284	760	3,289	745	5,879	28,6
Candisari	1993	45	132	37.	620	8,981	6,243	1,295	761	3,287	752	5,884	28,0
Camingit	1994	-			420 907	5.298 9,083	7,997	5,678	1.629	5,979	1,984	5,644	34,6
	1995		-		523	8,128	13,536	10,985 8,117	2,823 2,169	10,130 7,564	3,381 3,700	12,194 9,406	63,0 52,3
t for the second	1996		-		543	8,173	12,743	8,132	2,109	7,589	3,710	5,438	48,5
Gajahmungkur	1993	-		-	349	3,210	2,835	1,373	1,779	9,166	5,279	20,178	44,1
	1994		•	7 -	348	3,387	3,055	1,383	1,998	9,187	5,299	18,594	43,2
	1995	·· -,.	-	* * 1	389	3,410	3.129	1,394	1,968	9.296	5,282	12,138	37.0
Company D	1996		503	- 90	207	6.435	3,196	2,482	1,801	10,464	4,120	7,141	35,8
Semarang Barat	1993	- 68 - 75	502	80 97	861	16,065	4,450	4,304	2,142	8,596	3,067	53,806	93,9
	1994	56	460	76	1,078 893	19,762 16,467	5,386 4,448	5,343	2.602	10,451	3,727	65,568	114,6
	1996	39	467	69	893	16,469	4,448	4,512 4,553	2,150	8,633 8.935	3,081	54,302 53,750	95,0 94,8
Ngaliyan	1993	7,168	8,784	- 1	869	7.176	3,705	2,615	917	2,431	979	9,633	44.2
	1994	3,372	3,959		1,589	13,794	5,328	3,760	1,319	5,683	568	17,640	57,0
	1995	2,354	2,755	-	1,115	9,707	5,776	2,685	917	3,967	902	14,971	45,1
	1996	2.212	2,674		1,483	11,867	5,179	3,441	1,409	4,051	462	13,241	46,0
Tugu	1993	823	2,938	239	85	2,862	2,725	1,167	122	559	166	1,849	13,5
	1994	1,019	2,654	303	108	3,641	2,137	1,354	160	669	182	5,500	17,7
tiji satika ili e	1995 1996	804 756	2,059 1,225	153	464	3,152	1,903	1,097	138	552	156	5,028	15,5
otal in whole	1993	32,568	37,060	180 2,894	29 9,581	2,902 133,189	1,703 84,697	1,305 47,267	70 180	\$53 86 374	172	4,822	13.8
marang	1994	32,479	33,770	3,204	14,110	188,889	132,443	79,987	20,189	86,374 120,664	29,476	221,316	704,6
	1995	29,966	29,980	2,861	17,763	168,912	109,328	79,987	27,137	89,560	40,905	301,930 263,172	978,2 840,9

Source: Semarang City in Figures (Kotamadya Daera Tk.II Semarang Dalam Angka) 1992, 1993, 1994, 1995 and 1996, Statistic Office of Semarang City.

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				Annual				Annual
Industry of origin	GDP	at current	price	average	GDP at 1	993 - cons	stant price	average
indusity of origin	1994 ¹⁾	1995 ²⁾	1996 ²⁾	growth ratio	1994 1)	1995 ²⁾	1996 ²⁾	growth ratio (%)
A. Gross Domestic Product (GDP)								şir.
Agriculture, livestock & fisheries	66,072	77,896	88,041	15.46%	59,291	61,885	63,743	3.69%
Mining & quarrying	33.507	40,195	45,916	17.10%		35,502	37,569	6.28%
Crude petroleum and natural gas	23,070	25,410	28,120	10.40%		23,720	24,063	0.72%
Others	10,437	14,785	17,796	31.01%		11,782	13,506	19.05%
Manufacturing	89,241	109,669	135,581			91,537	102,260	11.23%
Oil and gas manufacturing	10,439	11,399	14,194	16.86%		9,782	10,864	3.16%
Petroleum refinery	5,855	6,599	8,340	19.54%	5,548	5,392	6,292	6.94%
Liquified natural gas	4,584	4,800	5,854			4,390	4,572	-1.43%
Others	78,802	98,270	121,387	24.11%		81,755	91,396	12.37%
Electricity, gas & water	4,577	5,655	6,594	20.08%	3,703	4,292	4,841	14.35%
Construction	28,017	34,452	52,025			29,198	32,924	12.84%
Wholesale & retail trade, restaurant	63,859	75,640	88,878	17.97%		64,231	69,372	7.97%
Transport & communication	27,353	30,795	34,926	13.00%		27,329	29,701	8.59%
Banking, insurance & real estate	34,506	39,510	44,371	13.40%		34,313	37,401	10.02%
Public services	22,755	26,555	29,753	14.37%		23,046	23,338	1.28%
Private services	12,335	14,127	16.545	15.82%		12,360	13,272	7.27%
GDP in total	515,409	615,757	738,321			520,514	565,114	8.41%
GDP per capita (Rp.10 ³)	2,681	3,153	3,722	12.45%		2,665	2,849	6.72%
Population (10 ³)	192,217	195,283	198,343	1.58%		195,283	198,343	1.58%
B. Share Rate of Gross Domestic Pro	duct (%	of GDP)					1 1 1	
Agriculture, livestock & fisheries	12.82%	12.65%	11.92%	-3.53%	12.33%	11.89%	11.28%	-4.36%
Mining & quarrying	6.50%	6.53%	6.22%	-2.16%	6.92%	6.82%	6.65%	-1.97%
Crude petroleum and natural gas	4.48%	4.13%	3.81%	-7.76%	4.93%	4.56%	4.26%	-7.09%
Others	2.02%	2.40%	2.41%	9.48%	1.98%	2.26%	2.39%	9.82%
Manufacturing	17.31%	17.81%	18,36%	2.98%	17.19%	17.59%	18.10%	2.60%
Oil and gas manufacturing	2.03%	1.85%	1.92%	-2.38%	2.14%	1.88%	1.92%	-4.86%
Petroleum refinery	1.14%	1.07%	1.13%	-0.13%	1.15%	1.04%	1.11%	-1.37%
Liquified natural gas	0.89%	0.78%	0.79%	-5.32%	0.98%	0.84%	0.81%	-9.09%
Others	15.29%	15.96%	16.44%	3.70%	15.05%	15.71%	16.17%	3.65%
Electricity, gas & water	0.89%	0.92%	0.89%	0.33%	0.77%	0.82%	0.86%	5.48%
Construction	5,44%	5.60%	7.05%	14.43%	5.38%	5.61%	5.83%	4.08%
Wholesale & retail trade, restauran	12.39%	12.28%	12.04%	-1.43%	12.38%	12.34%	12.28%	-0.40%
Transport & communication	5.31%	5.00%	4.73%	-5.59%	5.24%	5.25%	5.26%	0.16%
Banking, insurance & real estate	6.69%	6,42%	6.01%	-5.25%	6.43%	6.59%	6.62%	1.49%
Public services	4.41%	4,31%	4.03%	-4.44%	4.73%	4.43%	4.13%	-6.58%
Private services	2.39%	2,29%	2.24%	-3.23%	2.40%	2.37%	2.35%	-1.05%
Sub-Total	100.00%	100.00%	100.00%	19,700	100.00%	100.00%	100.00%	

Source: 1) Statistical Year Book of Indonesia 1995, Biro Pusat Statistik Indonesia.
2) Statistical Year Book of Indonesia 1996, Biro Pusat Statistik Indonesia.

Table 2.2.9 GROSS REGIONAL DOMESTIC PRODUCT IN CENTRAL JAVA PROVINCE

Industry of origin	GDI	P at current	price	Annual average	GDP at	1993 - consta	int price	(Rp. t
musuy or origin	1994 1)	1995 ²⁾	1996 ²⁾	1 -	1994 1)	1995 ²⁾	1996 23	avera grow ratio (
A. Gross Regional Domestic Product (GRDP)								
Agriculture, livestock & fisheries	8,779	10,635		21.14%	7,782	8,211	† <u> </u>	5.519
Mining & quarrying	452	527		16.59%	433	T		9.019
Manufacturing	12,454	14,863	_	19.34%	11,322	<u> </u>	<u> </u>	8.28
Electricity, gas & water	272	331	-	21.69%	265	304		14.72
Construction	1,768	1,983		12.16%	1,689	1,808		7.059
Wholesale & retail trade, restaurants & hotels	8,002	9,673	-	20.88%	7,581	8,364	-	10.33
Transport & communication	1,454	1,722		18.43%	1,379	1,511	-	9.579
Banking, insurance & real estate	1,965	2,275		15.78%	1,869	1,974		5.629
Public and private services	4,158	4,614		10.97%	4,026	4,128		2.539
GRDP in total	39,304	46,623	n.a	18.62%	36,346	39,032	n.a	7.399
GRDP per capita (Rp.10 ³)	1,333	1,570	n.a	17.81%	1,233	1,315	n.a	6.669
Population (10³)	29,485	29,688	29,881	0.69%	29,485	29,688	29,881	0.679
							, , , , ,	-
B. Share Rate of Gross Domestic Product (% of	GDP)							
Agriculture, livestock & fisheries	22.34%	22.81%	-	2.12%	21.41%	21.04%	-	-1.759
Mining & quarrying	1.15%	1.13%	· · · <u>-</u>	-1.71%	1.19%	1.21%	- I	1.51%
Manufacturing	31.69%	31.88%	-	0.61%	31.15%	31.41%		0.83%
Electricity, gas & water	0.69%	0.71%	-	2.59%	0.73%	0.78%		6.82%
Construction	4.50%	4.25%	_	-5.45%	4.65%	4.63%	-	-0.329
Wholesale & retail trade, restaurants & hotels	20.36%	20.75%	-	1.91%	20.86%	21.43%		2.74%
Transport & communication	3.70%	3.69%		-0.16%	3.79%	3.87%	_	2.03%
Banking, insurance & real estate	5.00%	4.88%		-2.40%	5.14%	5.06%		-1.65%
Public and private services	10.58%	9.90%	-	-6.45%	11.08%	10.58%	-	-4.52%
Sub-Total	100.00%	100.00%	n.a		100.00%	100.00%	n.a	

Source:

Central Java in Figures 1996 (Jawa Tengah Dalam Angka 1996), Kantor Statistik Propinsi Jawa Tengah.

(Note:) * Annual average growth ratio between 1994 and 1995.

^{**} Based on population projection reported in the Statistical Year Book of Indonesia 1996.

⁻ Lack of data.

n.a.: Not available.

Table 2.2.10 GROSS REGIONAL DOMESTIC PRODUCT IN SEMARANG CITY

 $(Rp.10^9)$ GDP at current price Annual GDP at 1993 - constant price Annual Industry of origin average average growth 1996 ²⁾ 1994 1) 1995 2) 1995 ²⁾ growth 1994 1) 1996 2) ratio (%) ratio (%) A. Gross Regional Domestic Product (GRDP) Agriculture, livestock & fisheries 89 96 7.87% 76 77 1.32% Mining & quarrying 10 12 10 20.00% 10 0.00% Manufacturing 1,210 1,513 25.04% 1,150 1,348 17.22% Electricity, gas & water 86 97 12.79% 86 4.88% Construction 330 374 13.33% 317 342 7.89% Wholesale & retail trade, restaurants 1,474 1,768 19.95% 1,353 1,516 12.05% Transport & communication 289 333 15.22% 277 300 8.30% Banking, insurance & real estate 366 436 19.13% 356 394 10.67% Public and private services 607 679 11.86% 585 608 3.93% GRDP in total 4,461 5,308 18.99% 4.206 4,681 n.a 11.29% GRDP per capita (Rp.10³) 3,699 4,305 16.38% 3,488 3,796 n.a 8.86% Population (10³) 1,206 1,233 1,252 2.24% 1,206 1,233 1,252 1.89% B. Share Rate of Gross Domestic Product (% of GDP) Agriculture, livestock & fisheries 2.00% 1.81% -9.35% 1.81% 1.64% -8.97% Mining & quarrying 0.22% 0.23% 0.85% 0.24% 0.21% -10.15% Manufacturing 27.12% 28.50% 5.09% 27.34% 28.80% 5.32% Electricity, gas & water 1.93% 1.83% -5.21% 1.95% 1.84% -5.76% Construction 7.40% 7.05% -4.75% 7.54% 7.31% -3.06% Wholesale & retail trade, restaurants 33.04% 33.31% 0.81% 32.17% 32.39% 0.68% Transport & communication 6.48% 6.27% -3.16% 6.59% 6.41% -2.69% Banking, insurance & real estate 8.20% 8.21% 0.12% 8.46% 8,42% -0.56% Public and private services 13.61% 12.79% -5.99% 13.91% 12.99% -6.61% Sub-Total 100.00% 100.00% 100.00% 100.00%

Source: Central Java in Figures 1996 (Jawa Tengah Dalam Angka 1996), Kantor Statistik Propinsi Jawa Tengah.

Note:) * Annual average growth ratio between 1994 and 1995.

^{**} Based on population projection reported in the Statistical Year Book of Indonesia 1996.

⁻ Lack of data.

n.a.: Not available.

