to 61,829 kg/d from 108,621 kg/d, and the specific pollution load discharge will reduce to 2.26 kg/ha/d from 3.97 kg/ha/d.

The net pollution load reduction in the respective sanitary areas both with full implementation of the project and industrial pollution control measures is estimated to be 48,244 kg/d for Area A, 152,111 kg/d for Area B and 192,251 kg/d for Area C.

Finally under the above conditions in the whole Study Area the pollution load will be reduced to 141,165 kg/d from that of 545,245 kg/d as BOD.

7.2 Alleviation of River Water Pollution

The alleviation of river water pollution in the year 2010 is simulated assuming the following conditions :

(i) The condition without project
(ii) The conditions with sewerage development only
(iii) The conditions with sewerage development and on-site treatment
(iv) The conditions with sewerage development, on-site treatment and industrial pollution control.

The simulated water quality are presented in Fig. H.41.

7.2.1 Alleviation by Sewerage Development

The treated effluent from the proposed wastewater treatment plants are discharged to rivers and canals of nearby plants as follows:

Central Zone	Jakarta Bay
North West Zone	Cengkareng Drain
South West Zone	Pesanggrahan River
North East Zone	Sunter River
South East Zone	Sunter River
Tanjung Priok Zone	Cakung Drain

Wastewater and BOD load balances of the Study Area in each drainage sub basin under the implementation of sewerage development is shown in Table H.46 (ref. also Fig. H.41).

In addition Table H.47 shows the improved river water quality in comparison to existing and future water quality estimated in Chapter 1 of this Appendix - H.

Station 11 of old Angke river will receive the most effective pollution load reduction rate of 94% and its water quality is improved to 10 mg/l as BOD from that of 155 mg/l by sewerage development because the wastewater in drainage sub-basin 11 is collected by sewerage system. Station 8 and 10 of Cideng river also will achieve high pollution load reduction efficiency of 58% and 67% respectively. The river water quality is improved to 60 mg/l as BOD from 144 mg/l at Station 8 and to 33 mg/l from 99 mg/l at Station 10.

The lowest improvement of 14% is achieved at Station 1 of Ciliwung river from 21 mg/l to 18 mg/l. This is because the original river water quality itself is not deteriorated.

Pollution load reduction of 52% in average is achieved by sewerage development in five (5) river basins and the average river water quality is improve to 44 mg/l as BOD in these drainage sub basins from 91 mg/l of simulated river water quality without Project.

7.2.2 Alleviation by On-site Treatment

In Area B the domestic and commercial and institutional wastewater is proposed to be treated by on-site treatment system to realize an effluent water quality of 60 mg/l. The BOD load balance of implementation of on-site treatment along with sewerage development is shown in Table H.46. The on-site treatment system contributes towards further river water quality improvement to realize an average BOD level of 32 mg/l along with sewerage development, from the average river water quality of 91 mg/l as BOD, that would be conditions under without project. This is also illustrated in Fig. H.41.

A further average BOD reduction in river water quality is attributed to the on-site treatment system. The most effective water quality improvement of 72 mg/l is achieved at drainage sub basin 7 of Cideng River.

7.2.3 Alleviation by Industrial Water Pollution Control

According to the regulation of Governor's Decree No. 1608, the water quality standards of industrial effluents is set at 75 mg/l as BOD. The river water quality assuming this industrial standards is adhered to along with above two (2) projected measures is also shown in Table H.47 (ref. also Fig. H.41). By the year 2010, all industries are expected to conform this regulation consequently, the average river water quality is improved to a BOD level of 29 mg/l (ref. Table H.47).

River water quality of drainage sub basin no. 15 in Sunter River is affected much by industrial wastewater. Hence its water quality improvement is the maximum by industrial pollution control.

Integrated river water pollution alleviation by sewerage development, on-site treatment and industrial pollution control, becomes 67%, of which 52% is contributed by sewerage development, 13% by on-site treatment and 2% by industrial pollution control. The average river water quality is to be improved to 29 mg/l as BOD in future in comparison to 91 mg/l without project.

It is recognized that sewerage development is the most effective measures for the improvement of river water quality in the Study Area.

7.3 Aggravation of River Water Quality by Solid Waste

According to the JICA Study Report on Solid Waste Management System Improvement Project in the City of Jakarta in 1987, the daily solid waste generation rate in the Study Area for the year 1985 was 4,930 ton/day. Of this generated solid waste, a quantity of 2,160 kg/d was managed and disposed by Dinas Kebersihan of DKI Jakarta and a 680 ton/d was treated by self disposal means. While the remaining 1,990 ton/d of solid waste was not managed sanitarily and dumped either adjacent to the generated site or to the nearby waterways as the means of disposal. Hence the river water

quality in the Study Area is affected by the solid waste disposal as well. The magnitude of river water quality aggravation by solid waste disposal is estimated under the following assumptions.

- 600 ton or 30 % of uncollected daily solid waste is dumped to rivers in the Study Area.
- One (1) ton of solid waste exerts a daily BOD of 0.8 g.
- Solid waste decomposes and become stable ten (10) years after dumping.

Then the total BOD demand exerted by one (1) ton of solid waste for the period of ten (10) years is 2,920 g.

The total generated BOD from the 600 ton/d of solid waste dumped to the river is estimated to the 1,752 kg/d.

This amount is equivalent to 2 % of total BOD of 133,215 kg/d discharged to rivers from domestic, commercial and institutional and industrial sources. In regard to river water quality aggravation BOD load due to solid wastes reprents an average stream BOD of 4 mg/l.

Improvement of solid waste management in the Study Area and subsequent elimination of solid waste disposal to rivers is required not only for the alleviation of river water quality, but also for the enhancement of aesthetics of rivers and flood protection.

8. Estimated Cost

8.1 Project Cost

8.1.1 Sewerage Development

Estimated Project Cost of six (6) sewerage development, consisting of direct construction cost, land acquisition cost, engineering and administration costs and physical contingency, amounts to Rp.1,814,500 million at June 1990 prices (Rp.1,930,528 million including house connection cost).

Engineering cost and physical contingency allowance are assumed at 7% and 10% of direct construction cost respectively. And administration cost is assumed at 1.5% of direct construction cost and land acquisition cost.

Estimated project cost of each sewerage zone is given below.

Sewerage Zone	Project Cost(Million Rp.)	
Central	621,378	(673,074)
North West	202,421	(210,737)
South West	232,071	(243,051)
North East	473,013	(496,737)
South East	116,103	(122,259)
Tanjung Priok	169,514,	(184,670)
Total	1,814,500	(1,930,528)

Note : Figures in parentheses include house connection cost.

Break-down of project cost by cost item of each sewerage zone is shown in Table H.48 and further break-down of the direct construction cost is shown in Table H.49.

The unit basic construction costs are presented in Table H.50.

8.1.2 On-site Treatment System

Estimated project cost of on-site treatment system, consisting of direct construction cost, land acquisition cost, engineering and administration costs, and physical contingency, amounts to Rp.88,814 million at June 1990 prices as given below (Rp.1,411,074 million including construction cost of household treatment plant).

Cost Item	Amount (Million Rp.)
A. Direct Const. Cost	63,880
(1) Public Toilet	31,940
(2) Sludge Treatment Plant	2,400
(3) Collection Truck	29,540
B. Land Acquisition Cost	17,162
C. Administration Cost	1,216
D. Engineering Cost 7% of direct const. cost of sludge treatment plant	168
E. Physical Contingency	6,388
Total	88,814
F. Private Treatment Const. Cost	1,322,260
(1) Toilet with Septic Tank	460,080
(2) Toilet with Leaching Pit	6,120
(3) Toilet with Septic Tank with up-flow Filter	856,060
Grand Total	1,411,074

Break-down of construction cost is shown in Table H.51.

8.1.3 Total Project Cost

Total project cost, consisting of sewerage development and on-site treatment system, amounts to Rp.1,903,314 million at June 1990 prices (Rp. 3,341,602 million including construction costs of house connection and household treatment plant).

8.2 Operation and Maintenance Cost

8.2.1 Sewerage System

Operation and maintenance (O/M) cost of six (6) sewerage zones, consisting of collection system and treatment plant, amount to Rp.18,067 million per annum at June 1990 prices.

Break-down of annual O/M cost by sewerage zone is given below.

(Million Rp.)

Sewerage Zone	Collection System	Lift Pump Station	Treatment Plant	Total
Central Zone	191	-	6,698	6,889
North West Zone	49	488	1,285	1,822
South West Zone	62	581	1,382	2,025
North East Zone	104	-	4,113	4,217
South East Zone	30	89	1,208	1,327
Tanjung Priok Zone	45	127	1,615	1,787
Total	481	1,285	16,301	18,067

Break-down of annual O/M cost by cost item is shown in Table H.52.

8.2.2 On-site Treatment System

O/M cost for on-site treatment system, consisting of public toilet, sludge treatment plant, and sludge collection trucks, amounts to Rp.4,595 million per annum as given below.

Cost Item			Amount (Million Rp./Annum)
A. Public Toilet			2,838
(1)	Sanitary Area B	1.2 million Rp. x 1,473	1,768
(2)	Sanitary Area C	1.5 million Rp. x 713	1,070
B. Sludge Treatment Plant			440
(1)	Capacity of 300 m^3/d	20 million Rp. x 2	40
(2)	Capacity of 300 m^3/d	200 million Rp. x 2	400
	(Existing plants at Pulo Gebang and at Duri Kosambi)		
C. Sludge Collection Trucks			1,317
(1)	Personal Expenditure	3.75 million Rp. x 266 units	998
(2)	Fuel Cost	1.2 million Rp. x 266 units	319
	Total		4,595

Table H.1 Catchment Area of Divided Sub-basin

Name of River Basin	No of Sub-Basin	Name of Sub-Basin	Catchment Area (ha)
Ciliwung-Banjir C.		Total	13,538
	1	Upper Ciliwung	3,434
	2	Kali Bata	1,538
	3	Krukut	6,511
	4	Lower Angke	2,055
Grogol		Total	6,436
	5	Upper Grogol	4,969
	6	Lower Grogol	1,467
Cideng		Total	3,745
	7	Upper Cideng	666
	8	Middle Cideng	807
	9	Lower Ciliwung	391
	10	Lower Cideng	1,812
	11	Old Angke	69
Sentiong		Total	2,259
	12	Upper Sentiong	820
	13	Lower Sentiong	1,439
Sunter		Total	12,407
	14	Upper Sunter	10,189
	15	Lower Sunter	2,218
TOTAL			38,385

Table H.2 Existing and Future River Water Quality

Out-put Station

River Name	Station No.	Existing (BOD, mg/l)		Future	Ratio
		Observed (1)	Calculated (2)	Calculated (3)	(3)/(2)
Banjir Canal	1	19	17	21	1.2
Banjir Canal	2	30	35	45	1.3
Krukut River	3	39	40	55	1.4
Banjir Canal	4	47	38	52	1.4
Grogol River	5	67	67	87	1.3
Grogol River	6	95	97	99	1.0
Cideng River	7	165	174	208	1.2
Cideng River	8	114	120	144	1.2
Ciliwung River	9	21	33	46	1.4
Cideng River	10	48	65	99	1.5
Old-Angke River	11	136	142	155	1.1
Sentiong River	12	65	85	102	1.2
Sentiong River	13	125	108	128	1.2
Sunter River	14	28	32	46	1.4
Sunter River	15	12	36	75	2.1
Average		67	73	91	1.2

In-put Station

River Name	Station No. No.	Existing Observed (BOD, mg/l)
Grogol River	A	24
Krukut River	B	22
Mampang River	C	18
Ciliwung River	D	10
Cipinang River	E	11
Sunter River	F	16
Saluran Tarum Bar	G	18
Average		17

Table H.3 Water Flow of Rivers and Canals in Dry Season

Location	Name	Flow (m3/s)	Location	Name	Flow (m3/s)
1	Ciliwung River	6.28	13	Malang River	1.20
2	Ciliwung River	10.76	14	Grogol River	0.67
3	Banjir Canal	13.45	15	Grogol River	0.38
4	Banjir Canal	6.41	16	Muara Karang River	1.64
5	Cipinang River	0.29	17	Ciliwung River	1.02
6	Sunter River	1.03	18	Old Angke River	2.48
7	Sunter River	3.16	19	Sentiong River	0.05
8	Sunter River	5.08	20	Sentiong River	0.49
9	Sunter River	2.91	21	Pesanggarahan River	3.20
10	Krukut River	1.30	22	Cakung River	0.05
11	Krukut River	3.57	23	Buaran River	0.05
12	Mampang River	0.93	24	Jatikramat River	0.13

Data Source : P4L Observed in 1988 ~1989

Table H.4 Observed Specific Discharge in Dry Season

Water Flow Observation Station	Name of River	Observed Water Flow (m3/sec)	Catchment Area (km2)	Specific Discharge (m3/sec/km2)
1	Ciliwung	6.28	284.0	0.022
5	Cipinang	0.28	32.0	0.009
6	Sunter	1.03	28.0	0.037
10	Krukut	2.23	32.0	0.070
21	Pesanggrahan	3.20	81.2	0.039
14	Grogol	0.67	14.8	0.045
22	Cakung	0.05	40.0	0.001
23, 24	Buaran, Jatikramat	0.18	28.0	0.006
	Average			0.029

For Station No. see Fig H.1.3

Table H.5 Estimation of Flow Run-off Coefficient

River Name	(1) Catchment Area (km2)	(2) Discharge Water (m3/sec) (1) * 0.029	(3) Wastewater Discharge (m3/sec)	(4) Up Stream Water Flow (m3/sec)	(5) Down Stream Water Flow (m3/sec)	(6) Difference (5) - (4)	(7) Discharge Flow Run-off Coefficient (6)/((2)+(3)) (%)
Sunter R.	29.01	0.841	0.511	0.29	1.07	0.78	57.7
Sentiong R.	14.39	0.417	0.681	0.05	0.49	0.44	40.1
Cideng, Ciliwung	33.54	0.973	1.923	1.02	2.48	1.46	50.4
Krukut R.	56.06	1.626	0.889	2.23	3.57	1.34	53.2
Average							50.4

Table H.6 Existing and Future Wastewater Discharge and Pollution Load Run-off

No of Sub-Basin	Name of Sub-Basin	Area (km2)	Existing Population (Person)	Existing Wastewater Discharge (m3/Sec.)	Existing Pollution Load Run-off (kg/D)	Future Population (Person)	Future Wastewater Discharge (m3/Sec.)	Future Pollution Load Run-off (kg/D)
1	Upper Ciliwung	34.34	481,210	0.762	11,981	627,218	1.289	20,725
2	Kali Bata	15.38	314,034	0.517	8,612	407,543	0.852	14,012
3	Krukut	65.11	791,548	1.292	20,516	1,124,087	2.384	37,385
4	Lower Angke	20.55	107,215	0.254	6,210	227,406	0.597	12,889
5	Upper Grogol	49.69	944,837	1.604	25,839	1,397,826	2.912	45,167
6	Lower Grogol	14.67	430,397	0.736	12,670	477,426	1.079	18,575
7	Upper Cideng	6.66	161,443	0.269	4,245	209,921	0.453	7,166
8	Middle Cideng	8.07	258,839	0.398	6,029	313,227	0.690	10,834
9	Lower Ciliwung	3.91	127,030	0.221	3,676	151,586	0.394	6,686
10	Lower Cideng	18.12	644,597	1.202	20,319	721,715	1.964	34,053
11	Old Angke	0.69	38,370	0.054	892	40,620	0.081	1,337
12	Upper Sentiong	8.20	254,313	0.424	6,494	321,338	0.735	11,632
13	Lower Sentiong	14.39	453,817	0.681	11,211	490,732	1.006	17,609
14	Upper Sunter	101.89	1,297,488	2.199	36,288	1,810,552	4.104	70,015
15	Lower Sunter	22.18	178,603	0.420	10,055	292,895	0.794	18,154
	Total	383.85	6,483,741	11.03	185,037	8,614,092	19.334	326,239

Table H.7(1) Prospective User Ratio by Sanitation Facility

(Unit : %)

CODE NUMBER	NAME OF KELURAHAN & KECAMATAN	NO FACILITY	PUBLIC TOILET	TOILET WITHOUT TREATMENT	TOILET WITH TREATMENT	TOILET WITH SEWERAGE	OTHERS	TOTAL
1101	CIDENG	28.0	0.0	0.0	61.7	10.3	0.0	100.0
1102	DURI PULO	10.5	0.0	31.5	58.0	0.0	0.0	100.0
1103	PETOJO UTARA	0.0	0.0	0.0	76.5	19.3	4.2	100.0
1104	PETOJO SELATAN	0.0	0.0	0.0	100.0	0.0	0.0	100.0
1105	KEBON KELAPA	0.0	12.9	0.0	47.3	39.8	0.0	100.0
1106	GAMBIR	0.0	0.0	0.0	100.0	0.0	0.0	100.0
1100	GAMBIR	7.6	1.7	9.1	70.4	10.4	0.8	100.0
1201	MANGGA DUA SELATAN	0.0	30.0	0.0	10.6	59.4	0.0	100.0
1202	KARANG ANYAR	0.0	11.4	0.0	86.5	2.1	0.0	100.0
1203	KAR TINI	0.0	45.7	0.0	36.9	17.4	0.0	100.0
1204	PASAR BARU	0.0	45.6	0.0	41.3	13.1	0.0	100.0
1205	GUNUNG SAHARI UTARA	0.0	51.0	0.0	0.0	49.0	0.0	100.0
1200	SAWAH BESAR	0.0	34.4	0.0	34.4	31.2	0.0	100.0
1301	GUNUNG SAHARI SELATAN	0.0	42.4	27.4	15.1	15.1	0.0	100.0
1302	KEMAYORAN	0.0	18.0	0.0	82.0	0.0	0.0	100.0
1303	KEBON KOSONG	0.0	42.5	7.5	0.0	50.0	0.0	100.0
1304	SERDANG	0.0	33.3	0.0	8.3	58.4	0.0	100.0
1305	HARAPAN MULIA	12.3	0.0	0.0	87.7	0.0	0.0	100.0
1306	UTANPANJANG	0.0	0.0	24.7	75.3	0.0	0.0	100.0
1307	CEMPAKA BARU	0.0	12.3	0.0	75.4	12.3	0.0	100.0
1308	SUMURBATU	0.0	0.0	12.3	75.4	12.3	0.0	100.0
1300	KEMAYORAN	1.4	18.7	9.1	52.2	18.6	0.0	100.0
1401	SENEN	0.0	28.4	0.0	68.0	3.6	0.0	100.0
1402	KWITANG	0.0	43.1	0.0	53.5	3.4	0.0	100.0
1403	KENARI	0.0	48.3	9.8	41.9	0.0	0.0	100.0
1404	KRAMAT	0.0	0.0	24.2	66.0	9.8	0.0	100.0
1405	PASEBAN	0.0	28.7	0.0	33.9	34.0	3.4	100.0
1406	BUNGUR	0.0	0.0	7.9	63.7	28.4	0.0	100.0
1400	SENEN	0.0	19.8	8.4	53.9	17.1	0.8	100.0
1501	TANAH TINGGI	0.0	16.5	8.2	75.3	0.0	0.0	100.0
1502	JOHAR BARU	0.0	16.4	8.2	58.9	16.5	0.0	100.0
1503	GALUR	0.0	0.0	9.8	90.2	0.0	0.0	100.0
1504	KAMPUNG RAWA	0.0	0.0	1.6	98.4	0.0	0.0	100.0
1505	RAWA SARI	0.0	32.8	0.0	0.0	65.6	1.6	100.0
1506	CEMPAKA PUTIH BARAT	0.0	12.6	9.7	77.7	0.0	0.0	100.0
1507	CEMPAKA PUTIH TIMUR	0.0	0.0	9.7	90.3	0.0	0.0	100.0
1500	CEMPAKA PUTIH	0.0	12.4	7.3	69.3	10.8	0.2	100.0
1601	KEBON SIRIH	0.0	15.9	3.2	55.3	25.6	0.0	100.0
1602	GONDANGDIA	0.0	0.0	0.0	100.0	0.0	0.0	100.0
1603	CIKINI	0.0	14.8	0.0	50.0	35.2	0.0	100.0
1604	MENTENG	0.0	0.0	18.3	9.7	72.0	0.0	100.0
1605	PEGANGSAAN	0.0	41.9	21.0	37.1	0.0	0.0	100.0
1600	MENTENG	0.0	15.9	12.0	38.6	33.5	0.0	100.0
1701	KAMPUNG BALI	0.0	0.0	0.0	100.0	0.0	0.0	100.0
1702	KEBON KACANG	0.0	0.0	0.0	100.0	0.0	0.0	100.0
1703	KEBON MELATI	0.0	23.0	11.5	50.4	13.0	2.1	100.0
1704	PETAMBURAN	0.0	10.3	13.0	43.7	26.0	7.0	100.0
1705	KARET TENGSIN	0.0	24.1	0.0	51.6	20.8	3.5	100.0
1706	BENDUNGAN HILIR	0.0	30.8	0.0	23.3	13.0	32.9	100.0
1707	GELORA	0.0	10.3	10.3	46.4	26.0	7.0	100.0
1700	TANAH ABANG	0.0	16.6	4.9	57.5	13.7	7.3	100.0
1000	JAKARTA PUSAT	1.1	17.3	7.0	54.5	18.5	1.6	100.0