Table 2.2.11 GOVERNMENT FINANCE OF INDONESIA IN BUDGET

	1993/94 ^D	100	4/9511	100	5/96 ^D	100	6/9711 ;	1997	700 ³	100	(Rp.10 ³) 8/99 ²¹
	1773174	179	Change	199	Change	199	Change	1997	Change		Change
Industry of origin	Amount	Amount	against previous	Amount	against previous	Amount	against previous	Amount	against previous	Amount	against previous
I DELONATED	· · · · · · · · · · · · · · · · · · ·		λεπ (₀ ,9)		year (%)		year (%)		year (%)	· · · · · · · · · · · · · · · · · · ·	year (%)
L REVENUE A. Domestic Revenue	52,769	59,738	13.21%	66,265	10.93%	78,203	18.02%	88,061	12.61%	114,966	30.55%
Oil and natural gas	15,128	12,851	-15.05%		3.31%						
Oil	17,120	12,631	*13.03%	13,270		14,120	6,36%	14,871	5.32%	34,582	132.55%
Natural gas				-	n.a.		n.a.	10,688	n.a.	24,061	n.a.
2. Non-pil and non-gas	37,641	46,887	п.а. 24.56%	52,989	12.010	61000	n.a.	4,183	na.	10,521	0.035
Income tax	14,848	18,843	26.91%		13.01% 2.10%		20.94%	73,190	14.21%	80,384	9.83%
Value added tax on goods and servi	11,682	13,239	13.33%	16,655	25.80%		23.23% 30.82%	29,118	22.82%	25,618	-12.02%
Import duties	3,106	3,443	10.85%		23.80%			24,601	12.91%	27,872	13.30%
Excise duties	2,498	2,623	5.00%	3,543 3,299	25.77%	3,451	-2.60%	3,322	-3.74%	3,562	7.22%
						4,033	22.25%	4,436	9.99%	4,922	10.96%
Export tax	1 320	1,629	-46.67%	45	181.25%	160	255,56%	100	-37.50%	115	15.00%
Property tax	1,320		23.41%	1,923	18.05%	2,277	18,41%	2,505	10.01%	3,411	36.17%
Other taxes	364	282	-22,53%	319	13.12%	370	78.68%	633	11.05%	540	-14.69%
Non-tax revenues	3,583	4,293	19.82%	6,491	51.20%	7,268	11.97%	8,226	(3.18%)	14,344	74.37%
Fuel sales profit	210	2,519	1099.52%	1,475	-41.45%	828	-43.86%	249	-69.93%		-100.00%
B. Development Revenues	9,553	10,012	4.80%	11,759	17.45%	12,413	5.56%	13,026	4.94%	32,255	147.62%
1. Program aid	427		-100.00%		0.00%		0.00%		0.00%	8,500	0.00%
2. Projects aid	9,126	10,012		11,759	17.45%	1.1	5.56%	13,026	4.94%	23,755	82.37%
TOTAL	62,322	69,750	11.92%	78,024	11.86%	90,616	16.14%	101,087	11.56%	147,221	45.64%
IL EXPENDITURE	1										
A. Routine Expenditures	37,095	42,351	14.17%	47,241	11.55%	56,114	18.78%	62,159	10.77%	97,832	57.39%
1. Civil services	10,894	13,011	19.43%	15,347	17.95%	18,281	19.12%	21,192	15.92%	22,591	6.60%
Salaries/pension	-	•	n.a	-	п.а.	-	п.а.	17,048	n.a	17,406	2.10%
Rice allowance	····-		na		na		n.a	1310	n.a	1,588	21.22%
Food allowance	•	-	n.a		na	•	n.a	1,234	n.a	1,484	20.26%
Other benefits		•	n.a.		па	· <u>-</u>	n.a	1,010	na	1,155	14.36%
Diplomat services		-	n.a	-	n.a	-	n.a	590	n.a	958	62.37%
2. Goods procurement	2,980	3,750	25.84%	4,745	26.53%	6,589	38.86%	8,895	35.00%	10,909	22.64%
Domestic	797 -		n.a		na	•	na	8,478	па	10,060	18.66%
External			n.a	-	n.a	<u>-</u>	n.a	417	n.a	849	103.60%
3. Subsidies to autonomous regions	6,029	7,095	17.68%	8,410	18.53%	10,012	19.05%	11.536	15.22%	12,284	6.48%
Personnel expenses			n.a.	•	па		11.2	10,968	па	11,601	5.77%
Non-personnel expenses	19 19 1		'na	-	ri.a	-	n.a	568	па	683	20.25%
Debt service payment	16,712	17,970	7.53%	18,215	1.36%	20,227	11.05%	19,571	-3.24%	39,740	103.06%
Domestic	•	-	n.a	•	па	<u> </u>	п.а	334	n.a	1,940	480.84%
External		•	n.a	•	Ra		E.J.	19,237	n.a	37,800	96.50%
5. Other expenditures	480	525	9.38%	524	-0.19%	1,005	91,79%	965	-3.98%	12,308	1175.44%
Petroleum subsidies	-	•	па		n.a	•	n.a	•	na	7,456	100.00%
Others	•		n.a	-	па		na	965	n.a	4,852	402.80%
B. Development Expenditures	25,227	27,398	8.61%	30,783	12.35%	34,502	12.08%	38,928	12.83%	49,392	26.88%
1. Rupish financing	16,101	17,386	7.98%	19,024	9.42%	22,089	16.11%	25,902	17.26%	25,637	-1.02%
2. Projects aid	9,126	10,012	9.71%	11,759	17.45%	12,413	5.56%	13,026	4.94%	23,755	82.37%
Sub-Total	62,322	69,749	11.92%	78,024	11.86%	90,616	16.14%	101,087	11.56%	147,224	45.64%

Sourc 1) Statistical Year Book of Indonesia 1995, Biro Pusat Statistik Indonesia.
2) Statistical Year Book of Indonesia 1996, Biro Pusat Statistik Indonesia.

Table 2.2.12 GOVERNMENT FINANCE OF INDONESIA IN REALIZATION

 $(Rp.10^3)$ 1992/931) 1993/942) 1994/9521 1995/9633 Change Change Change industry of origin against against against Amount Amount Amount Amount previous previous previous year (%) year (%) year (%) I. REVENUE A. Domestic Revenue 48,863 56,113 14.84% 61,370 9.37% 71,558 16.60% 1. Oil and natural gas 15,331 12,503 -18.45% 13,399 7.17% 14,849 10.82% 2. Non-pil and non-gas 33,532 43,610 30.05% 47,971 10.00% 56,709 18.22% Income tax 12,516 14,759 17.92% 18,350 24.33% 20,520 11.83% Value added tax on goods and ser-10,742 13,944 29.81% 14.087 1.03% 18,350 30.26% Import duties 3,223 3,555 10.30% 3,218 -9.48% 3,248 0.93% Excise duties 2,242 2,626 17.13% 14.28% 3,001 3,668 22.23% Export tax 9 14 55.56% 757.14% 120 201 67.50% Property tax 1,107 1,484 34.06% 1,924 1,632 9.97% 17.89% Other taxes 253 283 11.86% 303 7.07% 68.32% 510 Non-tax revenues 3,440 5,904 71.63% 5,997 1.58% 7,801 30.08% Fuel sales profit 1.041 100.00% 1,263 21.33% 487 -61.44% B. Development Revenues 11,098 10,753 -3.11% 10,983 2.14% 11,170 1.70% 1. Program aid 317 -100.00% 0.00% 0.00% 2. Projects aid 10,581 10.753 2.14% 1 63% 10,983 11,170 1.70% TOTAL 59,961 66,866 11.52% 72,353 8.21% 82,728 14.34% IL EXPENDITURE A. Routine Expenditures 33,605 40,290 19.89% 43,179 7.17% 52,541 21.68% I. Civil services 9,554 11,145 16.65% 13,069 17.26% 15,372 17.62% Salaries/pension 7,595 9,145 20.41% 10,490 14.71% 12,351 17.74% Rice allowance 891 834 -6.40% 24.46% 1,038 1,134 9.25% Food allowance 479 493 2.92% 801 62.47% 866 8.11% Other benefits 315 418 32.70% 396 -5.26% 572 44 44% Diplomat services 274 255 -6.93% 34.90% 449 344 30,52% 2. Goods procurement 2,928 3,032 3.55% 4,296 41.69% 5,274 22.77% Domestic 2,681 2,848 6.23% 4,071 42.94% 4,969 22.06% External 247 184 -25.51% 225 22.28% 305 35,56% 3. Subsidies to autonomous regions 5,383 6,909 28.35% 7.188 4.04% 8.344 16.08% Personnel expenses 4,996 6,575 31.61% 6,756 2.75% 7,863 16.39% Non-personnel expenses 387 334 -13.70% 432 29.34% 481 11,34% 4. Debt service payment 14,524 17,163 18.17% 18,422 7.34% 19,906 8.06% Domestic 275 121 -56.00% 204 68.60% 251 23.04% External 17,042 14,249 19.60% 18,218 6.90% 19,655 7.89% 5. Other expenditures 1,216 2,041 67.85% 90.00% 3,645 1686.76% B. Development Expenditures 26,906 2.59% 28,428 5.66% 29,163 29,812 2.23% 1. Rupiah financing 16,325 17,675 8.27% 18,180 2.86% 18,642 2.54% 2. Projects aid 10,581 10,753 1.63% 10,983 2.14% 11,170 1.70% TOTAL 60,511 68,718 13.56% 72,342 5.27% 82,353 13.849

Source: 1) Statistical Year Book of Indonesia 1995, Biro Pusat Statistik Indonesia.

Statistical Year Book of Indonesia 1996, Biro Pusat Statistik Indonesia. (Note) - Not clarified

Table 2.2.13 REALIZED LOCAL GOVERNMENT FINANCE IN CENTRAL JAVA PROVINCE

							(Rp.10°)
	1992/93	1993/94	/94	199	1994/95	199	96/5661
Items			Change against		Change against		Change against
	Amount	Amount	previous year (%)	Amount	previous year (%)	Amount	previous year
REVENUE							
1. Local Fax	92,939	118,196	27.18%	170,703	44 42%	229,850	34.65%
Tax on motorized vehicles	45,499	50,913	11.90%	63,056	23.85%	89,843	42.48%
Motor car transfer duties	44,986	64,645	43.70%	104,632	61.86%	135,504	29.51%
Unpaid taxes	942	1,011	7.32%	1,037	2.57%	1,538	48.31%
Fine taxes	1,512	1,627	7.61%	1,978	21.57%	2,965	49.90%
2. Retribution Receipt	20,278	22,863	12.75%	29,350	28.37%	36,206	23,36%
3. Receipts from local Government corporation	3,251	2,681	-17.53%	2,965	10.59%	3,163	6.68%
4. Receipt from official services	1,364	1,474	8.06%	1,517	2.92%	1,637	7.91%
5. Other receipts	2,750	4,907	78.44%	5,670	15.55%	9,002	58.77%
6. Tax shares	9,912	12,121	22.29%	13,745	13.40%	17,414	26.69%
7. Non tax shares	3,536	6,230	76.19%	5,336	-14.35%	6,202	16.23%
TOTAL	134,030	168,472	25.70%	229,286	36.10%	303,474	32.36%

Source: Central Java in Figures 1996 (Jawa Tengah Dalam Angka 1996), Kantor Statistik Propinsi Jawa Tengah.

Table 2.2.14 REALIZED LOCAL GOVERNMENT FINANCE IN SEMARANG CITY

(Rp.10³)

	·				0.631		(Rp.10')
lterns	Amount	Amount	Change against previous year (%)	Amount	(95 ³¹ Change against previous year (95)	Amount	Change against previous year (%)
REVENUE							
A. Local Revenue	56,403	69,076	22.47%	89,621	29.74%	113,896	27.09%
1. Remainder from the account in pervious year at the begging of the year	1,075	1,620	50,70%	3,705	128.70%	6,731	81.67%
2. Local revenue	24,861	25,722	3,46%	33,460	30.08%	38,275	14.39%
Local tax	9,820	12,091	23.13%	17,254	42.70%	18,503	7.24%
Retribution	7,741	10,000	29.18%	13,694	36.94%	14,811	8.16%
Receipts from local Government corporation	512	472	-7.81%	368	-22.03%	914	148.37%
Receipts from official service	2,134	2,154	-1.37%	5	-99.77%	2,664	53180.00%
Other receipts	4,604	1,005	-78.17%	2,139	112.84%	1,382	-35.39%
3. Tax shares	5,231	7,687	46.95%	11,058	43.85%	13,674	23.66%
Tax shares	4,585	6,925	51.04%	10,182	47.03%	12,261	20.42%
Non tax shares	646	762	17.96%	876	14.96%	1,413	61.30%
4. Contribution and local aid	22.936	26,547	15.74%	31,363	20.02%	34,957	9.71%
Contribution	11,189	13,745	22.84%	14,912	8.49%	16,944	13.63%
Loacal aid	11,747	12,802	8.98%	16,951	32.41%	18,013	6.27%
5. Development aid	2,300	7,500	226.09%	9,535	27.13%	20,259	112.47%
Local Government development loans	2,300	7,500	226.09%	9,535	27.13%	20,259	112,47%
Other loans for local Government corporation	0	0	0.00%	0	0.00%	0	0.00%
B. Cash Adjustment and Subsidies	11,537	<u> </u>	па	17,170	n.a.	25,138	46.41%
TOTAL	67,940	69,076	t na.	106,791	n.a.	139.034	30.19%
EXPENDITURE							
A. Routine Expenditures	29,556	35,717	20.85%	46,487	30.15%	81,403	75.11%
I. Civil service	12,137	14,106	16.22%	16,492	16.91%	18,102	9,76%
Salaries / pension	9,902		п.а.	14,200	п.а.	14,713	3.61%
Rice allowance	1,358		па	1,456	n,a,	1,519	4.33%
Other benefits	877	ĺ .	n.a.	836	n.a.	1,870	123.68%
II. Good procerements	4,369	5,718	30.88%	7,213	26.15%	9,117	26.40%
III. Operation and maintenance cost for facilities of local government	751	1,040	38.48%	1,443	38,75%	1,705	18.16%
IV. Official transportation cost	399	412	3.26%	419	1.70%	564	34.61%
V. Other expenditures	4,338	5,036	16.09%	7,680	52.50%	10,234	33.26%
VI. Payments of principals and interest for loans	2,638	3,183	20.66%	-	93.43%		28.89%
VII. Reward for subsidies	179		20.11%	225	4.65%		-28.00%
VIII. Pensionaries	15	15	0.00%		-20.00%		50.00%
IX. Other exponditures	1,236	1,746	41.26%		-5.33%		14.52%
X. Emergent cost	68	68	0.00%	25	-63.24%	15	-40.00%
XI. Operation and maintenance cost for facilities of the city area	3,426	4,178	21.95%	5,168	23.70%	31,657	512.56%
B. Development Expenditures	25,228	28,739	13.92%	36,109	26.69%	53,287	46.36%
C. Deposit and Repayment for Cash Adjustment and Subsidies	12,258		n.a.	17,239	n.a.	25,398	47.33%
TOTAL	67,042	64,456	na	100,135	n.a.	160,088	59.87%

Sources:

- 1). Semarang City in Figures (Kotamadya Daerah Tingkat II Semarang Dalam Angka) 1992, Statistic Office of Semarang City.
- 2). Original information from the Muncipality of Semarang.
- 3). Semarang City in Figures (Kotamadya Daerah Tingkat II Semarang Dalam Angka) 1994, Statistic Office of Semarang City.
- 4). Semarang City in Figures (Kotamandya Dacrah Tingkat II Semarang Dalam Angka) 1996, Statistic Office of Semarang City. (Note)
 - * Not completed yet because of lack of data
 - Lack of data.

Table 2.2.15 INDUSTRIAL SITUATION IN INDONESIA

	,			-																					
 - -		ž	Number of establishments	establish	ıments	Perso	ns enga	Persons engaged (persons)	(suo	Salari	Salaries & wages (Rp.10°)	es (Rp. 1	(₀ 0)	Value	Value of gross output (Rp. 106)	utbut (Ro	(0)		Input cost (Rn 10°	(Ro 10°)		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Value added (Br. 10 ⁵)	901 04/	
χ̈	Kind of	Large	Small	House		Large/	Small	House		Large/	llan.	House		Large		House		Large	,	House		Lared		House	
prod	products	medium	a scak	hold	Total	medium	Scale	hold	Total	modium	scale	plot	Total	medium	Scale	pold	Lotal	modium	Small	plod	Total	engage.	Smill	77.2	i i
		Seale	- 1	scale		scale		scale		scak		scale		scak	İ	scale		scale	3	scale		Scale	Kene	scale	
Food	1883	93 4,823		823,309	199	723,686	253,612	619,615,1	2,496,917	1,682,728	109,820 100,053		1,892,601	36,049,322	1,416,656	2,931,619	40,397,597	23,950,595	1,083,551 2	2,058,287	27,092,433	12.098,727	333,105		3,305,164
S C	beverage 1994			840,590	902 496	739,133	435,817	1,563,468	2,738,418	1,774,393	337,184	211,943	1,323,520	32,102,519	5,039,372	4,898,332	42,040,223	19,992,145	3,838,696 3,343,248	(343,248	27,174,089	12,110,374 1	**		4.800.134
& 10	& tobacco 1995	95 5,336	\$ 66,318	856 476	928,130	895,762	517,545	1,595,907	3,009,214	2,348,472	355,927	215,227	2,919,626	40,180,728	4,673,972	4,981,743	49,836,443	23,679,366	3,554,886 3	٠.			1,119,086 1.4	_	9.112.217
.	<u>8</u>	5,452	· 1	881.579	701,996	937,744	617.085	1,642,682	3,197,511	2,796,569	424,382	221,536	3,442,487	52,306,251	5,572,521	5,127,756	63,006,928	32,849,876						•	KX1 225 25
Textile.		93 4,258		335,521	367,234	1,188,759	230,520	469,995	1,889,274	2,393,268	870,771	67,327	2,637,673	26,853,053	1,546,277	721.866	29,397,457	17,042,486	ŕ	1	1	ŀ			10.740.944
Mesicing	661 B ui	1994 4 423	29,295	309,690	343,408	1,255,536	272,770	399,607	1,927,913	2,865,227	291,163	68,076 3	324,466	32,008,417	2,175,078	1,001,766	35,185,261	19,235,754	1,453,122			12.772.663			13 900 X7
S 15	& leather 1995	856°+ 56	33,779	317,378	356,115	1,312,768	331,353	403,052	2,047,173	3,286,031	342,281	68,663	3,696,973	36,167,904	3,029,299	1,087,693	40,284,896	22,984,490	1.951,871						Cat don't
prod	products 1996	5,130	38,932	357,026	401,088	1,523,610	381,901	453,403	2,358,914	4,341,838	394,496	77,241	4,813,575	48,333,172	3,491,420	1,223,572	53,048,164	30,177,835	2 249 630						1000
Wox	Wood & 1993	3 225	25,778	943,210	971,244	503,045	189,740 1,403,865	ŀ	2,096,650	1,155,983	144,928	129,302	430,213	13,593,887	756,987	1,564,656	15,915,530	8,965,226	453,266				T	1_	C 14 TIT &
wooden	kn 1984		32,414	918,910	953,811	527,098	272,936	1340,114	2,1-10,1-48	1,236,382	281,650	1 756,421	.,672,989	15,437,282	1,342,318	2,089,206	18,858,806	10,189,228		1,111,463	12,038,495	5,248,054			4 X 30 311
products	xcis 1995	5 2913	34,982	906,234	94,128	538,935	286,935	1,262,810	2,088,680	1,402,948	34,364	146,947	1,894,259	16,763,256	1,772,233	1,971,100	20,506,589	10,704,091			12,765,260	6.059.164			X 7 02 7 7
	<u>\$</u>	3,175	+1,054	886,335	930,564	587,375	336,740	1,235,081	2,159,196	1,682,804	404,137	143,720 2	2,230,661	20,289,457	2,079,848	1,927,818	24,297,123	13,248,593			15.465.720	7.040.864			TOT IEX X
Paper &	r& 1993	23	60:T	8,792	10,662	123,228	9,147	16,532	148,907	455,167	5,007	+35+	464,708	5,560,158	20,537	38,173	5,618,868	3,462,365	10,354	16,481	3,489,200	2.097,792		21.092	134 00
paper	₹ <u>8</u>		2,953	10,686		132,461	25,514	21,892	179,867	621,244	29,516	21,355	672,115	7,308,644	101,473	92,546	7,502,663	4,533,670	46,986	39,129	4,619,785	2,774,974			X78 X7X
produ	products 1995	8	101.4	12,260	17,266	910,611	39,634	26,445	215,095	733,022	34,018	25,796	792,836	9,806,336	253,647	141,873	10,201,856	6,240,070	183,592	78,701	6,502,363	3,566,266			1090-197
	38		5,831	16,459	23,236	167,442	\$6,354	35,502	259,298	962,296	48,369	34,631	046,296	11,961,328	360,647	190,464	12,512,439	7,494,813	261,040	105,656	7,861,509	4,466,515			4.050.928
O	Chemical, 1993	3 2.154		10,702	14,008	403,156	13,484	25,622	442,262	1,729,744	18,410	3,517	1,751,671	18,654,858	115,920	48,663	18,819,441	12,138,082	75,431	26,029	12,239,542	6,516,776			48x 678 8
perso	peroteum 1994	1 2,236		1,698	6,628		25,631	19,388	489,059	1,693,314	22,031	3,371	1,718,716 2	23,153,353	142,988	57,935	23,354,276	15,350,391	87.883	38,761	15,477,035	7,802,961			042.778.7
SQC SQC	ન		3,310	14,692	20,414		30,483	29,682	532,499	2,006,543	31,228	5,161 2,	2,042,932 2	29,061,024	315,184	78,855	29,455,063	18,380,031	215,622	35,362	18,631,015	9,680,993	59,562	43,493	ST-1 0-1%
plastic	266	6 2,491	4,310	21.034	27,835	\$67,948	39,692	42,495	650,135	2,972,364	40,662	7,389 2,	2,970,415 3	37,322,010	410,406	112,894	37,845,310	24,644,275	2,280,765	50,626	26,975,666	12,677,735	139,641	_	2.809.643
<u>5</u>		804.		160,764	190,087		197,148	320,387	667,541	476,030	64,803	57,179	598,012	4,936,129	258,920	308,518	5,703,567	2,792,255	119,633	222,987	3,134,875	2 143 874	L		2 508 692
metalic		(Q		176,394	208,542		271,423	370,867	796,194	364,068		132,332	859,354	5,386,655	716,518	859,413	6,962,586	3,056,643	364,457	392,663	3,813,763	2,330,011	351,969 44		3,148,730
minoral	28	5 2,027		190,072	225,886		275,105	390,623	845,575	726,333		-	.063,395	6,503,042	859,150	918'600'1	8.372,008	3,840,855	399,152	428,241	4,668,248	2,662,187	459,998 52	572,188	3,703,760
produ	#	2,174	٦,	214,339	258,414	- 1	341,172	440,493	1,007,763	933,567	224,752 1.	157,541 1,	305,860	8,856,467	.065,476	1,138,742	11,060,685	5,091,516	495,009	482,916	6,069,441	3,764.951	570,467 6.	25,826	45.156.5
Basic	- 1		٠	0	38	43,546	0	0	43,546	268,216	0			7,735,450	D	0	7,735,450	4,321,369	0	0		3,414,081	0	0 3	3,414,083
Teta		ž	275	¥	770	46,744	<u>.</u>	9	49,123	314,001	Š			9,946,300	32,534	12,006	9,990,840	5,750,188	28.893	9,348	5,728,429	4,195,113	3,641	2.058	4,202,412
products		<u> </u>	317	1,057	1,543	1 2	2,670	866'T	52,312	376,980	3,026			12,603,140	60,869	36,888	12,700,897	\$2,250,188	53,390	28.725	5,832,303	5.558,413	2,478	8,163 5	5,574,055
	1996	4		3,093	- 1		6.494	5,847	61,107	\$02,220	- 1	٠		15,669,095	148,044	107,942	15,925,081	8,859,907	129,854	84.055	9,073,816	6,809,188	18,190	23,887 0	6.851.265
A PER	2	1,912		36,086			37,853	8 2.14	488,575	1,459,367				21,384,174	225,357	355,941	21,965,472	12,718,869	122,934	226,058 1	13,067,861	8,665,306	102,423	8 Ex8.951	8,897,612
mark.	<u>*</u>	2,074		46,886			63,440	98,543	191,645	1,984,901				29,302,427	328,830	514,879	30,146,136	17,124,735		280,724	1 576,982,71	12,177,692	164,314 23	234,155 12	12,576,101
machi	machinery 1995. 2,389	2,389	× 353	51,210		÷	68,362	105,386		2,558,287			2,719,539 43	42,152,714	438,127	SO1,508	43,095,349	26,022,589	247,139	282,968 2	26,552,696 10	16.150,125	£ 836,041	61 045,155	10,502,053
transp	transport 1996	~	10.163	29.129	71,867	ı.	77,256	121,668		3,448,473	~	m.	``	52,601,716	495,128	582,456	53,679,300	31,516,287	279,292	326,687 3	32,122,266 2	21,085,429 2	215,836 25		21,557,033
ซี ช				35,175	37,620	٠,	20,534	50,145	141,481	123,083	10,429	7,102	137,614	1,097,351	37,716	196'16	1,227,028	651,662	18,835	51,501	721,998	445,688	183.81	10,100	505,029
where	<u>\$</u>		27.47	40,582	45,125		37,421	67,510	179,477	162,400		16,472	212,809	.179,646	136,795	301,457	1,617,898	736,202	12,719	126,151	985,072	443,444	64,076 12	30,30	032,826
Specifi	specified 1995			45,442			45,712	91,715	215,544	189,139			249,787	1,441,860	305,173	222,644	1 969 677	126'168	208,149	147.162	1,250,282	246,890	7 520,79	75,482	719,396
	8	448	6,650	62.471	69,569		58,684	- 1		1		24,076	366,449	2,259,770	391,776	306,078	2,957,624	1.386,014	267,218 2	202,310	1,855,542	873,756	134,558 10	103,768 1.	1.102.082
Total	8	18,163	24.990 2	353,559 2	1993 18,163 124,990 2,353,559 2,496,712 3,574,809	574.809	952,038 3,888,306							135,854,382 4,	4,378,370 6	6,537,658	146,780,410	86,042,909	2,869,826 4,0	4,018,974 9:	92,931,709 48	49,821,473 1,5	1,508,544 2,518,684		53,848,701
	8	19.017	168.154 2	356,780 2	2,543,951 3.	1994 19,017 168,154 2,356,780 2,543,951 3,813,670 1,406,681 3,882,039	506,681 3,							155,825,242 10,		9,827,540 17	175,668,688	95,968,956	5,795,166 5,5	5,981,000 100	108,745,122 39	59.856,286 3,2	3,220,738 3,846,540		00,923,564
	1885	21,551	190,767 2,	394,827 2	1,607,145 4.	1995 21,551 190,767 2,394,827 2,607,145 4,174,142 1,597,799 3,887,618	97,799 3,								11,707,654 10,	10,035,120 21		7 061,177,021	7,837,869 6,208,326		134,817,385 73	23,908,813 3,809,785 3,826,794	58,785 3,82		51,005,392
3	9861	22,615	1996 22,615 228,685 2,501,465 2,752,765	501,465 2	2,752,765 4.	1996 22,615 228,685 2,501,465 2,752,765 4,731,589 1,915,378 4,0	15.378 4	75,763	10,722,730	17,868,129 1,	27 822.817.1	758,096 20,3	20,341,453 249	249,598,266 14,	14,015,666 10,	10,717,723 23	274,331,655	155,269,116 9	9,403,229 6,623,747	- 1	171,296,092 94	94,329,150 4,612,438 4,093,971	12,438 4,09		103,035,559
2000	. 36450		TO YOUR	MODESIA 15	70° BIE	EST SHIBLE	FOODES	د																	