Note : Prospective User Population Ratio = Ratio of population desiring to use a designated sanitation facility

Source : JICA

Table H.7 (2) Prospective User Ratio by Sanitation Facility

(Unit : %)

CODE NUMBER	NAME OF KELURAHAN & KECAMATAN	NO FACILITY	PUBLIC TOILET	TOILET WITHOUT TREATMENT	TOILET WITH TREATMENT	TOILET WITH SEWERAGE	OTHERS	TOTAL
2201	KAMAL MUARA	0.0	32.8	4.5	62.7	0.0	0.0	100.0
2202	KAPUK MUARA	0.0	16.4	16.4	52.8	10.8	3.6	100.0
2203	PEJAGALAN	0.0	10.7	0.0	68.2	12.1	9.0	100.0
2204	PENJARINGAN	0.0	21.4	0.0	60.0	9.6	9.0	100.0
2205	PLUIT (MANGGA DUA UTARA	0.0	17.1	12.1	25.7	36.1	9.0	100.0
2206	PADEMANGAN BARAT	0.0	26.7	12.4	0.0	60.9	0.0	100.0
2207	PADEMANGAN TIMUR	0.0	22.1	0.0	11.6	66.3	0.0	100.0
2208	ANCOL	0.0	26.0	0.0	72.6	0.0	1.4	100.0
2200	PENJARINGAN	0.0	20.5	4.1	40.3	30.1	5.0	100.0
2301	SUNTER AGUNG	0.0	32.9	8.2	42.6	16.3	0.0	100.0
2302	PAPANGGO	0.0	0.9	14.1	73.6	0.0	11.4	100.0
2303	SUNGAI BAMBU	0.0	1.7	14.1	84.2	0.0	0.0	100.0
2304	KEBON BAWANG	0.0	5.4	0.0	94.6	0.0	0.0	100.0
2305	TANJUNG PRIOK	0.0	28.6	0.0	62.9	8.5	0.0	100.0
2306	SUNTER JAYA	8.2	21.9	0.0	61.7	8.2	0.0	100.0
2307	WARAKAS	0.0	14.1	0.0	84.2	0.0	1.7	100.0
2300	TANJUNG PRIOK	1.3	15.3	4.2	73.1	4.7	1.4	100.0
2401	KOJA UTARA	0.0	37.3	4.8	41.9	9.6	6.4	100.0
2402	LOGOA	0.0	6.3	0.0	81.1	6.3	6.3	100.0
2403	KOJA SELATAN	0.0	18.6	23.4	42.0	9.6	6.4	100.0
2404	TUGU SELATAN	0.0	0.0	0.0	92.6	0.0	7.4	100.0
2405	TUGU UTARA	0.0	0.0	0.0	93.7	0.0	6.3	100.0
2406	RAWA BADAK	0.0	0.0	15.4	84.6	0.0	0.0	100.0
2407	KELAPA GADING BARAT	0.0	0.0	2.4	95.2	0.0	2.4	100.0
2408	KELAPA GADING TIMUR	0.0	0.0	0.0	100.0	0.0	0.0	100.0
2409	PEGANGSAAN DUA	0.0	36.3	0.0	50.0	13.7	0.0	100.0
2400	KOJA	0.0	10.0	6.0	75.8	4.2	4.0	100.0
2501	KALI BARU	0.0	0.0	23.0	77.0	0.0	0.0	100.0
2502	CILINCING	0.0	0.0	0.0	64.1	35.9	0.0	100.0
2503	SEMPER BARAT	0.0	0.0	0.0	74.1	25.9	0.0	100.0
2504	SEMPER TIMUR	0.0	0.0	13.0	74.0	13.0	0.0	100.0
2505	MARUNDA	0.0	0.0	31.0	69.0	0.0	0.0	100.0
2506	SUKAPURA	0.0	0.0	0.0	64.9	35.1	0.0	100.0
2507	ROROTAN	0.0	0.0	35.0	65.0	0.0	0.0	100.0
2500	CILINCING	0.0	0.0	11.4	72.2	16.4	0.0	100.0
2000	JAKARTA UTARA	0.3	12.5	6.0	64.8	13.5	2.9	100.0
3101	SEMANAN	0.0	0.0	0.0	31.8	68.2	0.0	100.0
3102	KAMAL	0.0	20.9	20.9	32.6	25.6	0.0	100.0
3103	TEGAL ALUR	20.9	0.0	20.9	52.7	5.5	0.0	100.0
3104	PEGADUNGAN	0.0	3.3	24.2	51.6	20.9	0.0	100.0
3105	KALI DERES	0.0	9.1	9.1	60.6	21.2	0.0	100.0
3106	CENGKARENG TIMUR	0.0	0.0	64.6	35.4	0.0	0.0	100.0
3107	KAPUK	0.0	32.7	0.0	61.5	0.0	5.8	100.0
3108	KEDAUNG KALI ANGKE	0.0	12.2	12.2	75.6	0.0	0.0	100.0
3109	DURI KOSAMBI	0.0	0.0	0.0	48.2	51.8	0.0	100.0
3110	RAWA BUAYA	0.0	0.0	0.0	58.3	41.7	0.0	100.0
3111	CENGKARENG BARAT	0.0	0.0	32.3	34.6	33.1	0.0	100.0
3100	CENGKARENG	2.5	8.2	17.8	49.7	20.8	1.0	100.0

Note : Prospective User Population Ratio = Ratio of population desiring to use a designated sanitation facility

Source : JICA

Table H.7 (3) Prospective User Ratio by Sanitation Facility

(Unit : %)

CODE NUMBER	NAME OF KELURAHAN & KECAMATAN	NO FACILITY	PUBLIC TOILET	TOILET WITHOUT TREATMENT	TOILET WITH TREATMENT	TOILET WITH SEWERAGE	OTHERS	TOTAL
3201	GROGOL	0.0	50.1	0.0	36.5	13.4	0.0	100.0
3202	JELAMBAR	0.0	58.1	0.0	21.4	20.5	0.0	100.0
3203	TANJUNG DUREN	0.0	30.4	0.0	28.4	41.2	0.0	100.0
3204	TOMANG	0.0	50.0	0.0	22.7	27.3	0.0	100.0
3205	JATI PULO	0.0	35.3	0.0	21.2	43.5	0.0	100.0
3206	KOTA BAMBU	0.0	53.8	13.6	16.3	16.3	0.0	100.0
3207	SLIPI	0.0	27.2	0.0	57.7	10.2	4.9	100.0
3208	PAL MERAH	0.0	0.0	0.0	78.2	21.8	0.0	100.0
3209	KEMANGGISAN	0.0	0.0	0.0	84.9	10.2	4.9	100.0
3210	JELAMBAR BARU	0.0	0.0	0.0	40.9	59.1	0.0	100.0
3211	WIJAYA KUSUMA	0.0	0.0	0.0	39.0	61.0	0.0	100.0
3200	GROGOL PETAMBURAN	0.0	28.6	1.7	39.8	29.2	0.7	100.0
3301	PINANGSIA	0.0	10.6	29.8	19.1	40.5	0.0	100.0
3302	MANGGA BESAR	0.0	10.5	35.4	0.0	54.1	0.0	100.0
3303	TANGKI	0.0	10.5	2.8	10.5	76.2	0.0	100.0
3304	GLODOK	0.0	21.0	2.8	0.0	76.2	0.0	100.0
3305	KEAGUNGAN	0.0	21.0	0.0	27.1	51.9	0.0	100.0
3306	KRUKUT	0.0	27.9	11.1	13.9	47.1	0.0	100.0
3307	TAMAN SARI	0.0	13.8	10.5	59.1	16.6	0.0	100.0
3308	MAHPAR	0.0	8.2	30.6	36.6	24.6	0.0	100.0
3300	TAMAN SARI	0.0	15.6	14.7	23.4	46.3	0.0	100.0
3401	PEKOJAN	23.5	0.0	0.0	63.6	12.9	0.0	100.0
3402	ROA MALAKA	28.5	0.0	0.0	58.6	12.9	0.0	100.0
3403	TAMBORA	0.0	0.0	0.0	86.1	13.9	0.0	100.0
3404	JEMBATAN LIMA	11.7	0.0	0.8	73.8	13.7	0.0	100.0
3405	ANGKE	0.0	0.0	14.8	64.3	20.9	0.0	100.0
3406	JEMBATAN BESI	0.0	0.0	0.0	75.2	24.8	0.0	100.0
3407	KRENDANG	0.0	0.0	36.4	49.2	14.4	0.0	100.0
3408	TANAH SEREAL	0.0	12.5	0.0	70.3	17.2	0.0	100.0
3409	DURI UTARA	11.7	0.0	0.0	62.5	25.8	0.0	100.0
3410	KALI BARU	0.0	0.0	0.0	100.0	0.0	0.0	100.0
3411	DURI SELATAN	0.0	0.0	0.0	82.8	17.2	0.0	100.0
3400	TAMBORA	5.3	1.7	5.2	71.7	16.1	0.0	100.0
3501	KEMBANGAN	0.0	0.0	14.3	70.2	15.5	0.0	100.0
3502	KEDOYA	0.0	24.9	0.0	75.1	0.0	0.0	100.0
3503	DURI KEPA	0.0	0.0	0.0	100.0	0.0	0.0	100.0
3504	MARUYA ILIR	0.0	0.0	15.5	46.3	30.9	7.3	100.0
3505	MARUYA UDIK	0.0	11.6	36.2	52.2	0.0	0.0	100.0
3506	JOGLO	11.6	0.0	23.3	40.5	24.6	0.0	100.0
3507	SRENGSENG	0.0	0.0	11.6	59.5	12.3	16.6	100.0
3508	KEBON JERUK	0.0	0.0	6.4	67.7	0.0	25.9	100.0
3509	SUKABUMI ILIR	0.0	0.0	28.0	59.3	12.7	0.0	100.0
3510	KELAPA DUA	0.0	9.3	0.0	69.9	14.0	6.8	100.0
3511	SUKABUMI UDIK	0.0	0.0	26.7	55.9	17.4	0.0	100.0
3500	KEBON JERUK	0.8	5.4	12.1	67.0	9.6	5.1	100.0
3000	JAKARTA BARAT	1.7	13.5	9.0	51.2	23.3	1.3	100.0
4101	MENTENG DALAM	0.0	20.1	8.1	41.2	28.2	2.4	100.0
4102	TEBET BARAT	0.0	0.0	0.0	100.0	0.0	0.0	100.0
4103	TEBET TIMUR	0.0	21.6	10.1	64.6	3.7	0.0	100.0
4104	KEBON BARU	0.0	32.4	7.3	24.1	36.2	0.0	100.0
4105	BUKIT DURI	0.0	63.1	17.9	19.0	0.0	0.0	100.0
4106	MANGGARAI SELATAN	0.0	16.2	9.3	65.6	8.9	0.0	100.0
4107	MANGGARAI	0.0	5.9	0.0	93.0	1.1	0.0	100.0
4100	TEBET	0.0	24.2	7.8	54.8	12.7	0.5	100.0

Note : Prospective User Population Ratio = Ratio of population desiring to use a designated sanitation facility

Source : JICA

Table H.7 (4) Prospective User Ratio by Sanitation Facility

(Unit : %)

CODE NUMBER	NAME OF KELURAHAN & KECAMATAN	NO FACILITy	PUBLIC TOILET	TOILET WITHOUT TREATMENT	TOILET WITH TREATMENT	TOILET WITH SEWERAGE	OTHERS	TOTAL
4201	SETIA BUDI	0.0	10.0	24.3	45.7	20.0	0.0	100.0
4202	GUNTUR	0.0	14.5	0.0	67.6	17.9	0.0	100.0
4203	KARET	0.0	10.0	11.4	0.0	78.6	0.0	100.0
4204	KARET SEMANGGI	0.0	13.3	13.3	36.5	23.5	13.4	100.0
4205	KARET KUNINGAN	0.0	14.6	0.0	50.8	13.8	20.8	100.0
4206	KUNINGAN TIMUR	0.0	0.0	0.0	82.2	17.8	0.0	100.0
4207	PASAR MANGGIS	0.0	19.4	7.7	34.2	38.7	0.0	100.0
4208	MENTENG ATAS	0.0	0.0	9.6	67.2	23.2	0.0	100.0
4200	SETIA BUDI	0.0	10.3	6.9	46.0	31.8	5.0	100.0
4301	KUNINGAN BARAT	0.0	30.2	0.0	53.9	1.0	14.9	100.0
4302	MAMPANG PRAPATAN	0.0	0.0	40.4	11.6	48.0	0.0	100.0
4303	PELA MAMPANG	0.0	0.0	23.0	53.2	23.8	0.0	100.0
4304	TEGAL PARANG	0.0	25.3	21.7	53.0	0.0	0.0	100.0
4305	BANGKA	0.0	0.0	0.0	87.7	12.3	0.0	100.0
4306	PANCORAN	0.0	0.0	10.4	61.7	27.9	0.0	100.0
4307	DUREN TIGA	0.0	0.0	21.1	77.0	1.9	0.0	100.0
4308	KALI BATA	0.0	9.6	0.0	64.5	25.9	0.0	100.0
4309	CIKOKO	0.0	0.0	15.2	28.3	56.5	0.0	100.0
4310	PENGADEGAN	0.0	0.0	15.2	42.0	42.8	0.0	100.0
4311	RAWAJATI	0.0	19.3	1.2	26.8	52.7	0.0	100.0
4300	MAMPANG PRAPATAN	0.0	6.5	14.3	54.0	24.0	1.2	100.0
4401	PEJATEN BARAT	0.0	20.6	0.0	76.2	0.0	3.2	100.0
4402	PASAR MINGGU	0.0	0.0	27.8	44.4	27.8	0.0	100.0
4403	TANJUNG BARAT	0.0	0.0	0.0	100.0	0.0	0.0	100.0
4404	JATI PADANG	0.0	35.2	17.4	35.1	12.3	0.0	100.0
4405	RAGUNAN	0.0	0.0	0.0	100.0	0.0	0.0	100.0
4406	CILANDAK TIMUR	0.0	13.0	0.0	75.5	0.0	11.5	100.0
4407	JAGAKARSA	0.0	0.0	0.0	100.0	0.0	0.0	100.0
4408	LENTENG AGUNG	0.0	0.0	17.5	43.1	30.7	8.7	100.0
4409	SRENGSENG SAWAH	0.0	0.0	0.0	58.3	41.7	0.0	100.0
4410	CIGANJUR	0.0	0.0	0.0	81.3	18.7	0.0	100.0
4411	KEBAGUSAN	0.0	13.1	0.0	73.8	13.1	0.0	100.0
4412	PEJATEN TIMUR	0.0	0.0	0.0	100.0	0.0	0.0	100.0
4400	PASAR MINGGU	0.0	6.5	5.8	73.6	12.1	2.0	100.0
4501	SENAYAN	0.0	0.0	0.0	88.5	7.6	3.9	100.0
4502	RAWA BARAT	0.0	8.9	0.0	58.9	25.4	6.8	100.0
4503	SELONG	0.0	0.0	10.2	89.8	0.0	0.0	100.0
4504	GUNUNG	0.0	0.0	44.1	55.9	0.0	0.0	100.0
4505	KRAMAT PELA	0.0	0.0	15.7	52.1	32.2	0.0	100.0
4506	MELAWAI	0.0	0.0	12.7	61.1	26.2	0.0	100.0
4507	PETOGOGAN	0.0	0.0	0.0	87.3	12.7	0.0	100.0
4508	PULO	0.0	8.9	12.7	64.9	13.5	0.0	100.0
4509	GANDARIA UTARA	0.0	0.0	0.0	88.1	11.9	0.0	100.0
4510	CIPETE UTARA	0.0	11.9	0.0	88.1	0.0	0.0	100.0
4500	KABAYORAN BARU	0.0	2.9	6.3	78.8	11.0	1.0	100.0
4601	GROGOL UTARA	0.0	0.0	14.9	85.1	0.0	0.0	100.0
4602	GROGOL SELATAN	0.0	0.0	0.0	100.0	0.0	0.0	100.0
4603	CIPULIR	0.0	0.0	0.0	10.1	89.9	0.0	100.0
4604	KEBAYORAN LAMA UTARA	0.0	0.0	0.0	0.0	100.0	0.0	100.0
4605	PONDOK PINANG	0.0	24.3	12.1	20.8	42.8	0.0	100.0
4606	PETUKANGAN UTARA	0.0	0.0	0.0	80.1	19.9	0.0	100.0
4607	PETUKANAGN SELATAN	0.0	0.0	14.8	51.4	33.8	0.0	100.0
4608	ULUJAMI	0.0	0.0	0.0	71.7	15.7	12.6	100.0
4609	PESANGGARAHAN	0.0	18.7	10.4	31.3	39.6	0.0	100.0
4610	BINTARO	0.0	18.7	9.3	40.7	31.3	0.0	100.0
4611	KEBAYORAN LAMA SELATAN	0.0	0.0	0.0	100.0	0.0	0.0	100.0
4600	KEBAYORAN LAMA	0.0	5.5	5.3	53.7	34.7	0.8	100.0

Note : Prospective User Population Ratio = Ratio of population desiring to use a designated sanitation facility

Source : JICA

Table H.7 (5) Prospective User Ratio by Sanitation Facility

(Unit : %)