Table 2.2.16 INDUSTRIAL SITUATION FOR LARGE AND MEDIUM SCALE MANUFACTURING IN CENTRAL JAVA PROVINCE

		Number	Persons	Salaries	Value	Input	Value
Kind of products Yea	ır .	of	engaged	& wages	of gross	cost	added
		establish-		(D = 106)	output	رام دمان	/D 106
11	1993 ^{t)}	meats	(persons)	(Rp.10 ⁶)	(Rp.10 ⁶)	(Rp.10°)	(Rp. 10 ⁶
ood, beverages & tobacco	1993		125,343	147,245	3,224,970	1,546,486	1,516,28
	1994 ²⁾	967	117,785	159,705	4,317,637	1,617,224	2,357,4
	1995 ³⁾	959	120,577	192,801	12,537,845	9,391,721	2,809,5
	1996 ⁴⁾	1,008	129,741	195,446	3,643,538	2,463,157	891,1
	1993 ¹⁾		153,494	157,417	2,780,287	1,975,681	697,0
	1994 ²⁾	717	160,732	187,573	3,579,757	2,681,946	874,7
	1995 ³⁾	722	180,930	230,004	3,589,531	2,504,729	1,060,0
	1996 ⁴⁾	724	194,002	297,564	6,683,862	3,274,982	3,344,4
	19931)		30,907	33,557	444,031	303,379	139,5
	1994 ²⁾	293	38,415	51,382	556,017	386,845	166,7
	1995 ³⁾		41,541	60,694	770,824	572,987	196.8
	19964)	400	47,919	77,000	710,336	536,870	1 6 6,6
	1993 ¹⁾	104	10,393	13,731	157,221	106,677	48,2
	1994 ²⁾		12,450	23,303	225,683	138,966	81,0
	1995 ³⁾		15,657	31,656	322,423	198,099	119.1
	19964)	125	16,645	28,058	354,950	224,981	123,6
	1993 ¹⁾		48,230	65,585	676,262	501,523	163,1
	1994 ²⁾		45,911	65,500	945,405	579,837	354,6
	1995 ³⁾		45,703	77,635	942,472	. 658,207	267,2
	19964)		48,877	88,644	1,063,756	750,508	288,4
	19931)		17,908	20,362	261,353	145,042	105,0
	1994 ²⁾		18,720	43,460	273,600	135,580	133,8
	1995 ³⁾		18,643	44,027	300,190	135,041	157.6
	19961)		19,023	30,476	273,291	140,892	117.0
	1993 ¹⁾		1,045	3,414	94,994	72,095	22,5
	1994 ²⁾		1,100	3,739	144,883	110,415	18,8
	19953)		1,143	4,379	187,798	150,643	28,6
	1996		1,268	5,219	231,121	186,198	36,3
	1993 ¹⁾		16,285	30,086	315,501	217,731	91,9
	1994 ²⁾		16,922	30,952	360,494	245,615	106,7
	19953	169	19,648	43,898	548,025	367,751	161,
	1996	185	20,362	45,265	611,244	424,907	163,0
Manufactured products not elsewhere specified	1993		6,124	5,676	29,916	19,019	10,
	1994 ²	67	6,396	5,968	33,858	20,335	13,
	19953		7,270	7,698	35,602	21,316	13,8
	1996	77	8,681	8,941	46,478	18,516	18,
Total	1993 ¹	2,729	409,729	483,073	7,983,636	4,889,632	4,889,
	1994 ²		418,431	571,579	10,437,334	5,916,771	410,
	1995 ³		451,112	692,792	19,234,711	14,000,495	4,814,
[[[6]] [[[]] [[[]] [[]] [[]] [[]] [[]]	1996		486,518	776,614	13,618,577	8,029,749	5,149,

- Source: 1) Central Java in Figures 1993(Jawa Tengah Dalam Angkah 1993), Kantor Statistik Jawa Tengah.
 - 2) Central Java in Figures 1994(Jawa Tengah Dalam Angkah 1994), Kantor Statistik Jawa Tengah.
 - 3) Central Java in Figures 1995(Jawa Tengah Dalam Angkah 1995), Kantor Statistik Jawa Tengah.
 - 4) Central Java in Figures 1996(Jawa Tengah Dalam Angkah 1996), Kantor Statistik Jawa Tengah.

Table 2.2.17 INDUSTRIAL SITUATION FOR LARGE AND MEDIUM SCALE MANUFACTURING IN SEMARANG CITY

		·				·	
		Number	Persons	Salaries	Value	Input	Value
Kind of products	Year	of establish-	engaged	& wages	of gross	cost	added
	•	ments	(persons)	(Rp.10 ⁶)	output (Rp.10 ⁶)	/D= 10 ⁶)	
Food, beverages & tobacco	199111		11,417	16,818	340,190	(Rp.10 ⁶)	(Rp.10°
	19921)		11,346	17,330		233,865	106,3
	19931)		11,972	23,005	424,051	300,642	123,4
	1994 ²⁾		11,035		462,763	276,280	186,4
Fextile, waering apparel & leather products	19911)			22,425	513,545	388,440	133,8
products	19921)		15,950	12,427	217,986	163,986	54,5
	1992 1993 ¹⁾		16,300	17,456	258,754	207,854	50,9
	1994 ²⁾		17,458	20,530	245,331	193,452	51,8
Wood & wooden products			17,620	26,868	376,071	256,544	139,9
ri ood & wooden products	19911)		3,838	5,118	267,596	207,504	60,0
	1992 ¹⁾		5,518	8,053	50,582	39,543	11,0
	19931)		4,124	7,056	53,209	40,532	12,6
	1994 ²⁾		4,201	7,621	51,638	36,315	19,1
Paper & paper products	1991 ¹⁾		2,246	3,468	77,096	29,593	47,5
	1992 ¹⁾		2,772	4,437	49,294	23,246	26,0
	1993 ¹⁾		3,038	4,901	47,729	31,528	16,2
	(994 ²⁾		3,084	5,976	55,048	41,226	15,3
Chemical, petroleum, rubber & plastic products	1991 ¹⁾		11,711	22,106	261,107	212,394	48,7
	1992 ¹⁾		13,240	20,550	362,375	264,586	97,7
	1993 ^{t)}	52	14,735	31,282	385,463	311,357	74,1
	1994 ²⁾	55	16,160	30,068	440,514	366,050	92,2
Non metalic mineral products	1991 ¹⁾	9	5,561	5,791	45,199	37,699	7,5
	1992 ¹⁾	9	5,726	7,135	48,261	37,146	11,1
	- 1993 ¹⁾	10	5,643	8,170	50,249	39,156	11,0
	1994 ²⁾	10	5,701	8,051	56,258	41,054	16,4
Basic metal products	19911)	4	986	3,024	138,997	101,975	37,0
	1992 ¹⁾	4	983	3,565	127,516	115,186	12,3
	1993 ¹⁾	4	993	4,192	180,923	145,097	35,8
<u>, a spiral plane di all'ille</u> cas	19942)	4	1,030	4,662	210,019	174,530	35,5
abricated metal products, machinery & transport equipment	1991 ¹⁾	35	4,716	8,072	179,579	132,347	47,2
	1992 ¹⁾	34	5,011	9,043	216,173	160,304	55,8
	1993 ¹⁾	35	5,403	11,958	229,505	185,862	43,5
	1994 ²⁾	35	5,668	14,387	287,302	234,978	57,8
Manufactured products not elsewhere specified	1991 ¹⁾	4	364	516	2,967	2,306	6
	19921)	3	269	453	2,062	1,559	5
	1993 ¹⁾	6	554	943	7,815	6,316	1,4
	1994 ²⁾		599	657	9,085	5,934	3,4
l'otal l	1991 ¹⁾		56,789	77,340	1,530,717	1,121,669	409,57
	19921)		61,165	88,022	1,539,068	1,150,066	389,00
	1993 ¹⁾		63,920	112,037	1,662,987	1,229,580	
	1994 ²⁾		65,098	120,715	1,999,480	1,545,071	433,26 513,87

Source: 1) Statistics of Large and Medium Scale Manufacturing (Statistik Industri Besar - Sedang) for 1992-1993, BAPPEDA Kotamadya
Dati II Semarang in cooperation with Kantor Statistik Kotamadya Semarang.

²⁾ Statistics of Large and Medium Scale Manufacturing (Statistik Industri Besar - Sedang) for 1994-1995, BAPPEDA Kotamadya Dati II Semarang in cooperation with Kantor Statistik Kotamadya Semarang.

Table 2.2.18 ACTUAL WORKING POPULATION BY DISTRICTS AND WORKING GROUP IN SEMARANG CITY

manufacturing scale Large/medium ¹ Company Comp	15 174 174 189 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Sclatan 296	manik r 414	mungkur	3,515		Ses .	Timur	sari.	Supprison 1	Semarang Utara	Semarang Tengah	Scmarang	Ngairyan	Tugu	Total
	13 174 174 189 0 0 0 0 2 8 2 8		414	0	3,515	257			,							
	174 189 189 28 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		356		763		8	491	-	0	1.057	1.018	1.075	2 395	421	11 035
	174 189 0 0 28 28 0 0	٠.	3	2	670	325	8	488	242	4	<u>8</u>	621	529	0.1	æ	4 070
	189 0 0 28 0 0	: .	0	0	0	0	35	0	86	0	6 2	83	869	0	127	2.028
)23 0 0 1 47 47 47 47 90 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	78 0 0		699	2	4,039	582	311	626	340	4	1,833	1,692	2,569	2,505	629	17,133
2)23 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	788 0		105	0	3,248	2,636	450	86E	٥	0	2,659	4	5,354	1,132	82	17.620
al) ²³ 47 47 5 ²³ 0 al) ²³ 80	788	91	4	4	88	: 8	7	133	0	0	176	356	159	0	0	1.055
47 0 0 al) ² 0	88		89	24	28	0	0	¥	0	62	0	272	22	٥	٥	595
) ² 0	0	16	219	11	3,364	2,656	899	998	0	62	2,835	1.069	5,545	1.132	992	19,270
) ² (la			0	0	1,460	822	0	0	0	0	887	0	٥	1,032	0	102
1)2, 80	₹	٠	7.	48	285	9	0	184	38	•	149	366	292	9	31	1,731
	101	٠	0	0	0	0	0	0	0	0	128	0	0	O	٥	8
80	152	•	74	48	1,745	898	0	184	38	0	1,164	386	292	1,042	31	6.241
0	•	297	0	0	1,206	3	0	0	0	0	176	192	624	589	0	3,084
Small/HH(formal) ²³ 0	1	Š	ጸ	33	170	8	=	123	13	0	77	222	142	0	12	1,030
Small/HH(informal) ²³ 0	•	0	0	0	0	0	0	0	0	0	0	0	0	0	٥	O
0	4	353	જ	33	1,376	8	-1	122	13	0	233	444	766	589	11	4.114
٥	•	0	3,847	0	1,568	\$17	510	1,660	0	0	492	1,020	4,391	1,507	32	16.188
Small/HH(formal)** 8	0	80	12	4	723	811	45	165	19	0	24	148	272	7	19	1,954
Small/HH(informal)* 0	0	0	٠ ټ	0		0	0	0	0	0	•	0	0	0	^	0
80	٥	2	3,859	4	2,291	635	552	1,825	19	٥	726	1,168	4,663	1,514	705	18,114
0	c	• :	1,544	0	0	0	٥	0	•	0	0	0	991	3,991	0	5,701
Small/HH(formal)" 0	•	₩.	0	0	0	7	٥	11	0	0	0	0	0	0	0	8
٠,	0	0	0	0	٥	0	٥.	0	0	0	0	0	0		0	0
0	٥		7.	٥	9	7	۰	11	۰		0	0	166	3,991	0	5,730
0	•	0 .	0	0	1,030	0	0	0	o	0	0	0	0	0	٥	1,030
0	0 (•	۰ ۵	0	13	2	0	0	0	0	0	0	•	0	0	23
.	> •	-	3	0	o :	0	0	320	0	*	0	239	106	0	0	779
٥	٥	٥	0	٥	8	٤		320		æ	0	239	8	٥	٥	1.832
•	> ;	> ;	2		ķ	2	٠,	715	5		828	0	386	477	0	5.668
	.	7	ç (71.0	S C	R (¥ (503	\$	0	25	161	S	4	0	1,230
	> ;	٠,	> ;		-	>	5	Þ	ວ	0	270	0	23	0	٥	519
9/	4	21	151	7	2,299	338	77	515	ç	0	1,261	161	\$98	\$25	0	7,417
٠,	>	>	5		6	-	0	0	0	0	٥.	٥	0	0	516	299
	2	314	9 9		1,729	351	76	943	176	45	\$	1.674	9,1	59	113	7.903
	8	₹	0		275	8	0	0	0	8	Φ.	0	0	0	161	2
216	Ş	362	508			431	. 6	243	176	105	967	1.674	1,794	65	820	9.443
•	0	293	,376	-		.547	1,260	2,862	0	0	660'9	2,671	31,976	11,123	2.577	860'59
	<u>13</u>	757	. 149			966	348	2,255	570	6	1,945	3.638	2,647	240	298	19,025
	433	130	88	75	303	0	55	384	86	506	827	564	1,186	0	318	5,171
959	909	1.470	115	386 11	3 244 \$.623	.663	5,501	899	255	8.871	6,873	15,809	11,363		89,294
	Total 0 1 1 1 1 1 1 1 1 1		77 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	77 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0	0	0	0	0	0	0	0	1	1	1	1

2) Information from Kantor Statistik Kosamadya Semarang.

- Largefractium scale manufacturings are more than Rp.56,000,000 in capital, those of small scale (formal) are more than Rp.5,000,000, and those of small scale (informal) are less than Rp.5,000,000 both in their capital. Source: 1) Statistik Industri Berar - Sedang Tahun 1994-1995, BAPPEDA Kotamadya Dati II Semarang in cooperation with Kantor

T - 2 - 22

Table 2.2.19 INFRASTRUCTURE IN INDONESIA

Kind of infrastructure	1991	1992	1993	1994	1995	1996	Annual
Road Length (km)	* *************************************			· · · · · · · · · · · · · · · · · · ·	·		ratio (%
By level of Government	319,370	325,441	344,892	356,878	372,414	385.836	3.85%
State level road	22,239	22,119	23,483	26,351	28,006	28,006	4.72%
Provincial level road	43,245	43,730	46,231	49,693	51,257	54,025	4.55%
Regency level road	253,886	259,592	275,178	280,834	293,151	303,805	3.66%
By type of surface	319,370	325,441	344,892	356,878	372,414	385,836	3,85%
Asphalted	142,053	150,930	159.329	164,866	175,358	181,745	5.05%
Non asphalted	146,157	146,239	155,119	159,220	166,040	173,465	3,49%
Others	31,160	28,272	30,444	32,792	31,016	30,626	-0.35%
Railway Transportation	-						****
Passenger trafic Java and Madura							
Passenger embarked (10 ⁶ persons)	60	71	. 96	114	138	149	19.959
Pax km (10 ⁶ km) North Sumatra	9,281	9,994	11,847	13,166	14,125	15,218	10,409
Passenger embarked (10 ³ persons)	1 211	1.015					
Pax km (10° km)	1,311	1,215	1,209	1,038	1,405	1,442	1.92%
West Sumatra	199	208	195	193	169	221	2.12%
Passenger embarked (10 ³ persons)	8	9	21	. 21	28	30	30.26%
Pax km (10 ⁶ km) South Sumatra	0.3	0.5	1.1	1.1	1.4	1.5	37.97%
Passenger embarked (10 ³ persons)	909	833	970	807	1,092	1,126	4.37%
Pax km (10 ⁶ km)	278	269	336				
Whole Indonesia				274	358	372	6.00%
Passenger embarked (106 persons)	62	73	98	116	141	152	19.49%
Pax km (10 ⁶ km)	9,758	10,472	12,379	13.634	14,653	15,813	10.13%
reight transportation Java and Madura							
Volume of cargo loaded (10 ³ tons)	4,900	5,450	6,069	6,415	6,100	6,734	6.57%
Gross kilometer tonnage (106 tons.km) Sumatra	1,095	1,162	1,302	1,379	1,373	1,435	5.56%
Volume of cargo loaded (10 ³ tons)	8,826	9,538	0.621	0.053	10.00		1
Gross kilometer tonnage (106 tons.km)			9,621	9,953	10,768	11,324	5.11%
Whole Indonesia	2,375	2,616	2,653	2,475	2,799	2,926	4.26%
Volume of cargo loaded (10 ³ tons)	13,726	14,988	15,690	16,368	16,868	18,058	5.64%
Gross kilometer tonnage (106 tons.km)	3,470	3,778	3,955	3,854	4,172	4,361	4.68%
ea Transport Volume of Loaded and Unloaded of Inter an	d Totamation	ani Can Da	Co	(103)			
Loaded	. 111657 1786101	- SCA DOI	ine Cargo	(TO TORS)	210.246		
Unloaded					310,246 208,871	. •	•
Total handling volume					519,117	-	-
ir Transport	·				317,111		
lumber of aircraft					1		
By ownership	835	0.07	07.4		12.12		
Government	320	867	874	895	910	-	2,17%
Fixed wing	276	327 283	326	326	330	•	0.77%
Rotary wing	44	283 44	289 37	289	298		1.94%
	515	540	548	37 569	32	•	-7.65%
Private		369	381	400	580 418	•	3.02%
Fixed wing	348			169	162	•	4.69%
Fixed wing Rotary wing	348 167	171	167		102	• •	-0.76%
Fixed wing Rotary wing	167	171 867	167 875				A +
Fixed wing	167 835	867	875	895	910	-	2.17%
Fixed wing Rotary wing By classification of operation Scheduled operation Non scheduled operation	835 223	867 257	875 274	895 281	910 286	•	6.42%
Pixed wing Rotary wing By classification of operation Scheduled operation Non scheduled operation Supplementary airline operation (air taxi)	167 835	867	875 274 120	895 281 123	910 286 125	•	6.42% -3.81%
Fixed wing Rotary wing By classification of operation Scheduled operation Non scheduled operation Supplementary airline operation (air taxi) Aerial work	167 835 223 146	867 257 126	875 274 120 61	895 281 123 61	910 286 125 62	•	6.42% -3.81% 2.12%
Fixed wing Rotary wing By classification of operation Scheduled operation Non scheduled operation Supplementary airline operation (air taxi)	167 835 223 146 57	867 257 126 60 6	875 274 120 61 18	895 281 123 61 18	910 286 125 62 18	•	6.42% -3.81% 2.12% 31.61%
Fixed wing Rotary wing By classification of operation Scheduled operation Non scheduled operation Supplementary airline operation (air taxi) Aerial work General aviation	167 835 223 146 57 6	867 257 126 60	875 274 120 61	895 281 123 61	910 286 125 62	•	6.42% -3.81% 2.12% 31.61%
Fixed wing Rotary wing By classification of operation Scheduled operation Non scheduled operation Supplementary airline operation (air taxi) Aerial work General aviation ostal Facilities	167 835 223 146 57 6 403	867 257 126 60 6 418	875 274 120 61 18 402	895 281 123 61 18 412	910 286 125 62 18 419	216	6.42% -3.81% 2.12% 31.61% 0.98%
Fixed wing Rotary wing By classification of operation Scheduled operation Non scheduled operation Supplementary airline operation (air taxi) Aerial work General aviation Ostal Facilities eneral post office	167 835 223 146 57 6 403	867 257 126 60 6 418	875 274 120 61 18 402	895 281 123 61 18 412	910 286 125 62 18 419	315	6.42% -3.81% 2.12% 31.61% 0.98% -0.44%
Fixed wing Rotary wing By classification of operation Scheduled operation Non scheduled operation Supplementary airline operation (air taxi) Aerial work	167 835 223 146 57 6 403	867 257 126 60 6 418	875 274 120 61 18 402	895 281 123 61 18 412 317 803	910 286 125 62 18 419	834	6.42% -3.81% 2.12% 31.61% 0.98% -0.44% 3.74%
Fixed wing Rotary wing By classification of operation Scheduled operation Non scheduled operation Supplementary airline operation (air taxi) Aerial work General aviation ostal Facilities eneral post office upplementary post office	167 835 223 146 57 6 403	867 257 126 60 6 418	875 274 120 61 18 402	895 281 123 61 18 412	910 286 125 62 18 419		6.42% -3.81% 2.12% 31.61% 0.98% -0.44%

Table 2.2.20 INFRASTRUCTURE IN CENTRAL JAVA PROVINCE

Kind of infrastructure	1991	1992	1993	1994	1995	Annual increasing ratio (%)
Road Length (km)						
By level of Government	21,674	22,350	22,325	21,702	24,265	2.86%
State level road	1,010	1,010	1,010	1,010	1,206	4.53%
Provincial level road	1,848	1,818	1,848	1,848	2,580	8.70%
Regency level road	16,729	17,396	17,380	18,648	18,311	2.28%
Municipality level road	2,087	2,126	2,087	196	2,168	0.96%
By type of surface	21,674	22,350	23,325	23,702	24,265	2.86%
Asphalted	15,466	16,480	17,199	17,729	10,879	-8.42%
Gravel	3,155	2,964	3,049	2,883	7,909	25.83%
Earth	2,386	2,150	2,418	2,456	3,990	13.72%
Others	667	756	659	634	1,487	22.19%
<u>Bridges</u>	2,133	2,273	1,874	3,025	3,081	9.63%
State level bridges	635	933	751	1,137	1,007	12.22%
Provincial level bridges	1,498	1,340	1,123	1,888	2,074	8.47%
Railway Transportation		erana era				
Passenger trafic (10 ³ persons)	6,993	7,203	7,777	8,497	9,182	7.05%
Freight transportation (10 ³ tons	1,083	1,351	1,351	1,753	1,665	11.35%
Sea Transport						
Number of ships arrived	5,831	6,207	8,045	7,080	8,018	8.29%
Loaded (10 ³ ton)	10,440	11,024	10,917	9,987	10,165	-0.66%
Unloaded (10 ³ ton)	18,280	19,001	19,682	18,444	19,760	1.96%
Air Transport						
Number of aircraft						
Arrival	7,753	10,939	9,489	10,602	11,623	10.65%
Departure	7,757	10,926	10,643	10,635	11,648	10.70%
Number of passenger						
Arrival	250,888	361,391	376,962	471,036	537,905	21.01%
Departure	349,369	363,348	367,902	455,979	520,265	10.47%

Source: Statistical Year Book of Central Java 1992, 1993, 1994, 1995 and 1996, Kantor Statistik Jawa Tengah.

Table 2.2.21 INFRASTRUCTURE IN SEMARANG CITY

Kind of infrastructure	1991	1992	1993	1994	1995	1996	Annual increasing ratio (%)
Road Length (km)							Water Towns
By type of surface	1,012	954	989	1,196	1,013	1,013	0.02%
Asphalted	684	887	867	962	964	967	8.95%
Gravel	229	48	44	11	11	10	-53.51%
Earth	99	19	79	224	15	13	-38.06%
Others	0	0	0	0	24	22	100.00%
tailway Transportation							
Passenger trafic (10 ³ persons)	411	401	534	794	571	492	3.68%
Freight transportation (10 ³ tons)	325	227	522	681	612	613	13.54%
ea Transport (At Tanjung Mas Se	ea Port)						13.5170
Number of ships arrived	3,399	3,661	4,033	3,146	3,531	3,321	-0.46%
Loaded (ton)	944,643	1,059,512	1,081,657	1,046,054	•	1,328,017	7.05%
Unloaded (ton)	3,955,246	4,227,372	4,533,459	4,255,622	4,816,357	2,193,078	-11.13%
<u>ir Transport (At Achmad Yani A</u>	irport in S						11.1570
Number of aircraft							
Arrival	5,618	7,996	7,183	8,396	8,740	9,902	12.00%
Departure	5,621	7,997	7,239	8,418	8,725	9,894	11.97%
Number of passenger						7,054	11.7170
Arrival	156,884	254,886	273,248	350,823	396,804	430,379	22.36%
Departure	254,550	248,647	259,009	333,331	380,063	414,391	10.24%
acilities for Telex and Telegraph				-		(1-1,5) 1	10.2470
Telegraph office	-	1	1			. 1	0.00%
General Telex office		98	104	128	148	183	16.90%
Capacity of telex connection (line)		800	800	1,000	1,000	1,000	5.74%
Actual number of connection	-	650	670	668	671	665	0.57%
elephone Facilities							0.3170
Automatic connection office	_	8	8	10	18	22	28.78%
Capacity (line)	-	67,343	74,187	85,349	115,841	154,801	23.13%
Actual connection (line)		46,716	53,766	73,601	100,294	109,540	, e de de la co
Mannual operation office		2	2	75,001	100,234		23.74%
Capacity (line)	•	800	800	980	0		-100.00%
Actual connection (line)		478	763	993	0		-100.00%
Public telephone facilities (booth)	alia Sala			1,481	1,957	0 1,924	-100.00% 13.98%

Source: Semarang City in Figure (Kotamadya Daerah Tingkat II Semarang Dalam Angka) 1992, 1993, 1994, 1995 and 1996, Kantor Statistik Kotamadya Semarang.