CODE NUMBER	NAME OF KELURAHAN & KECAMATAN	NO FACILITY	PUBLIC TOILET	TOILET WITHOUT TREATMENT	TOILET WITH TREATMENT	TOILET WITH SEWERAGE	OTHERS	TOTAL
4701	GANDARIA SELATAN	14.3	0.0	0.0	74.7	11.0	0.0	100.0
4702	CIPETE SELATAN	0.0	16.5	0.0	49.9	33.6	0.0	100.0
4703	CILANDAK BARAT	0.0	16.5	8.2	9.8	65.5	0.0	100.0
4704	LEBAK BULUS	0.0	0.0	8.2	37.7	54.1	0.0	100.0
4705	PONDOK LABU	0.0	14.2	0.0	31.8	54.0	0.0	100.0
4700	CILANDAK	2.0	11.3	4.3	33.1	49.3	0.0	100.0
4000	JAKARTA SELATAN	0.2	9.5	7.3	57.6	23.9	1.5	100.0
5101	KEBON MANGGIS	0.0	0.0	25.8	48.4	25.8	0.0	100.0
5102	PAL MERIAM	0.0	0.0	1.7	42.0	56.3	0.0	100.0
5103	KAYUMANIS	0.0	0.0	0.0	50.9	49.1	0.0	100.0
5104	UTAN KAYU UTARA	0.0	0.0	0.0	10.6	89.4	0.0	100.0
5105	PISANGAN BARU	0.0	11.2	0.0	24.1	64.7	0.0	100.0
5106	UTAN KAYU SELATAN	0.0	0.0	22.3	23.0	54.7	0.0	100.0
5100	MATRAMAN	0.0	2.4	7.5	30.7	59.4	0.0	100.0
5201	KAYU PUTIH	0.0	0.0	0.0	50.8	33.2	16.0	100.0
5202	JATI	0.0	0.0	9.9	48.3	28.5	13.3	100.0
5203	PISANGAN TIMUR	0.0	19.9	0.0	57.3	22.8	0.0	100.0
5204	CIPINANG	0.0	30.1	7.9	33.5	28.5	0.0	100.0
5205	PULO GADUNG	0.0	13.3	0.0	35.3	35.4	16.0	100.0
5206	JATINEGARA KAUM	0.0	9.9	0.0	54.0	32.7	3.4	100.0
5207	RAWAMANGUN	0.0	19.9	0.0	38.3	38.4	3.4	100.0
5200	PULO GADUNG	0.0	14.1	2.5	45.5	31.1	6.8	100.0
5301	KAMPUNG MELAYU	0.0	0.0	1.5	36.5	62.0	0.0	100.0
5302	BALI MESTER	0.0	0.0	19.7	80.3	0.0	0.0	100.0
5303	BIDARA CINA	0.0	0.0	18.3	81.7	0.0	0.0	100.0
5304	CIPINANG CEMPEDAK	0.0	0.0	18.3	80.2	1.5	0.0	100.0
5305	RAWA BUNGA	0.0	0.0	0.5	80.5	19.0	0.0	100.0
5306	CIPINANG MUARA	0.0	0.0	1.8	74.0	24.2	0.0	100.0
5307	CIPINANG BESAR UTARA	0.0	0.0	0.0	75.8	24.2	0.0	100.0
5308	PONDOK BAMBU	0.0	9.2	15.8	28.0	28.1	18.9	100.0
5309	KLENDER	0.0	6.9	6.9	60.9	20.5	4.8	100.0
5310	DUREN SAWIT	0.0	9.5	0.0	65.1	25.4	0.0	100.0
5311	MALAKA SARI	0.0	31.7	0.0	46.0	22.3	0.0	100.0
5312	PONDOK KELAPA	0.0	4.8	4.8	85.5	0.0	4.9	100.0
5313	CIPINANG BESAR SELATAN	0.0	0.0	0.0	75.8	24.2	0.0	100.0
5314	MALAKA JAYA	0.0	4.8	0.0	71.3	23.9	0.0	100.0
5315	PONDOK KOPI	0.0	3.2	0.0	56.4	40.4	0.0	100.0
5300	JATINEGARA	0.0	4.5	6.1	66.8	20.5	2.1	100.0
5401	CAWANG	0.0	20.0	19.4	50.6	10.0	0.0	100.0
5402	CIPINANG MELAYU	0.0	6.5	0.0	92.2	0.0	1.3	100.0
5403	CILILITAN	0.0	10.0	23.2	64.8	2.0	0.0	100.0
5404	KRAMAT JATI	0.0	21.2	13.8	48.6	13.8	2.6	100.0
5405	KEBON PALA	0.0	14.0	14.5	71.5	0.0	0.0	100.0
5406	HALIM PERDANA KUSUMA	0.0	13.2	12.3	62.2	12.3	0.0	100.0
5407	BATU AMPAR	0.0	16.7	0.0	83.3	0.0	0.0	100.0
5408	BALE KAMBANG	0.0	16.7	0.0	70.6	12.7	0.0	100.0
5409	MAKASSAR	10.6	10.6	13.8	63.7	0.0	1.3	100.0
5410	KAMPUNG TENGAH	0.0	16.7	0.0	20.1	63.2	0.0	100.0
5411	DUKUH	0.0	18.2	0.0	24.1	57.7	0.0	100.0
5412	PINANG RANTE	0.0	9.1	0.0	85.0	0.0	5.9	100.0
5400	KRAMAT JATI	0.9	14.3	10.7	62.0	11.5	0.6	100.0

Note : Prospective User Population Ratio = Ratio of population desiring to use a designated sanitation facility

Source : JICA

Table H.7 (6) Prospective User Ratio by Sanitation Facility

(Unit : %)

CODE NUMBER	NAME OF KELURAHAN & KECAMATAN	NO FACILITY	PUBLIC TOILET	TOILET WITHOUT TREATMENT	TOILET WITH TREATMENT	TOILET WITH SEWERAGE	OTHERS	TOTAL
5501	LUBANG BUAYA	0.0	33.9	16.1	33.9	16.1	0.0	100.0
5502	GEDONG	0.0	21.7	14.2	21.7	42.4	0.0	100.0
5503	RAMBUTAN	0.0	0.0	0.0	56.2	43.8	0.0	100.0
5504	CEGER	0.0	0.0	16.2	67.6	16.1	0.1	100.0
5505	BAMBU APUS	0.0	0.0	0.2	67.5	32.3	0.0	100.0
5506	SETU	0.0	8.8	0.0	66.1	25.1	0.0	100.0
5507	CIPAYUNG	0.0	0.0	0.0	72.9	27.1	0.0	100.0
5508	SUSUKAN	0.0	0.0	0.0	54.0	46.0	0.0	100.0
5509	CIRACAS	0.0	0.0	27.9	22.7	49.4	0.0	100.0
5510	CIJANTUNG	0.0	31.4	0.0	38.7	29.9	0.0	100.0
5511	BARU	0.0	20.9	0.0	49.2	29.9	0.0	100.0
5512	KALI SARI	0.0	18.5	0.0	49.4	32.1	0.0	100.0
5513	PEKAYON	0.0	18.5	15.5	19.5	46.5	0.0	100.0
5514	KELAPA DUA WETAN	0.0	0.0	0.3	40.6	59.1	0.0	100.0
5515	MUNJUL	0.0	0.0	0.0	69.5	30.5	0.0	100.0
5516	CILANGKAP	0.0	0.0	0.3	36.2	40.5	23.0	100.0
5517	CIBUBUR	0.0	0.0	0.0	36.1	63.9	0.0	100.0
5518	PONDOK RANGON	0.0	0.0	27.6	72.4	0.0	0.0	100.0
5500	PASAR REBO	0.0	10.3	7.7	41.3	40.2	0.5	100.0
5601	RAWA TERATE	0.0	54.5	0.0	45.5	0.0	0.0	100.0
5602	JATI NEGARA	0.0	36.0	0.0	51.2	12.8	0.0	100.0
5603	PENGGILINGAN	0.0	17.5	0.0	66.4	16.1	0.0	100.0
5604	CAKUNG BARAT	0.0	21.2	0.0	66.6	12.2	0.0	100.0
5605	UJUNG MENTENG	0.0	43.6	0.0	44.3	12.1	0.0	100.0
5606	PULO GEBANG	0.0	25.6	0.0	55.0	19.4	0.0	100.0
5607	CAKUNG TIMUR	0.0	31.7	0.0	56.1	12.2	0.0	100.0
5600	CAKUNG	0.0	30.0	0.0	56.6	13.4	0.0	100.0
5000	JAKARTA TIMUR	0.2	11.0	6.2	53.5	27.2	1.9	100.0
10000	JAKARTA	0.7	12.4	7.1	55.8	22.2	1.8	100.0

Note : Prospective User Population Ratio = Ratio of population desiring to use a designated sanitation facility

Source : JICA

Table H.8 Relationships between Population Density/ Income Level and Desire for Sewerage

Regression Equation :

$$y = -46.6210 + 3.363715E\text{-}2 * x_1 + 1.260457E\text{-}3 * x_2$$

where

x_1 = Population density by Kecamatan (population/ha)
x_2 = Average per capita per month income level by Kecamatan (Rp.)
y = Ratio of households desiring to use sewerage facilities in future by Kecamatan (%)

Item	Correlation Coefficient	T-Value
x_1	0.3943	2.1020
x_2	0.5912	3.5911
x_1, x_2	0.7023	4.8336

Note : Kecamatans Cengkareng, Cilandak and Pasar Rebo were excluded in making regression analysis.

Source : JICA

Table H.9 Ratios of Establishments/Institutions Desiring for Sewerage Facilities

Establishments/Institutions	Ratios of Establishments/Institutions Desiring for Sewerage Facilities
1. Shops	25.0%
2. Factory	27.4%
3. Hotel	29.2%
4. Restaurant	20.9%
5. Hospital	24.7%
6. Office	29.4%
7. School	26.2%
8. Religious Institutions	31.1%

Source : JICA

Table H.10 Thinking of Chiefs of Kelurahan Regarding Sewerage Needs

Choices	Percentage of Respondents
1) Sewerage system must be constructed all over the City of Jakarta as early as possible to make it clean, free from water-borne diseases and repelling odours, even if it strains national budget and demands an outlay from home economy.	33.6 %
2) Construction of sewerage system should be started where water pollution is the most severe because full costs cannot be borne at a time. As the nation and the people get richer, it should be expanded to wider areas. Gradual approach is necessary for the resolution of the existing unsanitary conditions.	54.7 %
3) Sewerage system should be constructed only where rich people reside. Average citizens, now already burdened with expensive water and electricity bills, cannot afford to it. Furthermore, they now do not feel an urgent need for it because the lack of it does not directly affect their daily lives.	0.4 %
4) The nation and the people cannot afford to such a luxury as sewerage system. On-site sanitation facilities such as individual toilets with leaching pit, soak away and septic tank, and public toilet can suffice as an alternative for it. The government should promote their installation.	11.3 %

Source : JICA

Table H.11 Estimated Construction and Annual O &M Costs of Area B

	On-Site Treatment System (Million Rupiah)			
Covered Area (ha)	500		2,500	
Population Density (person/ha)	100	300	100	300
Construction Cost				
(1)Septic Tank with Upflow Filter	15,625	46,875	78,125	234,375
(2)Sludge Treatment Plant	960	1,840	2,340	6,240
Total	16,585	48,715	80,465	240,615
O/M Cost per Year				
(1)Septic Tank with Upflow Filter	422	1,266	2,109	6,328
(2)Sludge Treatment Plant	24	52	78	234
Total	446	1,318	2,187	6,562

	Sewerage System (Million Rupiah)			
Covered Area (ha)	500		2,500	
Population Density (person/ha)	100	300	100	300
Construction Cost				
(1) Collection Sewer Line	12,183	25,808	84,678	181,110
(2) Manhole	829	1,560	4,986	10,210
(3) House Connection	2,250	6,750	11,250	33,750
(4) Pump Station	1,651	2,737	4,483	5,740
(5) Treatment Plant	6,126	11,320	16,346	38,942
(6) Land Acquisition	1,056	1,980	3,300	8,415
Total	24,095	50,155	125,043	278,167
O/M Cost per Year				
(1) Collection Pipe & Pump Station	101	197	346	491
(2) Treatment Plant	306	566	817	1,947
Total	407	763	1,163	2,438

Table H.12 Estimated Construction and Annual O &M Costs of Area C

	On-Site Treatment System (Million Rupiah)			
Covered Area (ha)	500		2,500	
Population Density (person/ha)	300	500	300	500
Construction Cost				
(1)Household Package Treatment Plant	75,000	125,000	375,000	625,000
(2)Sludge Treatment Plant	2,880	4,160	10,010	15,860
Total	77,880	129,160	385,010	640,860
O/M Cost per Year				
(1)Household Package Treatment Plant	2,531	4,219	12,656	21,093
(2)Sludge Treatment Plant	96	156	385	650
Total	2,627	4,375	13,041	21,743

	Sewerage System (Million Rupiah)			
Covered Area (ha)	500		2,500	
Population Density (person/ha)	300	500	300	500
Construction Cost				
(1) Collection Sewer Line	25,808	38,710	181,110	263,106
(2) Manhole	1,560	2,333	10,210	14,582
(3) House Connection	6,750	11,250	33,750	56,250
(4) Pump Station	2,737	3,283	5,740	6,942
(5) Treatment Plant	11,760	17,121	41,057	83,361
(6) Land Acquisition	4,158	6,600	16,832	23,100
Total	52,773	79,297	288,699	447,341
O/M Cost per Year				
(1) Collection Pipe & Pump Station	197	242	491	612
(2) Treatment Plant	653	951	2,281	4,631
Total	850	1,193	2,772	5,243

Table H.13 Total Project Cost of Area B in Present Value

(Unit : Billion Rupiah)

Served Area (ha)	500		2500	
Population Density (person/ha)	100	300	100	300
Total Project Cost of On-Site Sanitation System in Present Value	20	58	96	288
Total Project Cost of Sewerage System in Present Value	28	58	137	303

Table H.14 Total Project Cost of Area C in Present Value

(Unit : Billion Rupiah)

Served Area (ha)	500		2500	
Population Density (person/ha)	300	500	300	500
Total Project Cost of On-Site Sanitation System in Present Value	98	163	487	811
Total Project Cost of Sewerage System in Present Value	61	92	317	501

Table H.15 Potential Sites of Wastewater Treatment Plant

No.	Location	Approx. Area (ha)	Ownership	Present Land Use	Future Land Plan (if any)
1	Setia Budi-Guntur	3.7	Government & Private	Reservoir, Wastewater Treatment	Reservoir, Wastewater Treatment & Housing Area
2	Kebon Melati	7	Government & Private	Reservoir	Reservoir & Housing Area
3	Tanjung Duren	7	Government	Reservoir	Reservoir
4	Jalambar	1	Government	Reservoir	
5	Pejagalan	2	Government	Reservoir	Reservoir
6	Penjaringan	80	Government	Reservoir	Reservoir
7	Sunter Agung	28	Government	Open Space	Residential use
8	Sunter Agung	40	Government	Rice field	Reservoir
9	Sunter Jaya	12	Government	Reservoir	Reservoir
10	Kayu Putih	6	Government	Reservoir	Reservoir
11	Rawamangun	10	Government	Cemetery	
12	Semper Timur	70	Government	Open Space, Rice Field	Open Space and Reservoir
13	Marunda	77	Government	Fish Pond	Reservoir
14	Cipinang Besar Selatan	15	Government	Cemetery	
15	Joglo	20	Government	Open Space	
16	Rembangan	24	Government	Open Space Residential use	
17	Kamal Muara	400	Government	Fish Pond	

Table H.16 Area, Population, Population Density of Respective Sewerage Zones in Multiple Small Scale

Sewerage Zone	Area (ha)	Population in 2010 (per)	Popultion Density in 2010 (per/ha)
1	1,032	396,000	383
2	3,237	1,345,000	416
3	2,016	642,000	319
4	2,170	674,000	311
5	1,243	523,000	421
6	1,448	419,000	289
7	2,118	964,000	455
8	1,502	663,000	441
9	1,838	725,000	394
Total	16,604	6,351,000	382

Table H.17 Design Wastewater Discharge by Respective Sewerage Zones

Sewerage Zones	Area (ha)	Design Wastewater Discharge	Daily Ave. (m3/d)	Capacity of Treatment Plant (m3/d)
1	1,032	Sewerage	80,435	
		Infiltration	8,044	
		Total	88,479	88,000
2	3,237	Sewerage	294,784	
		Infiltration	29,478	
		Total	324,262	324,000
3	2,016	Sewerage	122,797	
		Infiltration	12,280	
		Total	135,077	135,000
4	2,170	Sewerage	116,189	
		Infiltration	11,619	
		Total	127,808	128,000
5	1,243	Sewerage	100,365	
		Infiltration	10,037	
		Total	110,402	110,000
6	1,448	Sewerage	81,633	
		Infiltration	8,163	
		Total	89,796	90,000
7	2,118	Sewerage	175,831	
		Infiltration	17,583	
		Total	193,414	193,000
8	1,502	Sewerage	118,583	
		Infiltration	11,858	
		Total	130,441	130,000
9	1,838	Sewerage	135,986	
		Infiltration	13,599	
		Total	149,585	150,000
Total	16,604	Sewerage	1,226,603	
		Infiltration	122,660	
		Total	1,349,263	1,348,000

Table H.18 Length of Sewer Line in Respective Sewerage Zones

(m)

Sewerage Zone No.	Secondary & Tertiary Sewer Line	Main Sewer Line	Trunk Sewer Line	Total
Zone 1	104,600	27,500	4,400	136,500
Zone 2	328,200	86,100	20,700	435,000
Zone 3	204,400	53,600	13,300	271,300
Zone 4	220,000	57,700	12,600	290,300
Zone 5	126,000	33,100	4,700	163,800
Zone 6	146,800	38,500	5,300	190,600
Zone 7	214,800	56,300	15,500	286,600
Zone 8	152,300	40,000	10,700	203,000
Zone 9	186,400	48,900	10,600	245,900
Total	1,683,500	441,700	97,800	2,223,000

Table H.19 Construction Cost of Respective Sewreage Zones

(Billion Rp.)

Sewerage Zones No.	House Connection	Collection Sewer Line	Lift Pump Station	Treatement Plant	Land Acquisition	Total
Zone 1	17.8	70.0	-	24.8	39.6	152.2
Zone 2	60.5	259.5	-	67.2	0.4	387.6
Zone 3	28.9	173.5	1.4	35.0	1.3	240.1
Zone 4	30.3	171.6	5.9	33.5	1.7	243.0
Zone 5	23.5	82.8	1.5	29.7	1.0	138.5
Zone 6	18.9	96.0	-	72.5	0.3	187.7
Zone 7	43.4	178.8	-	114.5	0.7	337.4
Zone 8	29.8	128.3	6.1	34.0	1.4	199.6
Zone 9	32.6	139.2	-	98.5	45.0	315.3
Total	285.7	1,299.7	14.9	509.7	91.4	2,201.4

Table H.20 Annual O&M Cost of Respective Sewerage Zones

(Million Rp.)