Table 2.2.22 FAMILY ECONOMY IN SEMARANG CITY

		(Ar	nount/HH in Rp.)
Tto	•		Whole
Item			Semarang
Pack Crew ID 4 (D)			(Rp./Month)
Back Ground Data (Based on Table 2.2.3 in this	s Report)		
Population in Semarang as of 1996			1,251,845
Economic active population in Semarang as of 199	96		822,176
Share rate of economic active population in Seman	ang as of 1996		65.68%
Number of Households in Semarang as of 1996			278,372
Number of economic active persons per HH in Ser			1.94
	Whole 1)	Whole 2)	Study area 3)
Item	Semarang	Semarang	in Semarang
	as of 1996	as of 1997	as of Jan. 1998
Average income			810,897
Average expenditure (case A)			1,263,724
Average expenditure (case B)	637,470	687,588	1,284,578
Food	232,196	254,162	308,974
Expenditure for non-food	na di kacamatan kaca Na kacamatan kacamat		337,852
Housing: Average floor area (m ²)			98
Average land area for housing (m ²)		. •	
Capital investment			150
Monthly repayment amount		en e	33,230,769
1) Repayment period of (case A): 25			506 544
2) Repayment period of (case B): 20	202,825 *	216,495 *	506,544
Clothing	38,052	39,871	527,399 41,923
Fuel & light		JJ,071	77,885
Electricity	•		34,038
Water	<u>-</u>		16,474
Transport & communication	67,708	72,820	134,615
Education and recreation	61,894	66,567	127,692
Education	_	- 00,507	111,026
Recreation			16,667
Expenses for medical care and welfare	34,795	37,673	49,615
Laundry & cleaning		2.,075	29,231
Miscellaneous		<u>-</u>	20,385
Amount of losses caused by inundation Source:	· · · · · · · · · · ·		139,744

¹⁾ Survey on Living Expenditure in Central Java Province (Survei Biaya Hidup 1996 di Jawa Tengah), Kanor Statistik Propinsi Jawa Tengah.

²⁾ Modified the above data by using price indexes shown in Table 2.6.1.

³⁾ Made by JICA Study Team in February 1998. (Note)

^{*:} Including the cost for fuel, light and water.

Table 2.2.23 CONSUMER'S PRICE INDEX IN INDONESIA AND SEMARANG CITY

											(Fiscal year $1988/89 = 100$)	88/88 = 100
	Composite co	Composite consumer price indexes of	dexes of		Average			Consumer price indexes	e indexes			Average
Ground Sub erroun	27 municipali	27 municipalities in whole Indonesia	donesia		annual			of Semarang Municipality	unicipality			annual
	at the end	at the end of each calendar year	ryear		increasing		at	at the end of each calendar year	calendar year			increasing
	1993 ¹⁾ 1994 ²⁾	1995	52)	19962)	ratio(%)*	199231	1993*)	199429	199520	199623	1997	ratio(%)••
General		157.42	172.27	185.92	8.62%	134.46	147.52	157.38	171.21	178.82	194.12	7.62%
Food		151.08	171.06	187.38	11.20%	139.08	147.40	164.52	183.93	188,42	218.58	9.46%
Cereals, cassava and their products	120.56	139.97	167.89	179.67	14.22%	125.73	132.28				214.13	11.24%
Meat and its products		180.34	205.96	225.92	11.83%	169.60	174.07		÷		250.21	8.09%
Fresh fish		159.99	173.97	202.09	12.39%	140.74	158.71				280.41	14.78%
Preserved fish		148.80	162.10	188.63	12.04%	129.14	141.63				177.17	6.53%
Eggs, milk and their products	:	154.01	161.12	178.56	6.32%	148.40	151.20				196.16	5.74%
Vegetables		165.16	179.34	204.91	14.31%	122.26	151.53				302.99	19.90%
Beans and nuts	135.26 147	147.51	155.27	173.20	8.59%	157.02	177.38				197.76	4.72%
Fruits		160.47	192.67	211.17	13.05%	154.25	186.26				308.16	14.84%
Spices		150.05	158.25	191.41	10.47%	125.53	125.22				214.11	11.27%
Fats and oils	126.61 140.41	41	179.49	187.04	13.89%	116.49	120.72				166.16	7,36%
Soft drinks	144.12	154.64	176.53	182.01	8.09%	150.21	157.55				229.90	8.88%
Prepared food and other food items		141.17	157.03	167.49	8.28%	140.08	142.68				188.06	6.07%
Housing		170.09	185.12	194.81	7.95%	133.19	147.91	154.93	162.98	171.04	181.40	6.37%
Costs for housing	:	188.30	208.59	220.75	10.06%	131.91	151.03				182.79	6.74%
Fuel, electricity and water		160.14	169.21	175.01	4.63%	134.17	153.24		•		174.29	5.37%
Household equipment		41	143.29	148.17	4.10%	122.48	124.49				170,39	6.83%
Household operation		3	145.96	154.86	5.73%	137.52	143.47				190,12	6.69%
Clothing		53	153.81	164.04	6.52%	124.41	133.57	139.99	148.26	152.02	157.13	4.78%
Clothing for men		.89	156.05	167,09	6.27%	138.09	145.33				167.72	3.96%
Clothing for women		41	151.51	159.12	5.25%	122.40	131.09				149.19	8.0.4
Clothing for children		.31	179.21	193.95	8.58%	122.80	134.62				157.63	5.12%
Personal effects			126.38	134.52	6.42%	107.59	116.87				152.60	7.24%
Miscellancous		1	168.40	184.60	6.99%	133.81	152.19	157.45	171.90	183,99	190.20	7.29%
Medical care			173.67	191.02	11.56%	127.43	142.64				189.60	8.27%
Personal care and cosmetics			156.43	165.43	6.59%	133.96	138.20			•	164.78	4.23%
Education			177.49	196.25	10.63%	125.76	143.74				180.93	7.55%
Recreation and sports			158.29	169.72	7.33%	129.96	147.61				185.11	7.33%
Transportation			165.66	182.64	4.47%	139.13	163.58				200.18	7.55%
Tobacco and alcoholic drinks	171.74 174.91		184.00	202.70	5.68%	149.78	157.99				203.59	6.33%
Source												

1) Statistical Year Book of Indonesia 1995, Biro Pusat Statistik Indonesia.

2) Statistical Year Book of Indonesia 1996, Biro Pusat Statistic Indonesia.

*: Annual average increasing ratio from 1993 to 1996.

³⁾ Economic Indicator of Semarang City (Indikator Ekonomi Kotamadya Semarang) 1992, Kantor Statistik Kotamadya Semarang.
4) Economic Indicator (Indikator Ekonomi) November 1993, Kantor Statistik Kotamadya Semarang.

⁴⁾ Economic Indicator (Indikator Ekonomi) November 1997, Kantor Statistik Kotamadya Semarang.

⁽Note)

^{**:} Annual average increasing ratio from the end of 1992 to November 1997.

Table 2.2.24 EXCHANGE RATE

(Unit : Rp.)

Year/month —	US Dol	lar (Per US\$1	00)	Japa	nese Yen (¥1	(Unit : R 00)
Teal/Hollin —	Buying	Salling	Mid.	Buying	Salling	Mid.
1992			2,062	-		1,658
1993			2,110			1,891
1994			2,200			2,206
1995			2,308			2,246
1996			2,383			2,058
1997			2,971			2,437
January			2,396			1,966
February			2,406			2,001
March			2,419			1,956
April			2,433			1,921
May			2,440			2,095
June			2,450			2,148
July			2,599			2,211
August			3,035			2,546
September			3,275			2,716
October			3,670			3,061
November			3,648			2,867
December			4,876			3,758
Dec. 5	3,910	4,010	3,960	3,013	3,092	3,053
Dec.12	4,712	4,828	4,770	3,626	3,717	3,672
Dec.19	5,212	5,338	5,275	4,036	4,137	4,087
Dec.26	5,434	5,566	5,500	4,169	4,274	4,222
nual average fluctuation	on		-7.57%	10 17 12 17 17 17 17 17 17 17 17 17 17 17 17 17		-8.02%

Source: Bank Indonesia.

Table 2.3.1 RECORD OF IMPROVEMENT WORKS FOR GARANG RIVER/WEST FLOODWAY

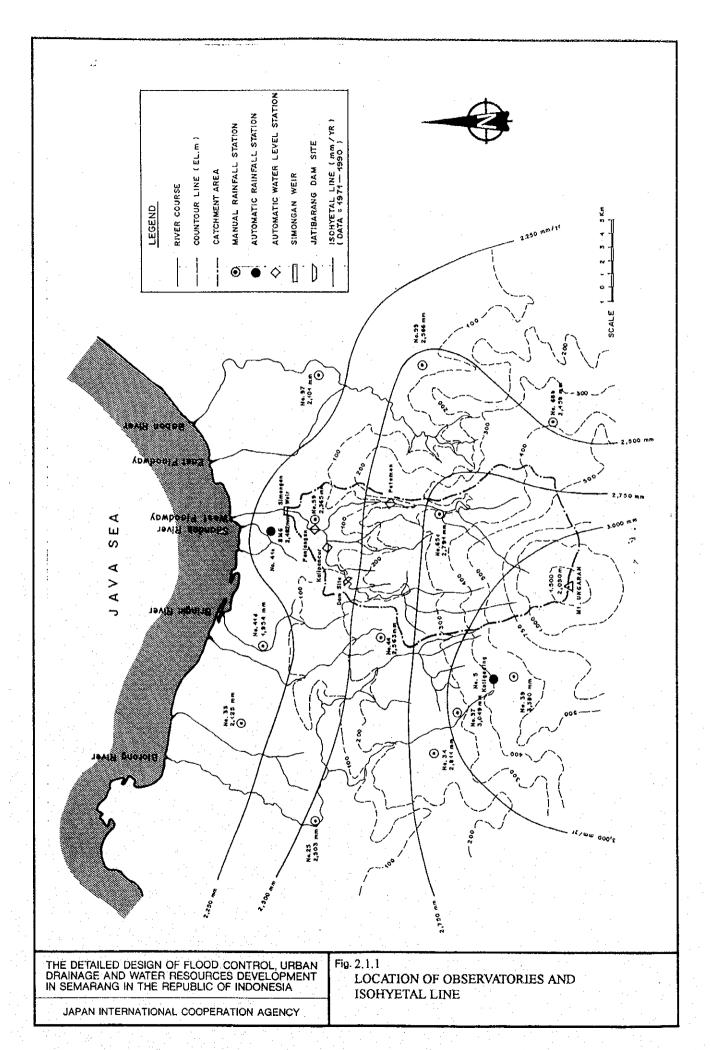
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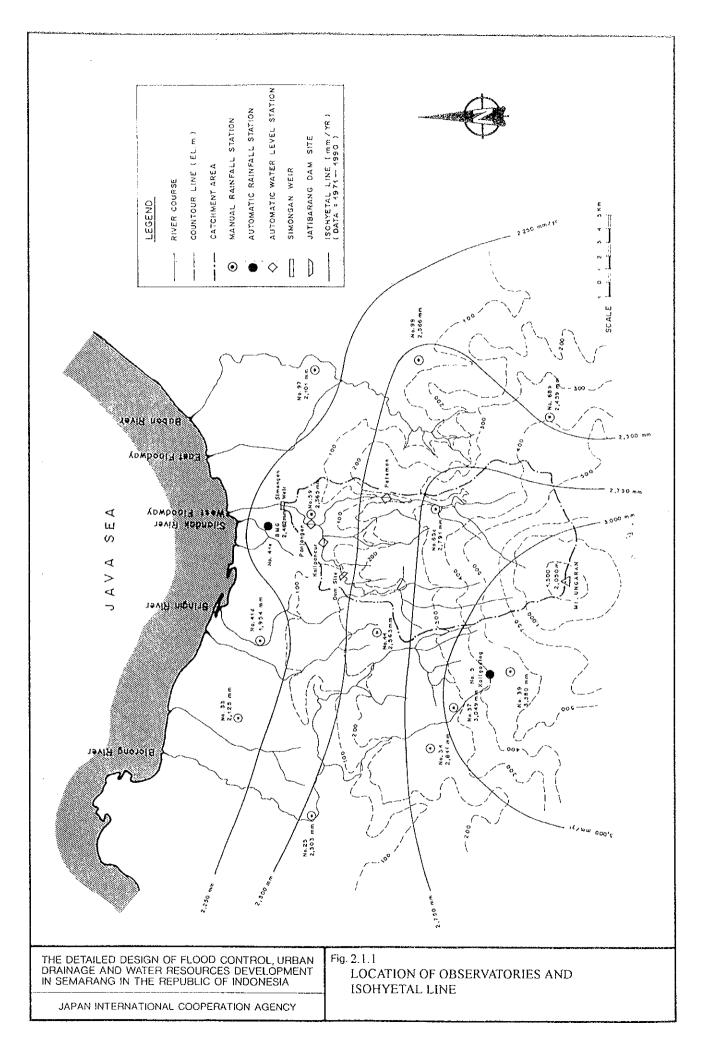
FIGURES