Sewerage Zone No.	Collection Sewer Line	Lift Pump Station	Treatement Plant	Total
Zone 1	206	-	1,138	1,344
Zone 2	647	-	3,876	4,523
Zone 3	403	42	1,686	2,131
Zone 4	434	177	1,604	2,215
Zone 5	249	28	1,395	1,672
Zone 6	290	-	2,562	2,852
Zone 7	424	-	4,596	5,020
Zone 8	300	35	1,627	1,962
Zone 9	368	-	3,790	4,158
Total	3,321	282	22,274	25,877

Table H.21 Area, Population and Population Density of Multiple Medium Scale On-land Treatment System

Zone	Area (ha)	Population in 2010(person)	Population Density in 2010(person/ha)
Central Zone	6,107	2,466,000	404
West Zone	4,186	1,316,000	314
East Zone	6,311	2,569,000	407
Total	16,604	6,351,000	382

Table H.22 Area, Population and Land Use of Each Proposed Sewerage Development Zone in 2010

Zone	Area (ha)	Population in 2010(person)	Population Density in 2010(person/ha)	Land Use(%) Residential	Comm.&Inst.	Industry	Others
Central	6,107	2,466,000	404	62	32	2	4
North West	2,016	642,000	318	67	28	1	4
South West	2,170	674,000	311	72	23	1	4
North East	3,566	1,383,000	388	74	21	3	2
South East	1,243	523,000	421	73	23	0	4
Tanjung Priok	1,502	663,000	441	72	17	4	7
Total	16,604	6,351,000	382	70	24	2	4

Table H.23 Design Wastewater Generation by Zone

Sewerage Zone	Domestic (m3/d)	(%)	Comm.&Inst. (m3/d)	(%)	Industrial (m3/d)	(%)	Total (m3/d)
Central	334,875	69.6	142,177	29.6	3,864	0.8	480,916
North West	84,595	75.3	26,436	23.6	1,262	1.1	112,293
South West	88,523	83.3	17,407	16.4	355	0.3	106,285
North East	184,570	77.6	49,551	20.8	3,670	1.6	237,791
South East	69,593	76.1	21,860	23.9	39	0	91,492
Tanjung Priok	83,785	77	23,055	21.2	1,956	1.8	108,796
Total	845,941	74.4	280,486	24.7	11,146	0.9	1,137,573

Table H.24 Comparison of Treatment System

	Adaptability to Overload	Required O & M		Required Cost		Required Sludge Disposal		Required Land Acquisition	Integrated Evaluation
		Facility Maintenance	Operation Technology	Construction	O&M	Amount	Property		
Conventional Activated Sludge	C	C	C	C	C	C	C	A	C
Extended Aeration	B	B	B	B	C	A	A	B	B
Oxidation Ditch	B	B	B	B	B	A	A	C	B
Rotating Biolagical Contactor	B	B	B	C	B	B	A	B	B
Aerated Lagoon	A	A	A	A	A	C	C	C	A

Note A : exellent
B : moderate
C : inferior

Table H.25 Kelurahan with Groundwater Table Shallower than 5 m - Area A

CODE NUMBER	KELURAHAN/ KECAMATAN
2201	KAMAL MUARA
2202	KAPUK MUARA
2205	PLUIT (MANGGA DUA UTARA)
2208	ANCOL
2200	PENJARINGAN
2407	KELAPA GADING BARAT
2409	PEGANGSAAN DUA
2400	KOJA
2502	CILINCING
2505	MARUNDA
2506	SAKAPURA
2507	ROROTAN
2500	CILINCING
2000	NORTH JAKARTA
3101	SEMANAN
3102	KAMAL
3103	TEGAL ALUR
3104	PEGADUNGAN
3109	DURI KOSAMBI
3100	CENGKARENG
3000	WEST JAKARTA
5406	HALIM PERDANA KUSUMA
5412	PINANG RANTE
5400	KRAMAT JATI
5604	CAKUNG BARAT
5605	UJUNG MENTENG
5607	CAKUNG TIMUR
5600	CAKUNG
5000	EAST JAKARTA

Table H.26 Kelurahan with Groundwater Table Deeper than 5 m - Area A

CODE NUMBER	KELURAHAN/ KECAMATAN
4403	TANJUNG BARAT
4405	RAGUNAN
4407	JAGAKARSA
4409	SRENGSENG SAWAH
4410	CIGANJUR
4400	PASAR MINGGU
4704	LEBAK BULUS
4700	CILANDAK
4000	SOUTH JAKARTA
5501	LUBANG BUAYA
5504	CEGER
5505	BAMBU APUS
5506	SETU
5507	CIPAYUNG
5512	KALISARI
5514	KELAPA DUA WETAN
5515	MUNJUL
5516	CILANGKAP
5518	PONDOK RANGON
5500	PASAR REBO
5601	RAWA TERATE
5600	CAKUNG
5000	EAST JAKARTA

Table H.27 Population According to Sanitation Requirement of Each Kelurahan - Shallow Groundwater Zone of Area A

CODE NUMBER	KELURAHAN/ KECAMATAN	Population in 1988	Population According to Sanitation			Population in 2010
			No Improvement	Septic Tank and Mound		
				Pour Flush	Cistern	
2201	KAMAL MUARA	3,972	2,165	14,978	8,457	25,600
2202	KAPUK MUARA	7,508	1,074	32,799	16,927	50,800
2205	PLUIT (MANGGA DUA UTARA)	35,389	20,243	23,145	16,612	60,000
2208	ANCOL	31,858	10,513	27,547	9,540	47,600
2200	PENJARINGAN	78,727	33,995	98,469	51,536	184,000
2407	KELAPA GADING BARAT	19,650	16,958	6,949	20,493	44,400
2409	PEGANGSAAN DUA	22,668	6,211	31,986	12,603	50,800
2400	KOJA	42,318	23,169	38,935	33,096	95,200
2502	CILINCING	23,898	11,232	31,524	15,744	58,500
2505	MARUNDA	7,380	1,041	15,342	7,517	23,900
2506	SAKAPURA	19,608	12,726	20,178	11,696	44,600
2507	ROROTAN	14,092	705	29,564	14,231	44,500
2500	CILINCING	64,978	25,704	96,608	49,188	171,500
2000	NORTH JAKARTA	186,023	82,868	234,012	133,820	450,700
3101	SEMANAN	28,450	23,926	18,189	14,685	56,800
3102	KAMAL	12,762	4,173	12,290	2,137	18,600
3103	TEGAL ALUR	43,847	6,151	56,723	10,926	73,800
3104	PEGADUNGAN	17,295	12,539	23,018	10,543	46,100
3109	DURI KOSAMBI	19,880	15,084	13,754	15,462	44,300
3100	CENGKARENG	122,234	61,873	123,974	53,753	239,600
3000	WEST JAKARTA	122,234	61,873	123,974	53,753	239,600
5406	HALIM PERDANA KUSUMA	47,496	23,321	34,036	39,943	97,300
5412	PINANG RANTE	10,861	7,896	4,908	5,096	17,900
5400	KRAMAT JATI	58,357	31,217	38,944	45,039	115,200
5604	CAKUNG BARAT	29,924	23,341	19,026	13,533	55,900
5605	UJUNG MENTENG	13,332	8,319	14,003	9,778	32,100
5607	CAKUNG TIMUR	27,226	10,945	39,548	25,307	75,800
5600	CAKUNG	70,482	42,605	72,577	48,618	163,800
5000	EAST JAKARTA	128,839	73,822	111,521	93,657	279,000
TOTAL	AREA - SA	437,096	218,563	469,507	281,230	969,300

Table H.28 Population According to Sanitation Requirement of Each Kelurahan - Deep Groundwater Zone of Area A

CODE NUMBER	KELURAHAN/ KECAMATAN	Population in 1988	Population According to Sanitation			Population in 2010
			No improvement	Leaching Pit	Septic Tank	
4403	TANJUNG BARAT	21,914	14,682	13,340	12,178	40,200
4405	RAGUNAN	31,843	22,672	17,114	12,114	51,900
4407	JAGAKARSA	24,009	19,639	10,882	9,179	39,700
4409	SRENGSENG SAWAH	28,667	28,667	9,087	12,446	50,200
4410	CIGANJUR	23,360	13,806	18,618	12,776	45,200
4400	PASAR MINGGU	129,793	99,466	69,041	58,693	227,200
4704	LEBAK BULUS	24,025	15,736	12,458	12,506	40,700
4700	CILANDAK	24,025	15,736	12,458	12,506	40,700
4000	SOUTH JAKARTA	153,818	115,202	81,499	71,199	267,900
5501	LUBANG BUAYA	26,061	19,520	11,166	4,814	35,500
5504	CEGER	7,275	7,260	5,956	6,184	19,400
5505	BAMBU APUS	9,232	9,214	4,265	4,421	17,900
5506	SETU	7,254	5,963	4,744	3,593	14,300
5507	CIPAYUNG	8,491	5,375	6,490	4,835	16,700
5512	KALISARI	16,603	16,603	1,959	5,038	23,600
5514	KELAPA DUA WETAN	17,897	15,427	5,841	4,832	26,100
5515	MUNJUL	9,856	9,856	2,320	3,324	15,500
5516	CILANGKAP	8,338	6,404	7,385	7,811	21,600
5518	PONDOK RANGON	7,304	2,973	9,179	6,948	19,100
5500	PASAR REBO	118,311	98,595	59,305	51,800	209,700
5601	RAWA TERATE	17,175	4,706	22,364	8,030	35,100
5600	CAKUNG	17,175	4,706	22,364	8,030	35,100
5000	EAST JAKARTA	135,486	103,301	81,669	59,830	244,800
TOTAL	AREA-DA	289,304	218,503	163,168	131,029	512,700

Table H.29 Twin Cylindrical Leaching Pits According to Population and Infiltration Capacity

Infiltration Capacity (l/m2/day)	Leaching Pit		Service Population	
			6 People	12 People
10	Diameter	(m)	1.20	1.40
	Depth	(m)	1.50	2.50
	Volume	(m3)	1.70	3.85
15	Diameter	(m)	1.40	1.40
	Depth	(m)	1.00	1.75
	Volume	(m3)	1.54	2.75
20	Diameter	(m)	1.30	1.40
	Depth	(m)	1.00	1.00
	Volume	(m3)	1.33	1.54
25	Diameter	(m)	1.30	1.40
	Depth	(m)	1.00	1.50
	Volume	(m3)	1.33	2.31

Source : Central Java-Small Town Pedoman III - Petunjuk Teknis - April 1989

Table H.30 (1) Quantity of Desludging in Each Kelurahan - Area A

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
2201	KAMAL MUARA	1,792
2202	KAPUK MUARA	3,556
2205	PLUIT (MANGGA DUA UTARA)	4,200
2208	ANCOL	3,332
2200	PENJARINGAN	12,880
2407	KELAPA GADING BARAT	3,108
2409	PEGANGSAAN DUA	3,556
2400	KOJA	6,664
2502	CILINCING	4,095
2505	MARUNDA	1,673
2506	SAKAPURA	3,122
2507	ROROTAN	3,115
2500	CILINCING	12,005
2000	NORTH JAKARTA	31,549
3101	SEMANAN	3,976
3102	KAMAL	1,302
3103	TEGAL ALUR	5,159
3104	PEGADUNGAN	3,227
3109	DURI KOSAMBI	3,101
3100	CENGKARENG	16,765
3000	WEST JAKARTA	16,765
4403	TANJUNG BARAT	1,880
4405	RAGUNAN	2,435
4407	JAGAKARSA	2,017
4409	SRENGSENG SAWAH	2,878
4410	CIGANJUR	1,861
4400	PASAR MINGGU	11,071
4704	LEBAK BULUS	1,977
4700	CILANDAK	1,977
4000	SOUTH JAKARTA	13,048
5406	HALIM PERDANA KUSUMA	6,811
5412	PINANG RANTE	1,253
5400	KRAMAT JATI	8,064

Table H.30 (2) Quantity of Desludging in Each Kelurahan - Area A

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
5501	LUBANG BUAYA	1,703
5504	CEGER	941
5505	BAMBU APUS	954
5506	SETU	669
5507	CIPAYUNG	715
5512	KALISARI	1,515
5514	KELAPA DUA WETAN	1,418
5515	MUNJUL	923
5516	CILANGKAP	995
5518	PONDOK RANGON	694
5500	PASAR REBO	10,528
5601	RAWA TERATE	892
5604	CAKUNG BARAT	3,913
5605	UJUNG MENTENG	2,247
5607	CAKUNG TIMUR	5,306
5600	CAKUNG	12,358
5000	EAST JAKARTA	30,949
TOTAL	AREA-A	92,311

Table H.31(1) Distribution of Public Toilet in Each Kelurahan - Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION WITH NO. FACILITY	NUMBER OF PROPOSED PUBLIC TOILET
2203	PEJAGALAN	6,841	34
2204	PENJARINGAN	34,472	172
2200	PENJARINGAN	41,313	206
2301	SUNTER AGUNG	23,330	117
2306	SUNTER JAYA	8,426	42
2300	TANJUNG PRIOK	31,756	159
2408	KELAPA GADING TIMUR	2,803	14
2400	KOJA	2,803	14
2501	KALI BARU	32,158	161
2504	SEMPER TIMUR	11,562	58
2500	CILINCING	43,720	219
2000	NORTH JAKARTA	119,592	598
3105	KALIDERES	10,820	54
3106	CENGKARENG TIMUR	16,941	85
3107	KAPUK	20,329	102
3108	KEDAUNG-KALI ANGKE	5,727	28
3111	CENGKARENG BARAT	8,528	43
3100	CENGKARENG	62,345	312
3211	WIJAYA KUSUMA	7,359	37
3200	GROGOL PETAMBURAN	7,359	37
3504	MARUYA ILIR	2,094	11
3506	JOGLO	2,465	12
3508	KEBON JERUK	2,485	12
3510	KELAPA DUA	1,647	8
3500	KEBON JERUK	8,691	43
3000	WEST JAKARTA	78,395	392
4302	MAMPANG PRAPATAN	6,551	33
4305	BANGKA	3,641	18
4308	KALI BATA	10,541	53
4309	CIKOKO	2,507	12
4300	MAMPANG PRAPATAN	23,240	116
4401	PEJATEN BARAT	7,180	36
4406	CILANDAK TIMUR	3,127	16
4408	LENTENG AGUNG	8,245	41
4400	PASAR MINGGU	18,552	93

Table H.31(2) Distribution of Public Toilet in Each Kelurahan - Area B

CODE NUMBER	NAME OF KELURAHAN KECAMATAN	POPULATION WITH NO FACILITY	NUMBER OF PROPOSED PUBLIC TOILET
4510	CIPETE UTARA	4,604	23
4500	KEBAYORAN BARU	4,604	23
4702	CIPETE SELATAN	4,063	20
4700	CILANDAK	4,063	20
4000	SOUTH JAKARTA	50,459	252
5309	KLENDER	3,861	19
5300	JATINEGARA	3,861	19
5405	KEBON KELAPA	11,043	55
5409	MAKASAR	10,735	54
5411	DUKUH	2,486	12
5400	KRAMAT JATI	24,264	121
5509	CIRACAS	4,014	20
5510	CIJANTUNG	2,746	14
5513	PEKAYON	4,950	25
5500	PASAR REBO	11,710	59
5603	PENGGILINGAN	6,385	32
5600	CAKUNG	6,385	32
5000	EAST JAKARTA	46,220	231
TOTAL	AREA B - JAKARTA	294,666	1,473

Note : Each public toilet is of type 4 toilet - 3 bath - 1 wash, typically.

Table H.32 (1) Kelurahan with Groundwater Table Shallower than 5 m - Area B

CODE NUMBER	KELURAHAN/ KECAMATAN
1205	GUNUNG SAHARI UTARA
1200	SAWAH BESAR
1301	GUNUNG SAHARI SELATAN
1303	KEBON KOSONG
1300	KEMAYORAN
1000	CENTRAL JAKARTA
2203	PEJAGALAN
2204	PENJARINGAN
2207	PADEMANGAN TIMUR
2200	PENJARINGAN
2301	SUNTER AGUNG
2302	PAPANGGO
2306	SUNTER JAYA
2300	TANJUNG PRIOK
2401	KOJA UTARA
2404	TUGU SELATAN
2408	KELAPA GADING TIMUR
2400	KOJA
2501	KALIBARU
2503	SEMPER BARAT
2504	SEMPER TIMUR
2500	CILINCING
2000	NORTH JAKARTA
3105	KALIDERES
3106	CENGKARENG TIMUR
3107	KAPUK
3108	KEDAUNG KALI ANGKE
3110	RAWA BUAYA
3111	CENGKARENG BARAT
3100	CENGKARENG
3211	WIJAYA KUSUMA
3200	GROGOL PETAMBURAN
3501	KEMBANGAN
3502	KEDOYA
3503	DURI KEPA
3504	MERUYA ILIR
3505	MERUYA UDIK
3506	JOGLO
3507	SRENGSENG
3510	KELAPA DUA
3511	SUKABUMI UDIK
3500	KEBON JERUK
3000	WEST JAKARTA
4301	KUNINGAN BARAT
4302	MAMPANG PRAPATAN
4304	TEGAL PARANG
4305	BANGKA
4308	KALIBATA
4300	MAMPANG PRAPATAN

Table H.32 (2) Kelurahan with Groundwater Table Shallower than 5 m - Area B

CODE NUMBER	KELURAHAN KECAMATAN
4401	PEJATEN BARAT
4402	PASAR MINGGU
4404	JATI PADANG
4400	PASAR MINGGU
4606	PETUKANGAN UTARA
4607	PETUKANGAN SELATAN
4608	ULUJAMI
4609	PESANGGRAHAN
4600	KEBAYORAN LAMA
4701	GANDARIA SELATAN
4700	CILANDAK
4000	SOUTH JAKARTA
5310	DUREN SAWIT
5311	MALAKA SARI
5312	PONDOK KELAPA
5314	MALAKA JAYA
5315	PONDOK KOPI
5300	JATINEGARA
5402	CIPINANG MELAYU
5404	KRAMAT JATI
5409	MAKASAR
5411	DUKUH
5400	KRAMAT JATI
5502	GEDONG
5503	RAMBUTAN
5508	SUSUKAN
5509	CIRACAS
5510	CIJANTUNG
5500	PASAR REBO
5603	PENGGILINGAN
5606	PULO GEBANG
5600	CAKUNG
5000	EAST JAKARTA

Table H.33 Kelurahan with Groundwater Table Deeper than 5 m - Area B

CODE NUMBER	KELURAHAN KECAMATAN
3508	KEBON JERUK
3509	SUKABUMI ILIR
3500	KEBON JERUK
3000	WEST JAKARTA
4306	PANCORAN
4307	DUREN TIGA
4309	CIKOKO
4310	PENGADEGAN
4311	RAWA JATI
4300	MAMPANG PRAPATAN
4406	CILANDAK TIMUR
4408	LENTENG AGUNG
4411	KEBAGUSAN
4412	PEJATEN TIMUR
4400	PASAR MINGGU
4510	CIPETE UTARA
4500	KEBAYORAN BARU
4605	PONDOK PINANG
4610	BINTARO
4600	KEBAYORAN LAMA
4702	CIPETE SELATAN
4703	CILANDAK BARAT
4705	PONDOK LABU
4700	CILANDAK
4000	SOUTH JAKARTA
5206	JATINEGARA KAUM
5200	PULO GADUNG
5308	PONDOK BAMBU
5309	KLENDER
5300	JATINEGARA
5403	CILILITAN
5405	KEBON PALA
5407	BATU AMPAR
5408	BALE KAMBANG
5410	KAMPUNG TENGAH
5400	KRAMAT JATI
5511	BARU
5513	PEKAYON
5517	CIBUBUR
5500	PASAR REBO
5602	JATINEGARA
5600	CAKUNG
5000	EAST JAKARTA

Table H.34(1) Population According to Sanitation Requirement of Each Kelurahan - Shallow Groundwater Zone of Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION IN 1988	POPULATION OF PUBLIC TOILET	POPULATION OF SEPTIC TANK WITH UPFLOW FILTER	POPULATION IN 2010
1205	GUNUNG SAHARI UTARA	6,949	1,373	5,627	7,000
1200	SAWAH BESAR	6,949	1,373	5,627	7,000
1301	GUNUNG SAHARI SELATAN	8,210	0	21,000	21,000
1303	KEBON KOSONG	22,554	7,871	13,129	21,000
1300	KEMAYORAN	30,764	7,871	34,129	42,000
1000	CENTRAL JAKARTA	37,713	9,244	39,756	49,000
2203	PEJAGALAN	63,931	13,681	61,019	74,700
2204	PENJARINGAN	80,543	34,473	58,527	93,000
2207	PADEMANGAN TIMUR	19,883	3,674	29,326	33,000
2200	PENJARINGAN	164,357	51,828	148,872	200,700
2301	SUNTER AGUNG	47,418	23,330	54,870	78,200
2302	PAPANGGO	22,340	7,813	31,287	39,100
2306	SUNTER JAYA	51,065	8,426	63,574	72,000
2300	TANJUNG PRIOK	120,823	39,569	149,731	189,300
2401	KOJA UTARA	47,676	17,783	41,717	59,500
2404	TUGU SELATAN	12,340	0	30,700	30,700
2408	KELAPA GADING TIMUR	36,886	5,607	53,593	59,200
2400	KOJA	96,902	23,390	126,010	149,400
2501	KALIBARU	59,005	32,158	46,942	79,100
2503	SEMPER BARAT	7,558	983	4,117	5,100
2504	SEMPER TIMUR	29,722	11,562	39,438	51,000
2500	CILINCING	96,285	44,703	90,497	135,200
2000	NORTH JAKARTA	478,367	159,490	515,110	674,600
3105	KALIDERES	32,591	17,730	40,070	57,800
3106	CENGKARENG TIMUR	39,306	16,941	50,959	67,900
3107	KAPUK	62,169	44,264	50,136	94,400
3108	KEDAUNG KALI ANGKE	23,567	11,454	22,646	34,100
3110	RAWA BUAYA	27,417	0	47,600	47,600
3111	CENGKARENG BARAT	52,640	8,528	66,772	75,300
3100	CENGKARENG	237,690	98,917	278,183	377,100
3211	WIJAYA KUSUMA	25,116	7,359	26,241	33,600
3200	GROGOL PETAMBURAN	25,116	7,359	26,241	33,600
3501	KEMBANGAN	32,879	0	122,500	122,500
3502	KEDOYA	55,662	0	151,000	151,000
3503	DURI KEPA	40,631	5,038	91,762	96,800
3504	MERUYA ILIR	27,201	2,094	91,106	93,200
3505	MERUYA UDIK	17,892	4,168	51,732	55,900
3506	JOGLO	21,249	7,543	81,857	89,400
3507	SRENGSENG	19,251	4,485	83,215	87,700
3510	KELAPA DUA	17,706	1,647	36,153	37,800
3511	SUKABUMI UDIK	21,373	3,997	39,603	43,600
3500	KEBON JERUK	253,844	28,972	748,928	777,900
3000	WEST JAKARTA	516,650	135,248	1,053,352	1,188,600
4301	KUNINGAN BARAT	23,454	4,714	24,486	29,200
4302	MAMPANG PRAPATAN	25,895	8,494	23,206	31,700
4304	TEGAL PARANG	21,716	2,758	26,742	29,500
4305	BANGKA	23,796	3,641	44,459	48,100
4308	KALIBATA	41,176	10,541	44,059	54,600
4300	MAMPANG PRAPATAN	136,037	30,148	162,952	193,100

Table H.34(2) Population According to Sanitation Requirement of Each Kelurahan - Shallow Groundwater Zone of Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION IN 1988	POPULATION OF PUBLIC TOILET	POPULATION OF SEPTIC TANK WITH UPFLOW FILTER	POPULATION IN 2010
4401	PEJATEN BARAT	34,855	7,180	48,520	55,700
4402	PASAR MINGGU	33,837	0	46,300	46,300
4404	JATI PADANG	28,971	0	34,400	34,400
4400	PASAR MINGGU	97,663	7,180	129,220	136,400
4606	PETUKANGAN UTARA	28,961	6,748	64,252	71,000
4607	PETUKANGAN SELATAN	19,387	0	46,900	46,900
4608	ULUJAMI	26,425	6,157	45,143	51,300
4609	PESANGGRAHAN	26,870	0	54,300	54,300
4600	KEBAYORAN LAMA	101,643	12,905	210,595	223,500
4701	GANDARIA SELATAN	23,172	0	35,300	35,300
4700	CILANDAK	23,172	0	35,300	35,300
4000	SOUTH JAKARTA	358,515	50,233	538,067	588,300
5310	DUREN SAWIT	37,393	1,795	80,305	82,100
5311	MALAKA SARI	38,388	0	52,300	52,300
5312	PONDOK KELAPA	30,776	4,401	85,699	90,100
5314	MALAKA JAYA	49,488	0	59,800	59,800
5315	PONDOK KOPI	30,992	0	44,200	44,200
5300	JATINEGARA	187,037	6,196	322,304	328,500
5402	CIPINANG MELAYU	36,271	7,109	54,991	62,100
5404	KRAMAT JATI	35,308	0	45,300	45,300
5409	MAKASAR	33,759	10,735	39,965	50,700
5411	DUKUH	13,657	2,486	18,614	21,100
5400	KRAMAT JATI	118,995	20,330	158,870	179,200
5502	GEDONG	26,607	3,778	33,022	36,800
5503	RAMBUTAN	22,130	0	27,500	27,500
5508	SUSUKAN	33,814	0	40,700	40,700
5509	CIRACAS	38,225	4,014	49,586	53,600
5510	CIJANTUNG	26,149	2,746	31,354	34,100
5500	PASAR REBO	146,925	10,538	182,162	192,700
5603	PENGGILINGAN	37,337	9,409	69,291	78,700
5606	PULO GEBANG	40,446	0	98,400	98,400
5600	CAKUNG	77,783	9,409	167,691	177,100
5000	EAST JAKARTA	530,740	46,473	831,027	877,500
TOTAL	AREA - SB	1,921,985	400,688	2,977,312	3,378,000

Table H.35 Population According to Sanitation Requirement of Each Kelurahan - Deep Groundwater Zone of Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION IN 1988	POPULATION OF PUBLIC TOILET	POPULATION OF SEPTIC TANK	POPULATION IN 2010
3508	KEBON JERUK	38,833	2,486	75,214	77,700
3509	SUKABUMI ILIR	29,905	0	48,000	48,000
3500	KEBON JERUK	68,738	2,486	123,214	125,700
3000	WEST JAKARTA	68,738	2,486	123,214	125,700
4306	PANCORAN	23,373	0	32,200	32,200
4307	DUREN TIGA	29,509	5,665	43,435	49,100
4309	CIKOKO	13,850	2,507	16,693	19,200
4310	PENGADEGAN	22,127	3,364	25,736	29,100
4311	RAWA JATI	11,911	0	16,000	16,000
4300	MAMPANG PRAPATAN	100,770	11,536	134,064	145,600
4406	CILANDAK TIMUR	24,051	3,127	33,473	36,600
4408	LENTENG AGUNG	37,479	8,245	36,355	44,600
4411	KEBAGUSAN	21,484	2,814	26,886	29,700
4412	PEJATEN TIMUR	50,723	5,428	62,072	67,500
4400	PASAR MINGGU	133,737	19,614	158,786	178,400
4510	CIPETE UTARA	38,689	4,604	47,296	51,900
4500	KEBAYORAN BARU	38,689	4,604	47,296	51,900
4605	PONDOK PINANG	53,372	0	156,000	156,000
4610	BINTARO	34,495	0	99,300	99,300
4600	KEBAYORAN LAMA	87,867	0	255,300	255,300
4702	CIPETE SELATAN	24,624	4,063	38,237	42,300
4703	CILANDAK BARAT	62,095	0	83,700	83,700
4705	PONDOK LABU	30,480	0	41,700	41,700
4700	CILANDAK	117,199	4,063	163,637	167,700
4000	SOUTH JAKARTA	478,262	39,817	759,083	798,900
5206	JATINEGARA KAUM	26,645	5,302	33,398	38,700
5200	PULO GADUNG	26,645	5,302	33,398	38,700
5308	PONDOK BAMBU	50,391	0	102,600	102,600
5309	KLENDER	55,955	7,722	79,678	87,400
5300	JATINEGARA	106,346	7,722	182,278	190,000
5403	CILILITAN	47,436	0	53,800	53,800
5405	KEBON PALA	38,343	11,043	46,557	57,600
5407	BATU AMPAR	31,073	0	39,800	39,800
5408	BALE KAMBANG	15,158	0	20,600	20,600
5410	KAMPUNG TENGAH	28,623	0	36,200	36,200
5400	KRAMAT JATI	160,633	11,043	196,957	208,000
5511	BARU	17,552	0	24,600	24,600
5513	PEKAYON	31,938	4,951	36,649	41,600
5517	CIBUBUR	34,638	0	48,900	48,900
5500	PASAR REBO	84,128	4,951	110,149	115,100
5602	JATINEGARA	43,563	0	112,600	112,600
5600	CAKUNG	43,563	0	112,600	112,600
5000	EAST JAKARTA	421,315	29,018	635,382	664,400
TOTAL	AREA - DB	968,315	71,321	1,517,679	1,589,000

Table H.36(1) Quantity of Desludging in Each Kelurahan - Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
1205	GUNUNG SAHARI UTARA	1,084
1200	SAWAH BESAR	1,084
1301	GUNUNG SAHARI SELATAN	3,507
1303	KEBON KOSONG	3,019
1300	KEMAYORAN	6,526
1000	CENTRAL JAKARTA	7,610
2203	PEJAGALAN	11,627
2204	PENJARINGAN	13,394
2207	PADEMANGAN TIMUR	5,283
2200	PENJARINGAN	30,304
2301	SUNTER AGUNG	11,613
2302	PAPANGGO	6,045
2306	SUNTER JAYA	11,502
2300	TANJUNG PRIOK	29,160
2401	KOJA UTARA	8,834
2404	TUGU SELATAN	5,127
2408	KELAPA GADING TIMUR	9,539
2400	KOJA	23,500
2501	KALIBARU	11,216
2503	SEMPER BARAT	791
2504	SEMPER TIMUR	7,800
2500	CILINCING	19,807
2000	NORTH JAKARTA	102,770
3105	KALIDERES	8,553
3106	CENGKARENG TIMUR	10,289
3107	KAPUK	13,020
3108	KEDAUNG KALI ANGKE	4,985
3110	RAWA BUAYA	7,949
3111	CENGKARENG BARAT	12,046
3100	CENGKARENG	56,843
3211	WIJAYA KUSUMA	5,155
3200	GROGOL PETAMBURAN	5,155

Table H.36(2) Quantity of Desludging in Each Kelurahan -Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
3501	KEMBANGAN	20,458
3502	KEDOYA	25,217
3503	DURI KEPA	15,853
3504	MERUYA ILIR	15,435
3505	MERUYA UDIK	9,077
3506	JOGLO	14,462
3507	SRENGSENG	14,368
3508	KEBON JERUK	5,526
3509	SUKABUMI ILIR	3,360
3510	KELAPA DUA	6,210
3511	SUKABUMI UDIK	7,033
3500	KEBON JERUK	136,999
3000	WEST JAKARTA	198,997
4301	KUNINGAN BARAT	4,584
4302	MAMPANG PRAPATAN	4,767
4304	TEGAL PARANG	4,756
4305	BANGKA	7,807
4306	PANCORAN	2,254
4307	DUREN TIGA	3,635
4308	KALIBATA	8,465
4309	CIKOKO	1,432
4310	PENGADEGAN	2,155
4311	RAWA JATI	1,120
4300	MAMPANG PRAPATAN	40,974
4401	PEJATEN BARAT	8,857
4402	PASAR MINGGU	7,732
4404	JATI PADANG	5,745
4406	CILANDAK TIMUR	2,671
4408	LENTENG AGUNG	3,411
4411	KEBAGUSAN	2,177
4412	PEJATEN TIMUR	4,915
4400	PASAR MINGGU	35,508
4510	CIPETE UTARA	3,794
4500	KEBAYORAN BARU	3,794
4605	PONDOK PINANG	10,920
4606	PETUKANGAN UTARA	11,439
4607	PETUKANGAN SELATAN	7,832
4608	ULUJAMI	8,185
4609	PESANGGRAHAN	9,068
4610	BINTARO	6,951
4600	KEBAYORAN LAMA	54,395

Table H.36(3) Quantity of Desludging in Each Kelurahan -Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
4701	GANDARIA SELATAN	5,895
4702	CIPETE SELATAN	3,103
4703	CILANDAK BARAT	5,859
4705	PONDOK LABU	2,919
4700	CILANDAK	17,776
4000	SOUTH JAKARTA	152,448
5206	JATINEGARA KAUM	2,958
5200	PULO GADUNG	2,958
5308	PONDOK BAMBU	7,189
5309	KLENDER	6,388
5310	DUREN SAWIT	13,599
5311	MALAKA SARI	8,734
5312	PONDOK KELAPA	14,774
5314	MALAKA JAYA	9,987
5315	PONDOK KOPI	7,381
5300	JATINEGARA	68,053
5402	CIPINANG MELAYU	9,930
5403	CILILITAN	3,766
5404	KRAMAT JATI	7,565
5405	KEBON PALA	4,419
5407	BATU AMPAR	2,786
5408	BALE KAMBANG	1,442
5409	MAKASAR	7,801
5410	KAMPUNG TENGAH	2,534
5411	DUKUH	3,370
5400	KRAMAT JATI	43,612
5502	GEDONG	5,911
5503	RAMBUTAN	4,593
5508	SUSUKAN	6,797
5509	CIRACAS	8,702
5510	CIJANTUNG	5,524
5511	BARU	1,722
5513	PEKAYON	3,085
5517	CIBUBUR	3,423
5500	PASAR REBO	39,758
5602	JATINEGARA	7,882
5603	PENGGILINGAN	12,560
5606	PULO GEBANG	16,433
5600	CAKUNG	36,874
5000	EAST JAKARTA	191,255
TOTAL	AREA - B	653,079

Table H.37(1) Distribution of Public Toilet in Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION WITH NO FACILITY	NUMBER OF PROPOSED PUBLIC TOILET
1103	PETOJO UTARA	2,100	4
1105	KEBON KELAPA	2,500	5
1100	GAMBIR	4,600	9
1202	KARANG ANYAR	4,906	10
1204	PASAR BARU	6,034	12
1205 *	GUNUNG SAHARI UTARA	4,416	9
1200	SAWAH BESAR	15,356	31
1302	KEMAYORAN	4,175	8
1303 *	KEBON KOSONG	12,527	25
1304	SERDANG	4,582	9
1305	HARAPAN MULIA	4,078	8
1307	CEMPAKA BARU	5,996	12
1308	SUMUR BARU	2,300	5
1300	KEMAYORAN	33,658	67
1401	SENEN	1,881	4
1402	KWITANG	6,665	13
1403	KENARI	5,418	11
1405	PASEBAN	5,746	11
1400	SENEN	19,710	39
1502	JOHAR BARU	7,452	15
1505	RAWA SARI	9,848	20
1507	CEMPAKA PUTIH TIMUR	2,347	4
1500	CEMPAKA PUTIH	19,647	39
1601	KEBON SIRIH	5,515	11
1603	CIKINI	2,753	6
1604	MENTENG	3,240	6
1605	PEGANGSAAN	3,342	7
1600	MENTENG	14,850	30
1701	KAMPUNG BALI	5,500	11
1703	KEBON MELATI	8,016	16
1705	KARET TENGSIN	13,831	28
1706	BENDUNGAN HILIR	2,700	5
1700	TANAH ABANG	30,047	60
1000	CENTRAL JAKARTA	137,868	275

Table H.37(2) Distribution of Public Toilet in Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION WITH NO FACILITY	NUMBER OF PROPOSED PUBLIC TOILET
2206	PADEMANGAN BARAT	8,632	17
2207 *	PADEMANGAN TIMUR	5,369	11
2200	PENJARINGAN	14,001	28
2402	LAGOA	4,393	9
2403	KOJA SELATAN	7,081	14
2400	KOJA	11,474	23
2503 *	SEMPER BARAT	8,223	17
2500	CILINCING	8,223	17
2000	NORTH JAKARTA	33,698	68
3207	SLIPI	7,618	15
3200	GROGOL PETAMBURAN	7,618	15
3301	PINANGSIA	2,645	5
3302	MANGGA BESAR	1,856	4
3303	TANGKI	2,773	6
3308	MAPHAR	4,200	8
3300	TAMAN SARI	11,474	23
3401	PEKOJAN	18,572	37
3403	TAMBORA	4,051	8
3404	JEMBATAN LIMA	8,130	16
3405	ANGKE	10,466	21
3406	JEMBATAN BESI	5,775	12
3407	KRENDANG	7,696	16
3408	TANAH SEREAL	11,128	22
3410	KALI BARU	5,968	12
3400	TAMBORA	71,786	144
3000	WEST JAKARTA	90,878	182
4101	MENTENG	13,593	27
4106	MANGGARAI SELATAN	8,564	17
4107	MANGGARAI	5,484	11
4100	TEBET	27,641	55
4206	KUNINGAN TIMUR	786	2
4207	PASAR MANGGIS	5,207	10
4200	SETIA BUDI	5,993	12

Table H.37(3) Distribution of Public Toilet in Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION WITH NO FACILITY	NUMBER OF PROPOSED PUBLIC TOILET
4501	SENAYAN	1,603	3
4506	MELAWAI	1,010	2
4508	PULO	4,627	9
4500	KEBAYORAN	7,240	14
4000	SOUTH JAKARTA	40,874	81
5102	PAL MERAH	5,593	11
5106	UTAN KAYU SELATAN	4,727	10
5100	MATRAMAN	10,320	21
5202	JATI	4,094	8
5203	PISANGAN TIMUR	5,720	12
5207	RAWAMANGUN	6,214	12
5200	PULO GADUNG	16,028	32
5301	KAMPUNG MELAYU	3,002	6
5302	BALI MESTER	4,700	10
5303	BIDARA CINA	10,532	21
5304	CIPINANG CEMPEDAK	5,043	10
5305	RAWA BUNGA	3,693	7
5300	JATI NEGARA	26,970	54
5000	EAST JAKARTA	53,318	107
TOTAL	AREA C - JAKARTA	356,636	713

Note : * Indicates Kelurahans assumed to belong to Area C, though they belong to both Area B and Area C.
Each public toilet is of type 10 toilet - 8 bath - 2 wash, typically.

Table H.38(1) Population According to Sanitation Requirement of Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION IN 1988	POPULATION OF PUBLIC TOILET	POPULATION OF SEWERAGE	POPULATION OF ON-SITE	POPULATION IN 2010
1101	CIDENG	27,268	4,700	25,900	0	30,600
1102	DURI PULO	47,817	5,021	13,900	31,279	50,200
1103	PETOJO UTARA	29,602	2,100	31,200	0	33,300
1104	PETOJO SELATAN	33,425	0	6,300	36,300	42,600
1105	KEBON KELAPA	21,582	2,500	21,600	0	24,100
1106	GAMBIR	5,754	0	25,300	0	25,300
1100	GAMBIR	165,448	14,321	124,200	67,579	206,100
1201	MANGGA DUA SELATAN	59,615	0	0	63,600	63,600
1202	KARANG ANYAR	43,034	9,812	0	34,888	44,700
1203	KARTINI	37,644	0	0	39,400	39,400
1204	PASAR BARU	26,350	6,034	23,800	2,766	32,600
1205	GUNUNG SAHARI UTARA	24,819	3,043	13,900	8,057	25,000
1200	SAWAH BESAR	191,462	18,889	37,700	148,711	205,300
1301	GUNUNG SAHARI SELATAN	27,528	0	0	36,000	36,000
1302	KEMAYORAN	30,928	12,526	0	18,474	31,000
1303	KEBON KOSONG	13,341	4,656	0	10,344	15,000
1304	SERDANG	36,658	4,582	10,900	21,518	37,000
1305	HARAPAN MULIA	33,156	8,157	10,400	15,443	34,000
1306	UTANPANJANG	42,889	15,826	6,500	20,674	43,000
1307	CEMPAKA BARU	48,750	11,992	20,700	16,308	49,000
1308	SUMURBATU	25,980	2,300	23,700	0	26,000
1300	KEMAYORAN	259,230	60,039	72,200	138,761	271,000
1401	SENEN	13,247	1,881	7,700	4,419	14,000
1402	KWITANG	23,223	17,882	0	6,818	24,700
1403	KENARI	18,945	9,000	12,900	0	21,900
1404	KRAMAT	39,794	24,593	16,600	907	42,100
1405	PASEBAN	39,901	17,197	0	25,003	42,200
1406	BUNGUR	38,758	0	28,400	10,600	39,000
1400	SENEN	173,868	70,553	65,600	47,747	183,900
1501	TANAH TINGGI	48,227	7,958	23,400	18,842	50,200
1502	JOHAR BARU	45,442	7,453	29,400	12,447	49,300
1503	GALUR	23,790	0	0	24,700	24,700
1504	KAMPUNG RAWA	23,327	0	0	24,300	24,300
1505	RAWA SARI	30,023	9,848	9,200	14,852	33,900
1506	CEMPAKA PUTIH BARAT	46,901	16,368	20,800	13,732	50,900
1507	CEMPAKA PUTIH TIMUR	34,018	2,347	30,900	7,953	41,200
1500	CEMPAKA PUTIH	251,728	43,974	113,700	116,826	274,500
1601	KEBON SIRIH	34,683	5,515	23,200	11,485	40,200
1602	GONDANGDIA	11,479	0	22,500	0	22,500
1603	CIKINI	18,604	4,130	18,500	1,870	24,500
1604	MENTENG	49,850	3,400	59,900	0	63,300
1605	PEGANGSAAN	38,418	13,408	9,300	23,092	45,800
1600	MENTENG	153,034	26,453	133,400	36,447	196,300