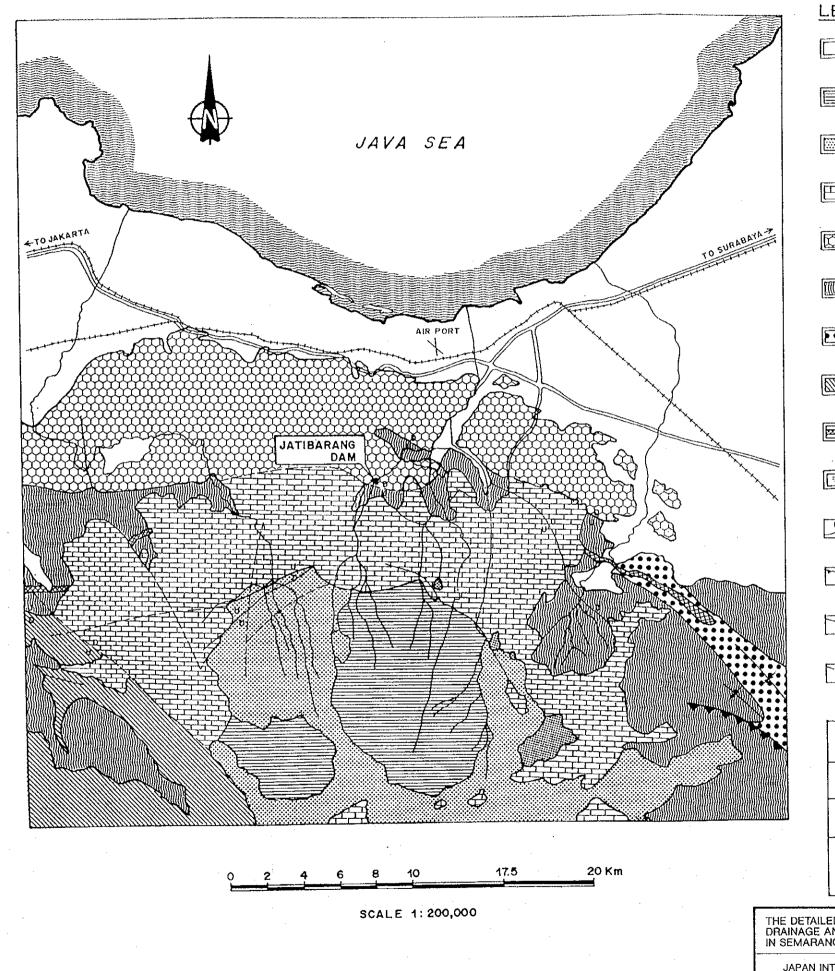
CHAPTER 2

PRESENT CONDITION OF THE STDY AREA

그 호영화 실험하는 이렇게 되는 것이 되면 하는 것이 되는 것이 되는 것이 되는 것이 없다.	
그 생물이 그리는 일 때문 소문 현대는 기반에 가게 되어 만입니다. 만입다는 현대를 만나오는데	
그는 하늘에 마을 만든 이번 다 하늘 듯 하는데 된 생은 하는 하를 하는데 하는데 하는데 하를 하는데	
그 문제한 보는 전 후에 문의 목소리를 발매하는 것 같아. 소리는 사람들은 모든 사람들은 보다 있는 것 같아.	
그 하는 그리가 그렇게 하늘하는데 속이 그림하는 사람은 다른 다른 다른 다른 사람은 한 것은 나를 다음했다.	
는 사람들은 이번 바다 이 분들에 가득하는 사람들이 보세요? 그런 사람들은 사람들이 되는 사람들이 되는 것이 되었다. - 사람들이 사람들은 사람들은 사람들이 가는 보통을 보고 있는 것이 되었다. 이 사람들은 보다는 것은 사람들이 되었다.	
그는 이번 점점 등을 통하면 하면 살림이 살림이 되었다면 하는 사람들이 다른 살림이 되었다.	
그 그 동생이 많아 들어 한 경찰 사람이 되는 데, 그는 그 것이 그는 것이 되는 것이 되는 것이 되는 것이 되었다.	
그는 아이들 마음 아이들은 모든 사람이 되는 것이 없는 것이 없는 것이 없는 것이 없는 것이 없는 것이다.	
그 보는 보고 있다. 김 사는 사는 사람들은 가는 그는 사람들은 그는 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은	
는 사람들이 하는데 가장 있다. 그는 사람들이 되었다. 그들이 가장 하는 사람들이 되었다. 그런 그를 모르는데 하는 것을 받는데 되었다. 사람이 되었다. 	
는 사람들은 사람들이 되었다. 그는 사람들은 사람들이 되었다. 그런 그들이 되었다. 그는 사람들이 되었다. 그는 사람들이 되었다. 그는 사람들이 되었다. - 사람들이 사람들이 가장 그는 사람들이 되었다. 그는 사람들이 되었다. 그는 사람들이 보고 있는 사람들이 되었다. 그는 사람들이 되었다. 그는 사람들이 되었다. 그는 사람들이 되었다. 그는 사람들이 되었다.	
그 이 등 일이 많은 한번 수는 이 사람들이 되었습니다. 그리고 있어요 하는 이 등 이를 다녔습니다. 그리고 있었다.	
는 사람들이 있으면 그렇지 않는데 이번에 가는 보고 싶으면 되었다. 이번에 가는 바람들이 되어 하는데 되었다. 그런데 되었다. 그래는 그 그는데 이번에 가는데 하는데 하는데 하는데 하는데 하는데 하는데 하는데 하는데 하는데 하	
는 사람들이 되고 있다면 하시고 있다. 한 동안 이 사람들은 그리고 한다는 것 같아. 그런 그는 그를 가고 있다는 것 같아. 그는 것 같아. 	







LEGEND:

ALLUVIUM

: COASTAL PLAIN; CLAY AND SAND, STREAM DEPOSITS;

SAND, SILT, GRAVEL AND BOULDER

MIDDLE G. UNGARAN LAHAR AND VOLCANIC ROCK

: AUGITE - OLIVINE BASALT FLOWS

LAVA FLOW OF G. UNGARAN

: AUGITE - HORNBLENDE ANDESITE

NOTOPURO FORMATION : VOLCANIC BRECCIA, LAVA FLOWS, TUFF,

TUFFACEOUS SANDSTONE AND CLAYSTONE

DAMAR FORMATION

: TUFFACEOUS SANDSTONE, CONGLOMERATE,

VOLCANIC BRECCIA AND TUFF

KALIBIUK FORMATION : CLAYSTONE, MARL, SANDSTONE, CONGLOMERATE,

VOLCANIC BRECCIA AND TUFF

1000 BANYAK MEMBER : ALTERNATION OF TUFFACEOUS, SANDSTONE,

CALCAREOUS SILTSTONE, SANDSTONE

AND PEBBLY SANDSTONE

PENYATAN FORMATION : SANDSTONE, BRECCIA, TUFF, CLAYSTONE

AND LAVA FLOW

-----LIMESTONE

INTRUSIVE ROCKS

: AUGITE-HORNBLENDE ANDESITE

AND AUGITE - OLIVINE ANDESITE

NORMAL FAULT

: U = UP

D = DOWN

REVERSE FAULT

FOLD AXIS

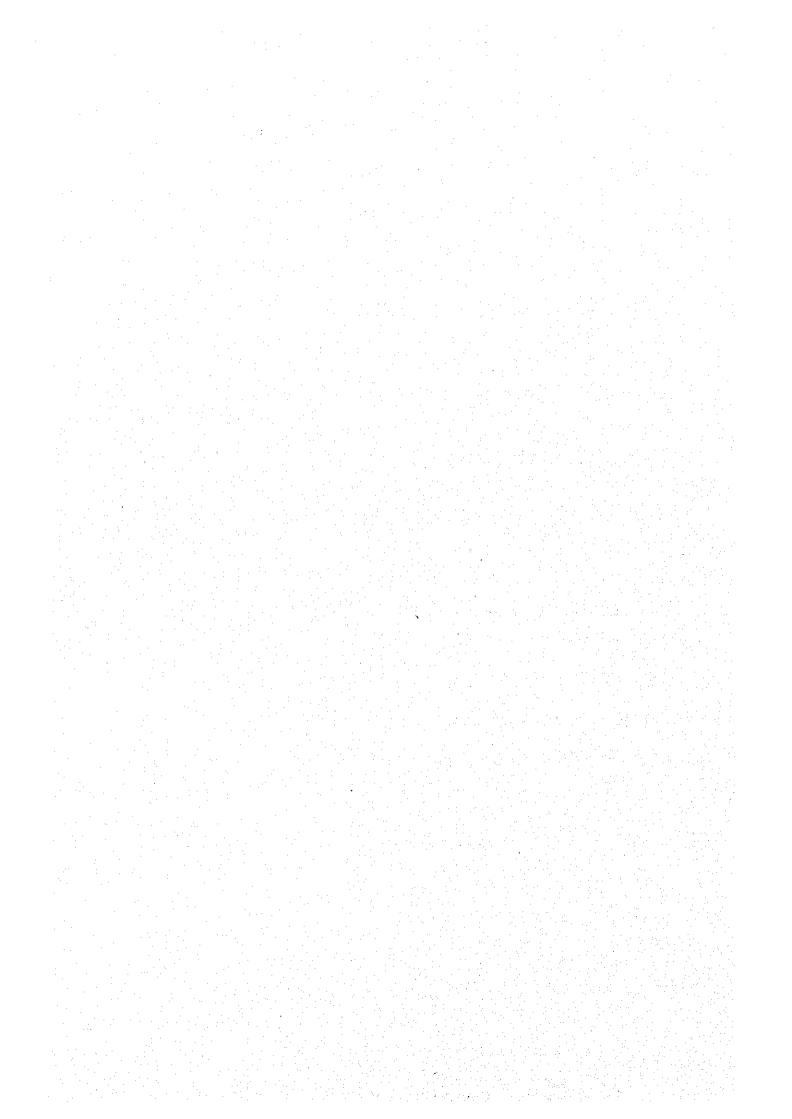
INFERRED FAULT

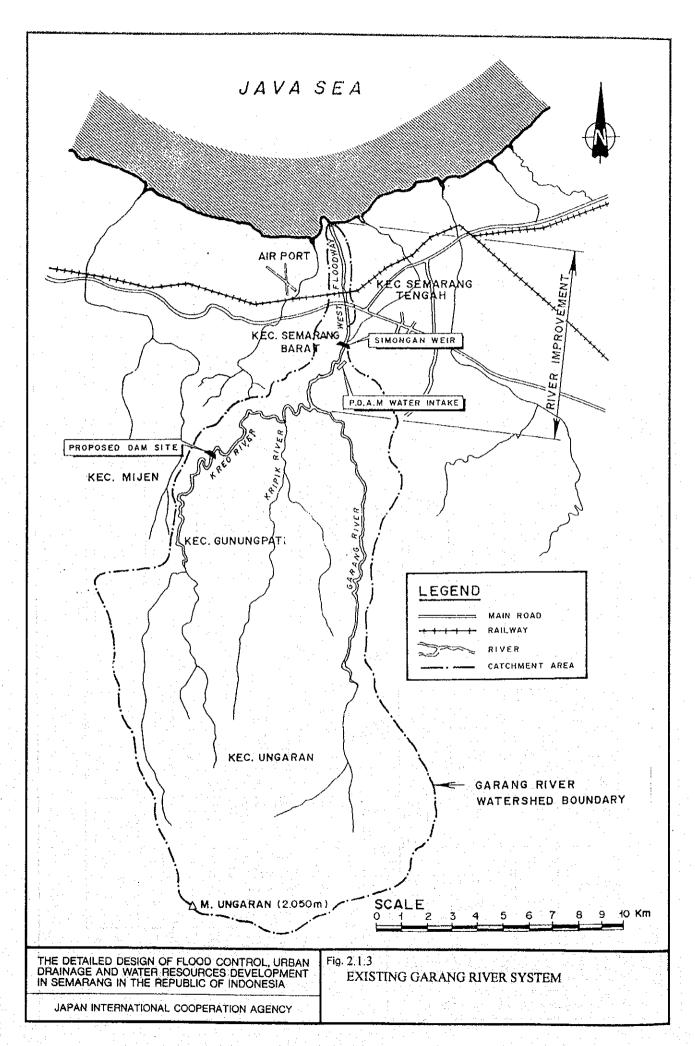
VOLCANIC SEDIMENTARY GEOLOGICAL SURFICIAL DEPOSITS ROCKS AGE ROCKS HOLOCENE QUATERNARY PLEISTOCENE PLIOCENE TERTIARY MIOCENE