Table H.38(2) Population According to Sanitation Requirement of Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION IN 1988	POPULATION OF PUBLIC TOILET	POPULATION OF SEWERAGE	POPULATION OF ON-SITE	POPULATION IN 2010
1701	KAMPUNG BALI	31,241	5,500	31,000	0	36,500
1702	KEBON KACANG	38,572	0	30,300	13,600	43,900
1703	KEBON MELATI	69,700	8,016	15,600	55,384	79,000
1704	PETAMBURAN	40,032	13,130	0	32,770	45,900
1705	KARET TENGSIN	57,390	13,831	7,500	46,869	68,200
1706	BENDUNGAN HILIR	42,972	2,700	49,400	0	52,100
1707	GELORA	10,938	2,242	0	16,658	18,900
1700	TANAH ABANG	290,845	45,419	133,800	165,281	344,500
1000	CENTRAL JAKARTA	1,485,615	279,648	680,600	721,352	1,681,600
2206	PADEMANGAN BARAT	66,403	17,265	25,400	24,335	67,000
2207	PADEMANGAN TIMUR	28,920	1,695	36,100	10,205	48,000
2200	PENJARINGAN	95,323	18,960	61,500	34,540	115,000
2302	PAPANGGO	9,031	1,008	0	11,792	12,800
2303	SUNGAI BAMBU	37,899	0	25,100	32,100	57,200
2304	KEBON BAWANG	63,030	17,963	32,500	26,637	77,100
2305	TANJUNG PRIOK	36,676	5,245	57,400	14,155	76,800
2307	WARAKAS	55,104	6,400	56,400	0	62,800
2300	TANJUNG PRIOK	201,740	30,616	171,400	84,684	286,700
2402	LAGOA	69,728	4,393	61,600	16,607	82,600
2403	KOJA SELATAN	38,069	7,233	18,600	26,967	52,800
2405	TUGU UTARA	56,287	0	20,900	61,100	82,000
2406	RAWA BADAK	69,917	0	22,300	66,100	88,400
2400	KOJA	234,001	11,626	123,400	170,774	305,800
2503	SEMPER BARAT	55,694	7,240	32,000	30,760	70,000
2500	CILINCING	55,694	7,240	32,000	30,760	70,000
2000	NORTH JAKARTA	586,758	68,442	388,300	320,758	777,500
3201	GROGOL	35,685	0	39,700	0	39,700
3202	JELAMBAR	52,283	0	57,000	0	57,000
3203	TANJUNG DUREN	67,587	0	7,600	68,900	76,500
3204	TOMANG	56,288	0	50,200	12,300	62,500
3205	JATI PULO	42,349	0	28,000	17,200	45,200
3206	KOTA BAMBU	68,582	0	24,100	48,400	72,500
3207	SLIPI	28,009	7,618	10,800	12,482	30,900
3208	PAL MERAH	65,863	0	11,000	62,500	73,500
3209	KEMANGGISAN	48,522	0	31,600	23,600	55,200
3210	JELAMBAR BARU	57,682	0	35,500	26,900	62,400
3200	GROGOL PETAMBURAN	522,850	7,618	295,500	272,282	575,400
3301	PINANGSIA	24,951	5,289	21,900	911	28,100
3302	MANGGA BESAR	17,674	1,900	17,200	0	19,100
3303	TANGKI	26,408	5,546	0	22,054	27,600
3304	GLODOK	14,391	0	15,000	0	15,000
3305	KEAGUNGAN	33,024	3,468	26,600	4,032	34,100
3306	KRUKUT	29,880	0	0	31,700	31,700
3307	TAMAN SARI	27,444	5,763	22,200	1,637	29,600
3308	MAPHAR	28,982	4,200	26,700	0	30,900
3300	TAMAN SARI	202,754	26,166	129,600	60,334	216,100

Table H.38(3) Population According to Sanitation Requirement of Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION IN 1988	POPULATION OF PUBLIC TOILET	POPULATION OF SEWERAGE	POPULATION OF ON-SITE	POPULATION IN 2010
3401	PEKOJAN	39,599	18,572	1,600	21,828	42,000
3402	ROA MALAKA	6,592	0	8,300	0	8,300
3403	TAMBORA	17,237	8,170	6,500	3,530	18,200
3404	JEMBATAN LIMA	33,596	8,130	6,100	20,870	35,100
3405	ANGKE	42,201	22,957	0	21,843	44,800
3406	JEMBATAN BESI	39,019	14,671	0	26,129	40,800
3407	KRENDANG	32,749	7,696	6,300	19,804	33,800
3408	TANAH SEREAL	47,355	16,668	15,100	17,632	49,400
3409	DURI UTARA	32,130	7,551	4,400	22,449	34,400
3410	KALI BARU	37,299	22,529	0	15,671	38,200
3411	DURI SELATAN	25,227	0	3,800	22,500	26,300
3400	TAMBORA	353,004	126,944	52,100	192,256	371,300
3000	WEST JAKARTA	1,078,608	160,728	477,200	524,872	1,162,800
4101	MENTENG DALAM	67,628	13,593	10,800	62,807	87,200
4102	TEBET BARAT	40,078	0	52,900	0	52,900
4103	TEBET TIMUR	32,121	0	42,400	0	42,400
4104	KEBON BARU	47,402	1,754	16,700	38,746	57,200
4105	BUKIT DURI	54,289	4,831	7,500	50,069	62,400
4106	MANGGARAI SELATAN	40,021	8,564	0	35,336	43,900
4107	MANGGARAI	46,081	25,575	17,300	10,425	53,300
4100	TEBET	327,620	54,317	147,600	197,383	399,300
4201	SETIA BUDI	11,973	1,712	10,300	4,988	17,000
4202	GUNTUR	34,858	0	15,600	23,600	39,200
4203	KARET	45,631	0	45,700	6,700	52,400
4204	KARET SEMANGGI	15,657	0	22,200	0	22,200
4205	KARET KUNINGAN	52,973	0	61,700	4,500	66,200
4206	KUNINGAN TIMUR	13,316	786	11,900	15,114	27,800
4207	PASAR MANGGIS	33,812	5,207	15,700	18,693	39,600
4208	MENTENG ATAS	54,739	0	0	61,100	61,100
4200	SETIA BUDI	262,959	7,705	183,100	134,695	325,500
4303	PELA MAMPANG	51,285	0	19,300	43,400	62,700
4300	MAMPANG PRAPATAN	51,285	0	19,300	43,400	62,700
4501	SENAYAN	42,185	1,603	26,400	25,197	53,200
4502	RAWA BARAT	11,125	0	16,100	0	16,100
4503	SELONG	7,372	1,629	16,000	371	18,000
4504	GUNUNG	18,314	2,326	200	25,674	28,200
4505	KRAMAT PELA	21,333	2,539	23,900	3,861	30,300
4506	MELAWAI	7,950	0	17,500	0	17,500
4507	PETOGOGAN	20,101	3,598	13,200	9,402	26,200
4508	PULO	13,491	4,700	18,000	0	22,700
4509	GANDARIA UTARA	56,292	0	25,800	40,400	66,200
4500	KABAYORAN BARU	198,163	16,395	157,100	104,905	278,400

Table H.38(4) Population According to Sanitation Requirement of Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	POPULATION IN 1988	POPULATION OF PUBLIC TOILET	POPULATION OF SEWERAGE	POPULATION OF ON-SITE	POPULATION IN 2010
4601	GROGOL UTARA	53,647	0	15,500	87,800	103,300
4602	GROGOL SELATAN	53,257	0	40,700	55,300	96,000
4603	CIPULIR	41,299	0	3,900	66,400	70,300
4604	KEBAYORAN LAMA UTARA	55,054	0	5,800	75,100	80,900
4611	KEBAYORAN LAMA SELATAN	48,176	0	17,000	69,100	86,100
4600	KEBAYORAN LAMA	251,433	0	82,900	353,700	436,600
4000	SOUTH JAKARTA	1,091,460	78,417	590,000	834,083	1,502,500
5101	KEBON MANGGIS	27,325	7,487	0	28,213	35,700
5102	PAL MERIAM	26,632	5,593	0	28,007	33,600
5103	KAYUMANIS	39,637	0	2,400	43,300	45,700
5104	UTAN KAYU UTARA	45,373	0	20,900	35,400	56,300
5105	PISANGAN BARU	50,461	0	0	57,700	57,700
5106	UTAN KAYU SELATAN	44,593	4,727	0	50,573	55,300
5100	MATRAMAN	234,021	17,807	23,300	243,193	284,300
5201	KAYU PUTIH	56,113	11,166	52,900	6,334	70,400
5202	JATI	41,352	10,400	52,900	0	63,300
5203	PISANGAN TIMUR	57,775	5,720	27,400	43,880	77,000
5204	CIPINANG	51,882	0	43,000	25,300	68,300
5205	PULO GADUNG	27,286	3,629	31,600	12,571	47,800
5207	RAWAMANGUN	62,767	6,214	74,900	11,686	92,800
5200	PULO GADUNG	297,175	37,129	282,700	99,771	419,600
5301	KAMPUNG MELAYU	32,990	3,002	10,300	24,798	38,100
5302	BALI MESTER	18,420	4,700	20,900	0	25,600
5303	BIDARA CINA	57,553	10,532	20,200	40,268	71,000
5304	CIPINANG CEMPEDAK	55,414	20,226	42,000	11,074	73,300
5305	RAWA BUNGA	40,145	3,693	18,000	27,807	49,500
5306	CIPINANG MUARA	66,245	0	16,400	79,100	95,500
5307	CIPINANG BESAR UTARA	46,610	0	5,000	52,800	57,800
5313	CIPINANG BESAR SELATAN	28,774	0	4,100	40,300	44,400
5300	JATINEGARA	346,151	42,153	136,900	276,147	455,200
5401	CAWANG	49,512	0	0	67,500	67,500
5400	KRAMAT JATI	49,512	0	0	67,500	67,500
5000	EAST JAKARTA	926,859	97,089	442,900	686,611	1,226,600
TOTAL	AREA-C	5,169,300	684,324	2,579,000	3,087,676	6,351,000

Table H.39(1) Quantity of Desludging in Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
1101	CIDENG	508
1102	DURI PULO	2,732
1103	PETOJO UTARA	227
1104	PETOJO SELATAN	2,541
1105	KEBON KELAPA	270
1106	GAMBIR	0
1100	GAMBIR	6,277
1201	MANGGA DUA SELATAN	4,452
1202	KARANG ANYAR	3,502
1203	KARTINI	2,758
1204	PASAR BARU	845
1205	GUNUNG SAHARI UTARA	893
1200	SAWAH BESAR	12,450
1301	GUNUNG SAHARI SELATAN	2,520
1302	KEMAYORAN	2,646
1303	KEBON KOSONG	1,227
1304	SERDANG	2,001
1305	HARAPAN MULIA	1,962
1306	UTANPANJANG	3,156
1307	CEMPAKA BARU	2,437
1308	SUMURBATU	248
1300	KEMAYORAN	16,197
1401	SENEN	512
1402	KWITANG	2,409
1403	KENARI	972
1404	KRAMAT	2,720
1405	PASEBAN	3,607
1406	BUNGUR	742
1400	SENEN	10,962
1501	TANAH TINGGI	2,178
1502	JOHAR BARU	1,676
1503	GALUR	1,729
1504	KAMPUNG RAWA	1,701
1505	RAWA SARI	2,103
1506	CEMPAKA PUTIH BARAT	2,729
1507	CEMPAKA PUTIH TIMUR	810
1500	CEMPAKA PUTIH	12,927
1601	KEBON SIRIH	1,400
1602	GONDANGDIA	0
1603	CIKINI	577
1604	MENTENG	367
1605	PEGANGSAAN	3,065
1600	MENTENG	5,408

Table H.39(2) Quantity of Desludging in Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
1701	KAMPUNG BALI	594
1702	KEBON KACANG	952
1703	KEBON MELATI	4,743
1704	PETAMBURAN	3,712
1705	KARET TENGSIN	4,775
1706	BENDUNGAN HILIR	292
1707	GELORA	1,408
1700	TANAH ABANG	16,475
1000	CENTRAL JAKARTA	80,697
2206	PADEMANGAN BARAT	3,568
2207	PADEMANGAN TIMUR	897
2200	PENJARINGAN	4,465
2302	PAPANGGO	934
2303	SUNGAI BAMBU	2,247
2304	KEBON BAWANG	3,805
2305	TANJUNG PRIOK	1,557
2307	WARAKAS	691
2300	TANJUNG PRIOK	9,234
2402	LAGOA	1,637
2403	KOJA SELATAN	2,669
2405	TUGU UTARA	4,277
2406	RAWA BADAK	4,627
2400	KOJA	13,210
2503	SEMPER BARAT	2,935
2500	CILINCING	2,935
2000	NORTH JAKARTA	29,845
3201	GROGOL	0
3202	JELAMBAR	0
3203	TANJUNG DUREN	4,823
3204	TOMANG	861
3205	JATI PULO	1,204
3206	KOTA BAMBU	3,388
3207	SLIPI	1,696
3208	PAL MERAH	4,375
3209	KEMANGGISAN	1,652
3210	JELAMBAR BARU	1,883
3200	GROGOL PETAMBURAN	19,882
3301	PINANGSIA	635
3302	MANGGA BESAR	205
3303	TANGKI	2,143
3304	GLODOK	0
3305	KEAGUNGAN	657
3306	KRUKUT	2,219
3307	TAMAN SARI	737
3308	MAPHAR	454
3300	TAMAN SARI	7,049

Table H.39(3) Quantity of Desludging in Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
3401	PEKOJAN	3,534
3402	ROA MALAKA	0
3403	TAMBORA	1,129
3404	JEMBATAN LIMA	2,339
3405	ANGKE	4,008
3406	JEMBATAN BESI	3,413
3407	KRENDANG	2,217
3408	TANAH SEREAL	3,034
3409	DURI UTARA	2,387
3410	KALI BARU	3,530
3411	DURI SELATAN	1,575
3400	TAMBORA	27,168
3000	WEST JAKARTA	54,100
4101	MENTENG DALAM	5,865
4102	TEBET BARAT	0
4103	TEBET TIMUR	0
4104	KEBON BARU	2,902
4105	BUKIT DURI	4,027
4106	MANGGARAI SELATAN	3,398
4107	MANGGARAI	3,492
4100	TEBET	19,683
4201	SETIA BUDI	534
4202	GUNTUR	1,652
4203	KARET	469
4204	KARET SEMANGGI	0
4205	KARET KUNINGAN	315
4206	KUNINGAN TIMUR	1,143
4207	PASAR MANGGIS	1,871
4208	MENTENG ATAS	4,277
4200	SETIA BUDI	10,261
4303	PELA MAMPANG	3,038
4300	MAMPANG PRAPATAN	3,038
4501	SENAYAN	1,937
4502	RAWA BARAT	0
4503	SELONG	202
4504	GUNUNG	2,048
4505	KRAMAT PELA	544
4506	MELAWAI	0
4507	PETOGOGAN	1,047
4508	PULO	508
4509	GANDARIA UTARA	2,828
4500	KABAYORAN BARU	9,114

Table H.39(4) Quantity of Desludging in Each Kelurahan - Area C

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
4601	GROGOL UTARA	6,146
4602	GROGOL SELATAN	3,871
4603	CIPULIR	4,648
4604	KEBAYORAN LAMA UTARA	5,257
4611	KEBAYORAN LAMA SELATAN	4,837
4600	KEBAYORAN LAMA	24,759
4000	SOUTH JAKARTA	66,855
5101	KEBON MANGGIS	2,784
5102	PAL MERIAM	2,565
5103	KAYUMANIS	3,031
5104	UTAN KAYU UTARA	2,478
5105	PISANGAN BARU	4,039
5106	UTAN KAYU SELATAN	4,051
5100	MATRAMAN	18,947
5201	KAYU PUTIH	1,649
5202	JATI	1,123
5203	PISANGAN TIMUR	3,689
5204	CIPINANG	1,771
5205	PULO GADUNG	1,272
5207	RAWAMANGUN	2,119
5200	PULO GADUNG	11,624
5301	KAMPUNG MELAYU	2,060
5302	BALI MESTER	508
5303	BIDARA CINA	3,956
5304	CIPINANG CEMPEDAK	2,960
5305	RAWA BUNGA	2,345
5306	CIPINANG MUARA	5,537
5307	CIPINANG BESAR UTARA	3,696
5313	CIPINANG BESAR SELATAN	2,821
5300	JATINEGARA	23,883
5401	CAWANG	4,725
5400	KRAMAT JATI	4,725
5000	EAST JAKARTA	59,178
TOTAL	AREA-C	290,674

Table H.40(1) Quantity of Desludging in Each Kelurahan - Area A and Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
1205	GUNUNG SAHARI UTARA	1,084
1200	SAWAH BESAR	1,084
1301	GUNUNG SAHARI SELATAN	3,507
1303	KEBON KOSONG	3,019
1300	KEMAYORAN	6,526
1000	CENTRAL JAKARTA	7,610
2201	KAMAL MUARA	1,792
2202	KAPUK MUARA	3,556
2203	PEJAGALAN	11,627
2204	PENJARINGAN	13,394
2205	PLUIT (MANGGA DUA UTARA	4,200
2207	PADEMANGAN TIMUR	5,283
2208	ANCOL	3,332
2200	PENJARINGAN	43,184
2301	SUNTER AGUNG	11,613
2302	PAPANGGO	6,045
2306	SUNTER JAYA	11,502
2300	TANJUNG PRIOK	29,160
2401	KOJA UTARA	8,834
2404	TUGU SELATAN	5,127
2407	KELAPA GADING BARAT	3,108
2408	KELAPA GADING TIMUR	9,539
2409	PEGANGSAAN DUA	3,556
2400	KOJA	30,164
2501	KALIBARU	11,216
2502	CILINCING	4,095
2503	SEMPER BARAT	791
2504	SEMPER TIMUR	7,800
2505	MARUNDA	1,673
2506	SAKAPURA	3,122
2507	ROROTAN	3,115
2500	CILINCING	31,812
2000	NORTH JAKARTA	134,319
3101	SEMANAN	3,976
3102	KAMAL	1,302
3103	TEGAL ALUR	5,159
3104	PEGADUNGAN	3,227
3105	KALIDERES	8,553
3106	CENGKARENG TIMUR	10,289
3107	KAPUK	13,020

Table H.40(2) Quantity of Desludging in Each Kelurahan - Area A and Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
3108	KEDAUNG KALI ANGKE	4,985
3109	DURI KOSAMBI	3,101
3110	RAWA BUAYA	7,949
3111	CENGKARENG BARAT	12,046
3100	CENGKARENG	73,608
3211	WIJAYA KUSUMA	5,155
3200	GROGOL PETAMBURAN	5,155
3501	KEMBANGAN	20,458
3502	KEDOYA	25,217
3503	DURI KEPA	15,853
3504	MERUYA ILIR	15,435
3505	MERUYA UDIK	9,077
3506	JOGLO	14,462
3507	SRENGSENG	14,368
3508	KEBON JERUK	5,526
3509	SUKABUMI ILIR	3,360
3510	KELAPA DUA	6,210
3511	SUKABUMI UDIK	7,033
3500	KEBON JERUK	136,999
3000	WEST JAKARTA	215,762
4301	KUNINGAN BARAT	4,584
4302	MAMPANG PRAPATAN	4,767
4304	TEGAL PARANG	4,756
4305	BANGKA	7,807
4306	PANCORAN	2,254
4307	DUREN TIGA	3,635
4308	KALIBATA	8,465
4309	CIKOKO	1,432
4310	PENGADEGAN	2,155
4311	RAWA JATI	1,120
4300	MAMPANG PRAPATAN	40,974
4401	PEJATEN BARAT	8,857
4402	PASAR MINGGU	7,732
4403	TANJUNG BARAT	1,880
4404	JATI PADANG	5,745
4405	RAGUNAN	2,435
4406	CILANDAK TIMUR	2,671
4407	JAGAKARSA	2,017
4408	LENTENG AGUNG	3,411
4409	SRENGSENG SAWAH	2,878

Table H.40(3) Quantity of Desludging in Each Kelurahan - Area A and Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
4410	CIGANJUR	1,861
4411	KEBAGUSAN	2,177
4412	PEJATEN TIMUR	4,915
4400	PASAR MINGGU	46,579
4510	CIPETE UTARA	3,794
4500	KEBAYORAN BARU	3,794
4605	PONDOK PINANG	10,920
4606	PETUKANGAN UTARA	11,439
4607	PETUKANGAN SELATAN	7,832
4608	ULUJAMI	8,185
4609	PESANGGRAHAN	9,068
4610	BINTARO	6,951
4600	KEBAYORAN LAMA	54,395
4701	GANDARIA SELATAN	5,895
4702	CIPETE SELATAN	3,103
4703	CILANDAK BARAT	5,859
4704	LEBAK BULUS	1,977
4705	PONDOK LABU	2,919
4700	CILANDAK	19,753
4000	SOUTH JAKARTA	165,495
5206	JATINEGARA KAUM	2,958
5200	PULO GADUNG	2,958
5308	PONDOK BAMBU	7,189
5309	KLENDER	6,388
5310	DUREN SAWIT	13,599
5311	MALAKA SARI	8,734
5312	PONDOK KELAPA	14,774
5314	MALAKA JAYA	9,987
5315	PONDOK KOPI	7,381
5300	JATINEGARA	68,053
5402	CIPINANG MELAYU	9,930
5403	CILILITAN	3,766
5404	KRAMAT JATI	7,565
5405	KEBON PALA	4,419
5406	HALIM PERDANA KUSUMA	6,811
5407	BATU AMPAR	2,786
5408	BALE KAMBANG	1,442
5409	MAKASAR	7,801
5410	KAMPUNG TENGAH	2,534
5411	DUKUH	3,370
5412	PINANG RANTE	1,253
5400	KRAMAT JATI	51,676

Table H.40(4) Quantity of Desludging in Each Kelurahan - Area A and Area B

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
5501	LUBANG BUAYA	1,703
5502	GEDONG	5,911
5503	RAMBUTAN	4,593
5504	CEGER	941
5505	BAMBU APUS	954
5506	SETU	669
5507	CIPAYUNG	715
5508	SUSUKAN	6,797
5509	CIRACAS	8,702
5510	CIJANTUNG	5,524
5511	BARU	1,722
5512	KALISARI	1,515
5513	PEKAYON	3,085
5514	KELAPA DUA WETAN	1,418
5515	MUNJUL	923
5516	CILANGKAP	995
5517	CIBUBUR	3,423
5518	PONDOK RANGON	694
5500	PASAR REBO	50,285
5601	RAWA TERATE	892
5602	JATINEGARA	7,882
5603	PENGGILINGAN	12,560
5604	CAKUNG BARAT	3,913
5605	UJUNG MENTENG	2,247
5606	PULO GEBANG	16,433
5607	CAKUNG TIMUR	5,306
5600	CAKUNG	49,232
5000	EAST JAKARTA	222,204
TOTAL	AREA- (A + B)	745,390

Table H.41(1) Quantity of Desludging in Each Kelurahan of the Whole Study Area

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
1101	CIDENG	508
1102	DURI PULO	2,732
1103	PETOJO UTARA	227
1104	PETOJO SELATAN	2,541
1105	KEBON KELAPA	270
1106	GAMBIR	0
1100	GAMBIR	6,277
1201	MANGGA DUA SELATAN	4,452
1202	KARANG ANYAR	3,502
1203	KARTINI	2,758
1204	PASAR BARU	845
1205	GN. SAHARI UTARA	1,977
1200	SAWAH BESAR	13,534
1301	GUNUNG SAHARI SELATAN	6,026
1302	KEMAYORAN	2,646
1303	KEBON KOSONG	4,245
1304	SERDANG	2,001
1305	HARAPAN MULIA	1,962
1306	UTANPANJANG	3,156
1307	CEMPAKA BARU	2,437
1308	SUMURBATU	248
1300	KEMAYORAN	22,722
1401	SENEN	512
1402	KWITANG	2,409
1403	KENARI	972
1404	KRAMAT	2,720
1405	PASEBAN	3,607
1406	BUNGUR	742
1400	SENEN	10,962
1501	TANAH TINGGI	2,178
1502	JOHAR BARU	1,676
1503	GALUR	1,729
1504	KAMPUNG RAWA	1,701
1505	RAWA SARI	2,103
1506	CEMPAKA PUTIH BARAT	2,729
1507	CEMPAKA PUTIH TIMUR	810
1500	CEMPAKA PUTIH	12,927
1601	KEBON SIRIH	1,400
1602	GONDANGDIA	0
1603	CIKINI	577
1604	MENTENG	367
1605	PEGANGSAAN	3,065
1600	MENTENG	5,408

Table H.41(2) Quantity of Desludging in Each Kelurahan of the Whole Study Area

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
1701	KAMPUNG BALI	594
1702	KEBON KACANG	952
1703	KEBON MELATI	4,743
1704	PETAMBURAN	3,712
1705	KARET TENGSIN	4,775
1706	BENDUNGAN HILIR	292
1707	GELORA	1,408
1700	TANAH ABANG	16,475
1000	CENTRAL JAKARTA	88,305
2201	KAMAL MUARA	1,792
2202	KAPUK MUARA	3,556
2203	PEJAGALAN	11,627
2204	PENJARINGAN	13,394
2205	PLUIT (MANGGA DUA UTARA)	4,200
2206	PADEMANGAN BARAT	3,568
2207	PADEMANGAN TIMUR	6,180
2208	ANCOL	3,332
2200	PENJARINGAN	47,648
2301	SUNTER AGUNG	11,613
2302	PAPANGGO	6,979
2303	SUNGAI BAMBU	2,247
2304	KEBON BAWANG	3,805
2305	TANJUNG PRIOK	1,557
2306	SUNTER JAYA	11,502
2307	WARAKAS	691
2300	TANJUNG PRIOK	38,394
2401	KOJA UTARA	8,834
2402	LAGOA	1,637
2403	KOJA SELATAN	2,669
2404	TUGU SELATAN	5,127
2405	TUGU UTARA	4,277
2406	RAWA BADAK	4,627
2407	KELAPA GADING BARAT	3,108
2408	KELAPA GADING TIMUR	9,539
2409	PEGANGSAAN DUA	3,556
2400	KOJA	43,373
2501	KALIBARU	11,216
2502	CILINCING	4,095
2503	SEMPER BARAT	3,726
2504	SEMPER TIMUR	7,800
2505	MARUNDA	1,673
2506	SAKAPURA	3,122
2507	ROROTAN	3,115
2500	CILINCING	34,747
2000	NORTH JAKARTA	164,163

Table H.41(3) Quantity of Desludging in Each Kelurahan of the Whole Study Area

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
3101	SEMANAN	3,976
3102	KAMAL	1,302
3103	TEGAL ALUR	5,159
3104	PEGADUNGAN	3,227
3105	KALIDERES	8,553
3106	CENGKARENG TIMUR	10,289
3107	KAPUK	13,020
3108	KEDAUNG-KL ANGKE	4,985
3109	DURI KOSAMBI	3,101
3110	RAWA BUAYA	7,949
3111	CENGKARENG BARAT	12,046
3100	CENGKARENG	73,608
3201	GROGOL	0
3202	JELAMBAR	0
3203	TANJUNG DUREN	4,823
3204	TOMANG	861
3205	JATI PULO	1,204
3206	KOTA BAMBU	3,388
3207	SLIPI	1,696
3208	PAL MERAH	4,375
3209	KEMANGGISAN	1,652
3210	JELAMBAR BARU	1,883
3211	WIJAYA KUSUMA	5,155
3200	GROGOL PETAMBURAN	25,037
3301	PINANGSIA	635
3302	MANGGA BESAR	205
3303	TANGKI	2,143
3304	GLODOK	0
3305	KEAGUNGAN	657
3306	KRUKUT	2,219
3307	TAMAN SARI	737
3308	MAPHAR	454
3300	TAMAN SARI	7,049
3401	PEKOJAN	3,534
3402	ROA MALAKA	0
3403	TAMBORA	1,129
3404	JEMBATAN LIMA	2,339
3405	ANGKE	4,008
3406	JEMBATAN BESI	3,413
3407	KRENDANG	2,217
3408	TANAH SEREAL	3,034
3409	DURI UTARA	2,387
3410	KALI BARU	3,530
3411	DURI SELATAN	1,575
3400	TAMBORA	27,168

Table H.41(4) Quantity of Desludging in Each Kelurahan of the Whole Study Area

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
3501	KEMBANGAN	20,458
3502	KEDOYA	25,217
3503	DURI KEPA	15,853
3504	MERUYA ILIR	15,435
3505	MERUYA UDIK	9,077
3506	JOGLO	14,462
3507	SRENGSENG	14,368
3508	KEBON JERUK	5,526
3509	SUKABUMI ILIR	3,360
3510	KELAPA DUA	6,210
3511	SUKABUMI UDIK	7,033
3500	KEBON JERUK	136,999
3000	WEST JAKARTA	269,862
4101	MENTENG DALAM	5,865
4102	TEBET BARAT	0
4103	TEBET TIMUR	0
4104	KEBON BARU	2,902
4105	BUKIT DURI	4,027
4106	MANGGARAI SELATAN	3,398
4107	MANGGARAI	3,492
4100	TEBET	19,683
4201	SETIA BUDI	534
4202	GUNTUR	1,652
4203	KARET	469
4204	KARET SEMANGGI	0
4205	KARET KUNINGAN	315
4206	KUNINGAN TIMUR	1,143
4207	PASAR MANGGIS	1,871
4208	MENTENG ATAS	4,277
4200	SETIA BUDI	10,261
4301	KUNINGAN BARAT	4,584
4302	MAMPANG PRAPATAN	4,767
4303	PELA MAMPANG	3,038
4304	TEGAL PARANG	4,756
4305	BANGKA	7,807
4306	PANCORAN	2,254
4307	DUREN TIGA	3,635
4308	KALIBATA	8,465
4309	CIKOKO	1,432
4310	PENGADEGAN	2,155
4311	RAWA JATI	1,120
4300	MAMPANG PRAPATAN	44,012

Table H.41(5) Quantity of Desludging in Each Kelurahan of the Whole Study Area

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
4401	PEJATEN BARAT	8,857
4402	PASAR MINGGU	7,732
4403	TANJUNG BARAT	1,880
4404	JATI PADANG	5,745
4405	RAGUNAN	2,435
4406	CILANDAK TIMUR	2,671
4407	JAGAKARSA	2,017
4408	LENTENG AGUNG	3,411
4409	SRENGSENG SAWAH	2,878
4410	CIGANJUR	1,861
4411	KEBAGUSAN	2,177
4412	PEJATEN TIMUR	4,915
4400	PASAR MINGGU	46,579
4501	SENAYAN	1,937
4502	RAWA BARAT	0
4503	SELONG	202
4504	GUNUNG	2,048
4505	KRAMAT PELA	544
4506	MELAWAI	0
4507	PETOGOGAN	1,047
4508	PULO	508
4509	GANDARIA UTARA	2,828
4510	CIPETE UTARA	3,794
4500	KEBAYORAN BARU	12,908
4601	GROGOL UTARA	6,146
4602	GROGOL SELATAN	3,871
4603	CIPULIR	4,648
4604	KEBAYORAN LAMA UTARA	5,257
4605	PONDOK PINANG	10,920
4606	PETUKANGAN UTARA	11,439
4607	PETUKANGAN SELATAN	7,832
4608	ULUJAMI	8,185
4609	PESANGGRAHAN	9,068
4610	BINTARO	6,951
4611	KEBAYORAN LAMA SELATAN	4,837
4600	KEBAYORAN LAMA	79,154
4701	GANDARIA SELATAN	5,895
4702	CIPETE SELATAN	3,103
4703	CILANDAK BARAT	5,859
4704	LEBAK BULUS	1,977
4705	PONDOK LABU	2,919
4700	CILANDAK	19,753
4000	SOUTH JAKARTA	232,351

Table H.41(6) Quantity of Desludging in Each Kelurahan of the Whole Study Area

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
5101	KEBON MANGGIS	2,784
5102	PAL MERIAM	2,565
5103	KAYUMANIS	3,031
5104	UTAN KAYU UTARA	2,478
5105	PISANGAN BARU	4,039
5106	UTAN KAYU SELATAN	4,051
5100	MATRAMAN	18,947
5201	KAYU PUTIH	1,649
5202	JATI	1,123
5203	PISANGAN TIMUR	3,689
5204	CIPINANG	1,771
5205	PULO GADUNG	1,272
5206	JATINEGARA KAUM	2,958
5207	RAWAMANGUN	2,119
5200	PULO GADUNG	14,581
5301	KAMPUNG MELAYU	2,060
5302	BALI MESTER	508
5303	BIDARA CINA	3,956
5304	CIPINANG CEMPEDAK	2,960
5305	RAWA BUNGA	2,345
5306	CIPINANG MUARA	5,537
5307	CIPINANG BESAR UTARA	3,696
5308	PONDOK BAMBU	7,189
5309	KLENDER	6,388
5310	DUREN SAWIT	13,599
5311	MALAKA SARI	8,734
5312	PONDOK KELAPA	14,774
5313	CIPINANG BESAR SELATAN	2,821
5314	MALAKA JAYA	9,987
5315	PONDOK KOPI	7,381
5300	JATINEGARA	91,935
5401	CAWANG	4,725
5402	CIPINANG MELAYU	9,930
5403	CILILITAN	3,766
5404	KRAMAT JATI	7,565
5405	KEBON PALA	4,419
5406	HALIM PERDANA KUSUMA	6,811
5407	BATU AMPAR	2,786
5408	BALE KAMBANG	1,442
5409	MAKASAR	7,801
5410	KAMPUNG TENGAH	2,534
5411	DUKUH	3,370
5412	PINANG RANTE	1,253
5400	KRAMAT JATI	56,401

Table H.41(7) Quantity of Desludging in Each Kelurahan of the Whole Study Area

CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
5501	LUBANG BUAYA	1,703
5502	GEDONG	5,911
5503	RAMBUTAN	4,593
5504	CEGER	941
5505	BAMBU APUS	954
5506	SETU	669
5507	CIPAYUNG	715
5508	SUSUKAN	6,797
5509	CIRACAS	8,702
5510	CIJANTUNG	5,524
5511	BARU	1,722
5512	KALISARI	1,515
5513	PEKAYON	3,085
5514	KELAPA DUA WETAN	1,418
5515	MUNJUL	923
5516	CILANGKAP	995
5517	CIBUBUR	3,423
5518	PONDOK RANGON	694
5500	PASAR REBO	50,285
5601	RAWA TERATE	892
5602	JATINEGARA	7,882
5603	PENGGILINGAN	12,560
5604	CAKUNG BARAT	3,913
5605	UJUNG MENTENG	2,247
5606	PULO GEBANG	16,433
5607	CAKUNG TIMUR	5,306
5600	CAKUNG	49,232
5000	EAST JAKARTA	281,382
TOTAL	STUDY AREA	1,036,064

Table H.42(1) Kelurahan-wise Desludging in Each Service Area

SERVICE AREA	CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
	1101	CIDENG	508
	1102	DURI PULO	2,732
	1103	PETOJO UTARA	227
	1104	PETOJO SELATAN	2,541
	1105	KEBON KELAPA	270
	1106	GAMBIR	0
	1201	MANGGA DUA SELATAN	4,452
	1202	KARANG ANYAR	3,502
	1203	KARTINI	2,758
	1204	PASAR BARU	845
	1205	GN. SAHARI UTARA	1,977
	1401	SENEN	512
	1402	KWITANG	2,409
	1403	KENARI	972
	1601	KEBON SIRIH	1,400
	1602	GONDANGDIA	0
	1603	CIKINI	577
	1604	MENTENG	367
	1605	PEGANGSAAN	3,065
	1701	KAMPUNG BALI	594
	1702	KEBON KACANG	952
	1703	KEBON MELATI	4,743
	2201	KAMAL MUARA	1,792
1	2202	KAPUK MUARA	3,556
	2203	PEJAGALAN	11,627
	2204	PENJARINGAN	13,394
	2205	PLUIT (MANGGA DUA UTARA)	4,200
	2206	PADEMANGAN BARAT	3,568
	2207	PADEMANGAN TIMUR	6,180
	2208	ANCOL	3,332
	3201	GROGOL	0
	3202	JELAMBAR	0
	3204	TOMANG	861
	3210	JELAMBAR BARU	1,883
	3301	PINANGSIA	635
	3302	MANGGA BESAR	205
	3303	TANGKI	2,143
	3304	GLODOK	0
	3305	KEAGUNGAN	657
	3306	KRUKUT	2,219
	3307	TAMAN SARI	737
	3308	MAPHAR	454
	3401	PEKOJAN	3,534
	3402	ROA MALAKA	0
	3403	TAMBORA	1,129
	3404	JEMBATAN LIMA	2,339
	3405	ANGKE	4,008
	3406	JEMBATAN BESI	3,413
	3407	KRENDANG	2,217
	3408	TANAH SEREAL	3,034
	3409	DURI UTARA	2,387

Table H.42(2) Kelurahan-wise Desludging in Each Service Area

SERVICE AREA	CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
	3410	KALI BARU	3,530
	3411	DURI SELATAN	1,575
	4101	MENTENG DALAM	5,865
	4102	TEBET BARAT	0
	4103	TEBET TIMUR	0
	4104	KEBON BARU	2,902
	4105	BUKIT DURI	4,027
1	4106	MANGGARAI SELATAN	3,398
	4107	MANGGARAI	3,492
	4201	SETIA BUDI	534
	4202	GUNTUR	1,652
	4203	KARET	469
	4204	KARET SEMANGGI	0
	4205	KARET KUNINGAN	315
	4206	KUNINGAN TIMUR	1,143
	4207	PASAR MANGGIS	1,871
	4208	MENTENG ATAS	4,277
SUB TOTAL		SERVICE AREA-1	149,956
	1704	PETAMBURAN	3,712
	1705	KARET TENGSIN	4,775
	1706	BENDUNGAN HILIR	292
	1707	GELORA	1,408
	3203	TANJUNG DUREN	4,823
	3205	JATI PULO	1,204
2	3206	KOTA BAMBU	3,388
	3207	SLIPI	1,696
	3208	PAL MERAH	4,375
	3209	KEMANGGISAN	1,652
	3211	WIJAYA KUSUMA	5,155
	3502	KEDOYA	25,217
	3503	DURI KEPA	15,853
	3508	KEBON JERUK	5,526
	4601	GROGOL UTARA	6,146
SUB TOTAL		SERVICE AREA-2	85,222
	3505	MERUYA UDIK	9,077
	3506	JOGLO	14,462
	3507	SRENGSENG	14,368
	3509	SUKABUMI ILIR	3,360
	3510	KELAPA DUA	6,210
	3511	SUKABUMI UDIK	7,033
3	4303	PELA MAMPANG	3,038
	4501	SENAYAN	1,937
	4502	RAWA BARAT	0
	4503	SELONG	202
	4504	GUNUNG	2,048
	4505	KRAMAT PELA	544
	4506	MELAWAI	0
	4507	PETOGOGAN	1,047
	4508	PULO	508