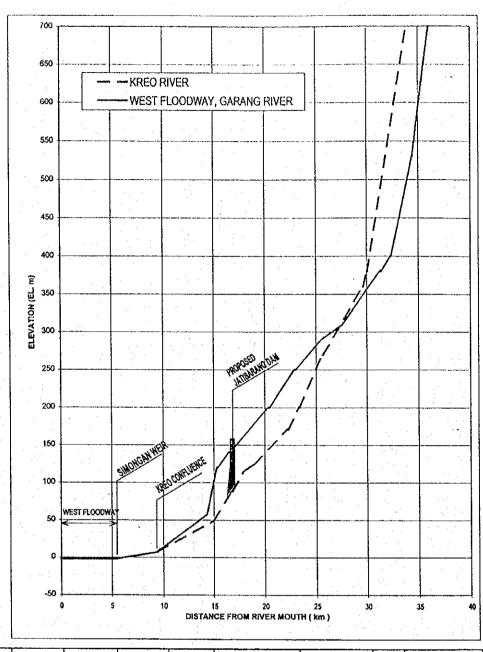
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

JAPAN INTERNATIONAL COOPERATION AGENCY

REGIONAL GEOLOGICAL MAP AROUND THE STUDY AREA





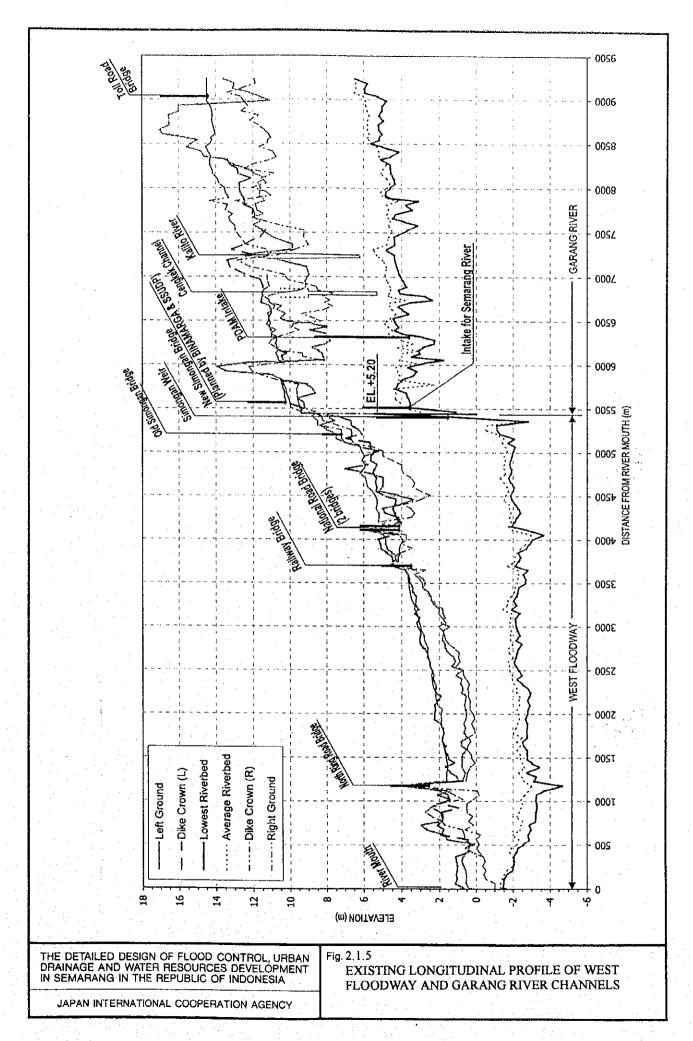


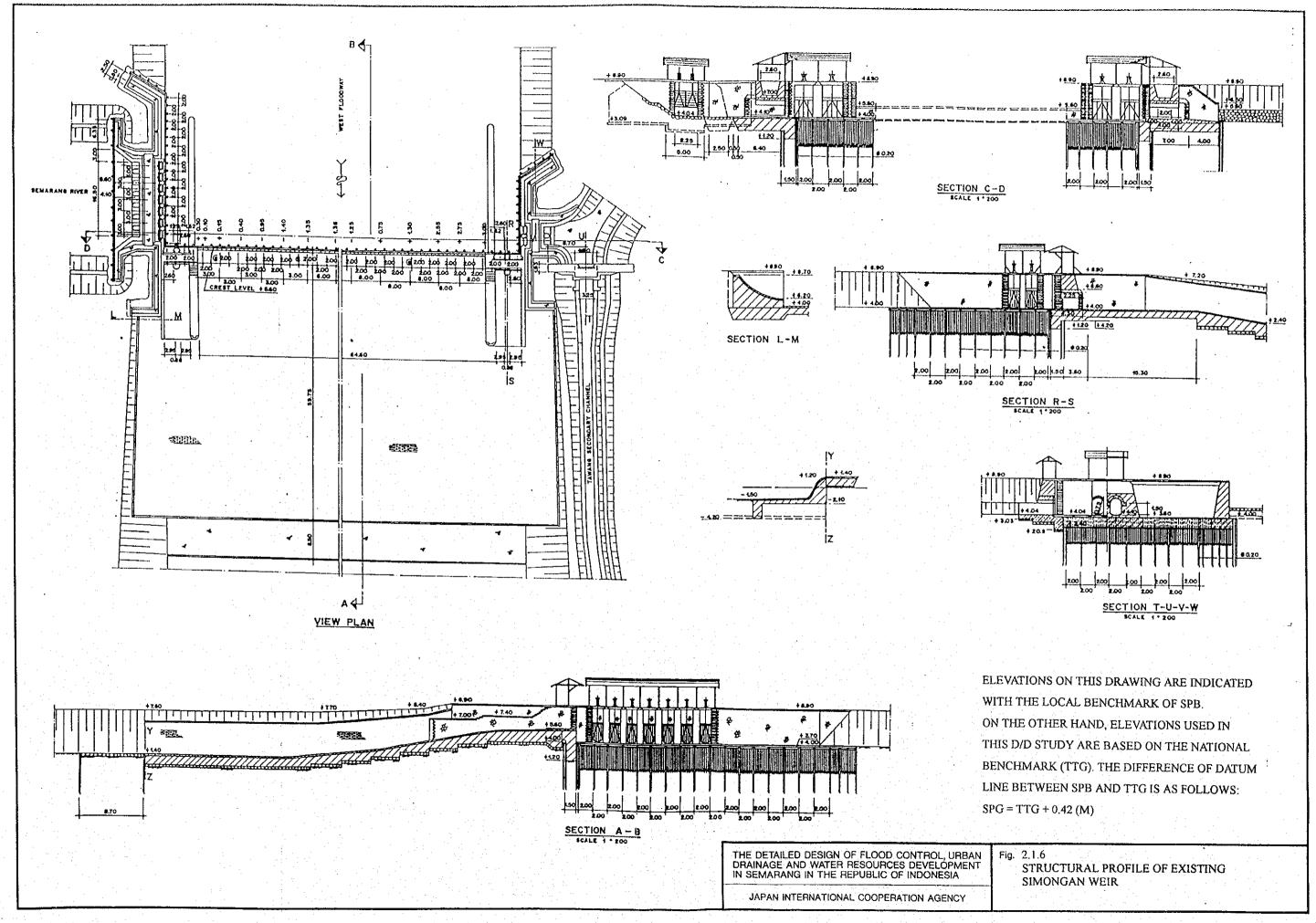
AVERAGE RIVERSED	KREO					1/175	1/50	1/50		0 ;	1/10	T			
GRADIENT	GARANG		Flat ~1/5000	5000 1/2000		1/100			1/50			1/15	1/5		
WIDTH OF	KRE0			-		30 - 100	'	10 - 30	0 :						
RIVER CHANNEL (m)	GARANG		90 - 200 80 - 150		150	3	0 - 60	60- 100	20 - 40		10 - 2	0			
MEANDERING	KREO				Muc				• .		Т				
	GARANG		Straight	Little		Litt	tle Much			luch					
RIVERBED MATERIAL	KREO					Sand, Gravel and Boulder						T			
	GARANG		Silt	Silt to Sand	M 1		Sa	and, Grave	l and Bould	er					
LAND USE	KREO	L				RA .		Agricult	oral Area	1.					
		R				R.A. Agricultural Area						· .			
	GARANG	L	Residential Area	Residential Area		Agricultural Area								1.	
		R	Residential Area	Ind. Area	Reside Area			Agricu	Itural Area						

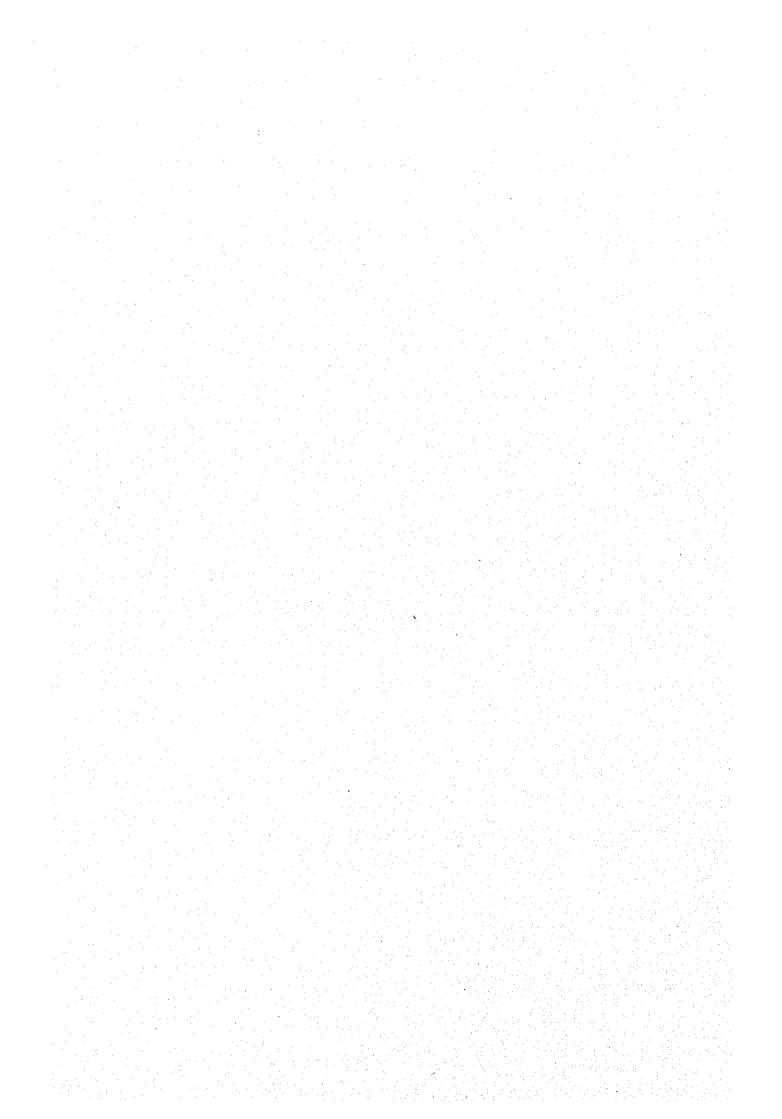
THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

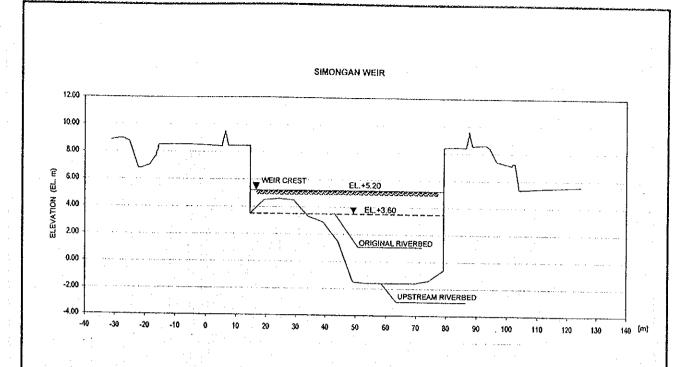
Fig. 2.1.4
RIVER CHARACTERISTICS OF GARANG

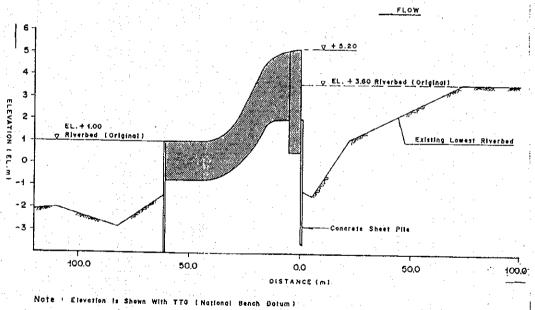
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THE DETAILED DESIGN OF FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA

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Fig. 2.1.7 RIVERBED LOWERING AROUND SIMONGAN WEIR