Table H.42(3) Kelurahan-wise Desludging in Each Service Area

SERVICE AREA	CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
3	4509	GANDARIA UTARA	2,828
	4602	GROGOL SELATAN	3,871
	4603	CIPULIR	4,648
	4604	KEBAYORAN LAMA UTARA	5,257
	4605	PONDOK PINANG	10,920
	4606	PETUKANGAN UTARA	11,439
	4607	PETUKANGAN SELATAN	7,832
	4608	ULUJAMI	8,185
	4609	PESANGGRAHAN	9,068
	4610	BINTARO	6,951
	4611	KEBAYORAN LAMA SELATAN	4,837
SUB TOTAL		SERVICE AREA-3	139,671
4	1301	GUNUNG SAHARI SELATAN	6,026
	1302	KEMAYORAN	2,646
	1303	KEBON KOSONG	4,245
	1304	SERDANG	2,001
	1305	HARAPAN MULIA	1,962
	1306	UTANPANJANG	3,156
	1307	CEMPAKA BARU	2,437
	1308	SUMURBATU	248
	1404	KRAMAT	2,720
	1405	PASEBAN	3,607
	1406	BUNGUR	742
	1501	TANAH TINGGI	2,178
	1502	JOHAR BARU	1,676
	1503	GALUR	1,729
	1504	KAMPUNG RAWA	1,701
	1505	RAWA SARI	2,103
	1506	CEMPAKA PUTIH BARAT	2,729
	1507	CEMPAKA PUTIH TIMUR	810
	2301	SUNTER AGUNG	11,613
	2302	PAPANGGO	6,979
	2306	SUNTER JAYA	11,502
	5101	KEBON MANGGIS	2,784
	5102	PAL MERIAM	2,565
	5103	KAYUMANIS	3,031
	5104	UTAN KAYU UTARA	2,478
	5105	PISANGAN BARU	4,039
	5106	UTAN KAYU SELATAN	4,051
	5201	KAYU PUTIH	1,649
	5202	JATI	1,123
	5203	PISANGAN TIMUR	3,689
	5204	CIPINANG	1,771
	5205	PULO GADUNG	1,272
	5207	RAWAMANGUN	2,119
SUB TOTAL		SERVICE AREA-4	103,382

Table H.42(4) Kelurahan-wise Desludging in Each Service Area

SERVICE AREA	CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
5	5301	KAMPUNG MELAYU	2,060
	5302	BALI MESTER	508
	5303	BIDARA CINA	3,956
	5304	CIPINANG CEMPEDAK	2,960
	5305	RAWA BUNGA	2,345
	5306	CIPINANG MUARA	5,537
	5307	CIPINANG BESAR UTARA	3,696
	5313	CIPINANG BESAR SELATAN	2,821
	5401	CAWANG	4,725
SUB TOTAL		SERVICE AREA-5	28,608
6	2303	SUNGAI BAMBU	2,247
	2304	KEBON BAWANG	3,805
	2305	TANJUNG PRIOK	1,557
	2307	WARAKAS	691
	2401	KOJA UTARA	8,834
	2402	LAGOA	1,637
	2403	KOJA SELATAN	2,669
	2404	TUGU SELATAN	5,127
	2405	TUGU UTARA	4,277
	2406	RAWA BADAK	4,627
	2407	KELAPA GADING BARAT	3,108
	2408	KELAPA GADING TIMUR	9,539
	2409	PEGANGSAAN DUA	3,556
	2501	KALIBARU	11,216
	2502	CILINCING	4,095
	2503	SEMPER BARAT	3,726
	2504	SEMPER TIMUR	7,800
	2505	MARUNDA	1,673
	2506	SAKAPURA	3,122
	2507	ROROTAN	3,115
SUB TOTAL		SERVICE AREA-6	86,421
7	3101	SEMANAN	3,976
	3102	KAMAL	1,302
	3103	TEGAL ALUR	5,159
	3104	PEGADUNGAN	3,227
	3105	KALIDERES	8,553
	3106	CENGKARENG TIMUR	10,289
	3107	KAPUK	13,020
	3108	KEDAUNG-KL ANGKE	4,985
	3109	DURI KOSAMBI	3,101
	3110	RAWA BUAYA	7,949
	3111	CENGKARENG BARAT	12,046
	3501	KEMBANGAN	20,458
	3504	MERUYA ILIR	15,435
SUB TOTAL		SERVICE AREA-7	109,500
8	4301	KUNINGAN BARAT	4,584
	4302	MAMPANG PRAPATAN	4,767
	4304	TEGAL PARANG	4,756
	4305	BANGKA	7,807
	4306	PANCORAN	2,254
	4307	DUREN TIGA	3,635

Table H.42(5) Kelurahan-wise Desludging in Each Service Area

SERVICE AREA	CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
8	4308	KALIBATA	8,465
	4309	CIKOKO	1,432
	4310	PENGADEGAN	2,155
	4311	RAWA JATI	1,120
	4401	PEJATEN BARAT	8,857
	4402	PASAR MINGGU	7,732
	4403	TANJUNG BARAT	1,880
	4404	JATI PADANG	5,745
	4405	RAGUNAN	2,435
	4406	CILANDAK TIMUR	2,671
	4407	JAGAKARSA	2,017
	4408	LENTENG AGUNG	3,411
	4409	SRENGSENG SAWAH	2,878
	4410	CIGANJUR	1,861
	4411	KEBAGUSAN	2,177
	4412	PEJATEN TIMUR	4,915
	4510	CIPETE UTARA	3,794
	4701	GANDARIA SELATAN	5,895
	4702	CIPETE SELATAN	3,103
	4703	CILANDAK BARAT	5,859
	4704	LEBAK BULUS	1,977
	4705	PONDOK LABU	2,919
SUB TOTAL		SERVICE AREA-8	111,101
9	5308	PONDOK BAMBU	7,189
	5402	CIPINANG MELAYU	9,930
	5403	CILILITAN	3,766
	5404	KRAMAT JATI	7,565
	5405	KEBON PALA	4,419
	5406	HALIM PERDANA KUSUMA	6,811
	5407	BATU AMPAR	2,786
	5408	BALE KAMBANG	1,442
	5409	MAKASAR	7,801
	5410	KAMPUNG TENGAH	2,534
	5411	DUKUH	3,370
	5412	PINANG RANTE	1,253
	5501	LUBANG BUAYA	1,703
	5502	CEDONG	5,911
	5503	RAMBUTAN	4,593
	5504	CEGER	941
	5505	BAMBU APUS	954
	5506	SETU	669
	5507	CIPAYUNG	715
	5508	SUSUKAN	6,797
	5509	CIRACAS	8,702
	5510	CIJANTUNG	5,524
	5511	BARU	1,722
	5512	KALISARI	1,515
	5513	PEKAYON	3,085
	5514	KELAPA DUA WETAN	1,418
	5515	MUNJUL	923

Table H.42(6) Kelurahan-wise Desludging in Each Service Area

SERVICE AREA	CODE NUMBER	KELURAHAN/ KECAMATAN	DESLUDGING QUANTITY (M3/YEAR)
9	5516	CILANGKAP	995
	5517	CIBUBUR	3,423
	5518	PONDOK RANGON	694
SUB TOTAL		SERVICE AREA-9	109,151
10	5206	JATINEGARA KAUM	2,958
	5309	KLENDER	6,388
	5310	DUREN SAWIT	13,599
	5311	MALAKA SARI	8,734
	5312	PONDOK KELAPA	14,774
	5314	MALAKA JAYA	9,987
	5315	PONDOK KOPI	7,381
	5601	RAWA TERATE	892
	5602	JATINEGARA	7,882
	5603	PENGGILINGAN	12,560
	5604	CAKUNG BARAT	3,913
	5605	UJUNG MENTENG	2,247
	5606	PULO GEBANG	16,433
	5607	CAKUNG TIMUR	5,306
SUB TOTAL		SERVICE AREA-10	113,053
TOTAL		STUDY AREA	1,036,064

Table H.43 Existing Pollution Load as BOD of Each Sanitation Area by Pollution Sources

(kg/d)

	Area A	Area B	Area C	Total
Area (ha)	21,159	27,386	16,604	65,149
Population	726,400	2,890,300	5,169,300	8,786,000
Population Density (person/ha)	34	106	311	135
Pollution Load (kg/d)				
Domestic Waste				
Toilet wastewater	2,538	7,753	14,303	24,594
Gray Water	12,107	51,048	89,856	153,011
Commercial & institutional	2,175	10,110	27,603	39,888
Industry	16,384	25,332	7,221	48,937
Total	33,204	94,243	138,983	266,430
Specific Pollution Load (kg/ha/d)	1.6	3.4	8.4	4.1

Table H.44 Future Pollution Load as BOD of Each Sanitation Area without Project

(kg/d)

	Area A	Area B	Area C	Total
Area (ha)	21,159	27,386	16,604	65,149
Population	1,482,000	4,967,000	6,351,000	12,800,000
Population Density (person/ha)	70	181	382	196
Pollution Load (kg/d)				
Domestic Waste				
Toilet wastewater	4,850	11,970	16,323	33,143
Gray Water	31,321	114,941	143,539	289,801
Commercial & institutional	7,733	31,172	64,796	103,701
Industry	57,590	55,857	5,153	118,600
Total	101,494	213,940	229,811	545,245
Specific Pollution Load (kg/ha/d)	4.8	7.8	13.8	8.4

Table H.45 Reduction of Pollution Load as BOD of Each Sanitation Area by Pollution Sources with Project

(BOD : kg/d)

Area	A (21,159ha)			B (27,386ha)			C (16,814ha)		
Pollution Source	Domestic	Comm.&Insti.	Industry	Domestic	Comm.&Insti.	Industry	Domestic	Comm.&Insti.	Industry
Existing Pollution Load	14,645	2,175	16,384	58,801	10,110	25,332	104,159	27,603	7,221
Future Pollution Load Without Project	36,171	7,733	57,590	126,911	31,172	55,857	159,862	64,796	5,153
Future Pollution Load With Project and Household Treatment	24,697	7,733	57,590	44,666	8,098	55,857	27,931	9,261	368
Pollution Load Reduction by Project	0			105,319		0	192,251		
Remaining Pollution Load	90,020			108,621			37,560		
Specific Pollution Load(kg/ha/d)	4.25kg/ha/d			3.97kg/ha/d			2.26kg/ha/d		
Pollution Load Reduction by Industrial Effluent Control	0	0	48,244	0	0	46,792	0	0	0
Remaining Pollution Load by Project&Control	41,776			61,829			37,560		
Specific Pollution Load(kg/ha/d)	1.97kg/ha/d			2.26kg/ha/d			2.26kg/ha/d		

Table H.46 Wastewater and BOD Load Balances

Sub Basin. No.	Wastewater Balance (m3/d)			BOD Load Balance Case (1) (kg/d)			BOD Load Balance Case (2) (kg/d)				BOD Load Balance Case (3) (kg/d)				Remarks
	Effluent from T/P	Others	Total	Effluent from T/P	Others	Total	Effluent from T/P	Effluent from on-site T/P	Others	Total	Effluent from T/P	Effluent from on-site T/P	Others	Total	
1	0	68,400	68,400	0	12,632	12,632	0	3,175	3,376	6,551	0	3,353	2,282	5,635	
2	0	27,400	27,400	0	4,956	4,956	0	1,323	962	2,285	0	1,323	962	2,285	
3	0	107,000	107,000	0	19,233	19,233	0	5,133	3,933	9,066	0	5,183	3,623	8,806	
4	0	51,600	51,600	0	12,889	12,889	0	1,949	6,882	8,831	0	2,845	1,367	4,212	
5	0	87,500	87,500	0	15,579	15,579	0	5,080	628	5,708	0	5,116	410	5,526	
6	0	27,900	27,900	0	6,413	6,413	0	1,265	2,420	3,685	0	1,572	524	2,096	
7	0	15,600	15,600	0	2,870	2,870	0	933	0	933	0	933	0	933	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	0	12,600	12,600	0	3,443	3,443	0	511	1,779	2,290	0	785	92	877	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	100,600	8,400	109,000	3,018	1,473	4,491	3,018	501	0	3,519	3,018	501	0	3,519	North East
13	261,600	18,800	280,400	7,848	4,369	12,217	7,848	598	2,553	10,999	7,848	1,012	0	8,860	South East
14	0	160,700	160,700	0	34,509	34,509	0	5,065	19,320	24,385	0	6,563	10,107	16,670	
15	0	58,300	58,300	0	16,172	16,172	0	1,594	11,322	12,916	0	3,075	2,195	5,270	
Total	362,200	644,200	1,006,400	10,866	134,538	145,404	10,866	27,127	53,175	91,168	10,866	32,261	21,562	64,689	

Note T/P : sewerage treatment plant
Effluent from T/P includes groundwater infiltration and excludes toilet wastewater in intercepter area.
Case (1) : with sewerage deveropment
Case (2) : Case (1)+on-site treatment system
Case (3) : Case (2)+industrial wastewater quarity control

Table H.47 River Water Quality Improvement by Each Countermeasures

Drainage Sub Basin No.	River Name	River Water Quality (BOD mg/l)				
		Existing	Future			
			Without Project	Case (1)	Case (2)	Case (3)
1	Ciliwung	19	21	18 (14)	16 (24)	16 (24)
2	Banjir	30	45	33 (27)	28 (38)	27 (40)
3	Krukut	39	55	42 (24)	33 (40)	32 (42)
4	Banjir	47	52	39 (25)	35 (33)	32 (38)
5	Grogol	67	87	52 (40)	40 (54)	40 (54)
6	Grogol	95	99	61 (38)	47 (53)	43 (57)
7	Cideng	165	208	127 (39)	55 (74)	55 (74)
8	Cideng	114	144	60 (58)	29 (80)	29 (80)
9	Ciliwung	21	46	16 (64)	15 (67)	14 (70)
10	Cideng	48	99	33 (67)	27 (73)	26 (74)
11	Old Angke	136	155	10 (94)	10 (94)	10 (94)
12	Sention	65	102	44 (57)	32 (69)	32 (69)
13	Sention	125	128	53 (59)	45 (65)	31 (76)
14	Sunter	28	46	30 (35)	28 (39)	25 (46)
15	Sunter	12	75	40 (47)	37 (51)	30 (60)
Average		67	91	44 (52)	32 (65)	29 (68)

Note Case (1) :with sewerage development
Case (2) :Case (1) + on-site treatment
Case (3) :Case (2) + industrial wastewater quality control
Figures in parentheses means BOD reduction rate with respect to without Project Condition.

Tabel H.48 Project Cost and Annual O&M Cost of Each Sewerage Zone

Project Cost

(Unit: Rp. million)

Sewerage Zone	Central	North West	South West	North East	South East	Tanjung Priok	Total
Cost Item							
A. Direct Const. Cost	523,883	169,154	193,510	398,559	97,110	141,850	1,524,066
(1) Collection Sewer Line	479,801	137,645	149,816	271,808	68,393	115,072	1,222,535
(2) Lift Pump Station	-	10,373	15,747	-	5,251	6,068	37,439
(3) Treatment Plant	44,082	21,136	27,947	126,751	23,466	20,710	264,092
B. Land Acquisition Cost	568	1,944	2,721	710	1,012	1,401	8,356
C. Administration Cost	7,867	2,566	2,943	5,989	1,472	2,149	22,986
D. Engineering Cost	36,672	11,841	13,546	27,899	6,798	9,930	106,685
E. Physical Contingency	52,388	16,915	19,351	39,856	9,711	14,185	152,407
Total	621,378	202,421	232,071	473,013	116,103	169,514	1,814,500
F. House Connection Cost	51,696	8,316	10,980	23,724	6,156	15,156	116,028
Grand Total	673,074	210,737	243,051	496,737	122,259	184,670	1,930,528

Annual O&M Cost

Sewerage Zone	Central	North West	South West	North East	South East	Tanjung Priok	Total
A.Collection System	191	49	62	104	30	45	481
B.Lift Pump Station	-	488	581	-	89	127	1,285
C.Treatment Plant	6,698	1,285	1,382	4,113	1,208	1,615	16,301
Total	6,889	1,822	2,025	4,217	1,327	1,787	18,067

Table H.49(1) Breakdown of Construction Cost for Sewerage Development (Central Zone)

ITEM	QUANTITY	UNIT COST	CONSTRUCTION COST (Million Rp.)
(1) House Connection	143,600 unit	360,000 Rp./unit	51,696
(2) Collection Sewer Line			
1)Tertiary and Secondary	433,400 m	152 - 372 x1,000Rp./m	114,423
2)Main	162,700 m	475 - 2,992 x1,000Rp./m	161,880
3)Trunk	29,000 m	3,213 - 6,480 x1,000Rp./m	112,784
4) Conveyence	10,200 m	6,480-13,667 x1,000Rp./m	90,714
Sub Total	635,300 m		479,801
(3) Treatment Plant (Capacity : 529,000 m3/day)			
(A) Civil/Architect Works			
1)Pump Station Capacity 552 m3/min.	1 ls		8,504
2)Grit Chamber Detention Time 59 sec.	1 ls		419
3)Aerated Lagoon and Facultative Pond Volume 2,324,000 m3	1 ls		3,736
4)Chlorination Tank Contact Time 68 min.	1 ls		150
5)Sludge Drying Area	43,000 m2	50,000 Rp./m2	2,150
6)Administration Building	3,500 m2	250,000 Rp./m2	875
7)Miscellaneous	1 ls		300
(B) Mechanical/Electrical Work	1 ls		27,948
Sub Total			44,082
Direct Cost [(2)+(3)]			523,883
(4) Land Acquisition Treatment Plant	80000 m2	7100 Rp./m2	568
Total			576,147

Table H.49(2) Breakdown of Construction Cost for Sewerage Development (North West Zone)

ITEM		QUANTITY	UNIT COST	CONSTRUCTION COST (Million Rp.)
(1) House Connection		23,100 unit	360,000 Rp./unit	8,316
(2) Collection Sewer Line				
1)Tertiary and Secondary		98,100 m	152 - 372 x1,000Rp./m	27,207
2)Main		49,500 m	475 - 2,992 x1,000Rp./m	50,088
3)Trunk		4,400 m	3,213 - 4,445 x1,000Rp./m	16,956
4)Force Main		9,700 m	1,315-5291 x1,000Rp./m	43,394
	Sub Total	161,700 m		137,645
(3) Lift Pump Station				
P1	Capacity 30.7 m3/min.	1 ls		1,099
P2	Capacity 22.1 m3/min.	1 ls		936
P3	Capacity 172.0 m3/min	1 ls		8,338
	Sub Total			10,373
(4) Treatment Plant (Capacity : 124,000 m3/day)				
(A) Civil/Architect Works				
1)Aerated Lagoon	Volume 246,880 m3	1 ls		3,090
2)Sedimentation Tank	25m x25m x3m x10unit	1 ls		4,720
3)Chlorination Tank	Contact Time 14.9 min.	1 ls		412
4)Digester	ø25m x 12m x 8 unit	1 ls		4,160
5)Drying Bed	20m x 60m x 16 unit	19,200 m2	110,000 Rp./m2	2,112
6)Administration Building		1,200 m2	250,000 Rp./m2	300
7)Miscellaneous		1 ls		360
(B) Mechanical/Electrical Work		1 ls		5,982
	Sub Total			21,136
Direct Cost [(2)+(3)+(4)]				169,154
(5) Land Acquisition				
1) Lift Pump Station				
P1		541 m2	350,100 Rp./m2	189
P2		513 m2	190,000 Rp./m2	97
P3		2,000 m2	190,000 Rp./m2	380
2) Treatment Plant		180,000 m2	7,100 Rp./m2	1,278
	Sub Total	183,054 m2		1,944
	Total			179,414

Table H.49 (3) Breakdown of Construction Cost for Sewerage Development (South West Zone)

ITEM		QUANTITY	UNIT COST	CONSTRUCTION COST (Million Rp.)
(1) House Connection		30,500 unit	360,000 Rp./unit	10,980
(2) Collection Sewer Line				
1)Tertiary and Secondary		136,100 m	152 - 372 x1,000Rp./m	36,673
2)Main		57,700 m	475 - 2,992 x1,000Rp./m	58,373
3)Trunk		5,900 m	3,213 - 5,489 x1,000Rp./m	27,621
4)Force Main		3,700 m	475 - 4,070 x1,000Rp./m	10,760
5) Conveyance		2,700 m	6070 x1,000Rp./m	16,389
	Sub Total	206,100 m		149,816
(3) Lift Pump Station				
P1	Capacity 12.3 m3/min.	1 ls		750
P2	Capacity 10.6 m3/min.	1 ls		717
P3	Capacity 74.2 m3/min.	1 ls		5,893
P4	Capacity 7.5 m3/min.	1 ls		659
P5	Capacity 147.6 m3/min.	1 ls		7,728
	Sub Total			15,747
(4) Treatment Plant (Capacity : 117,000 m3/day)				
(A) Civil/Architect Works				
1)Pump Station	Capacity 152 m3/min.	1 ls		1,643
2)Grit Chamber	Detention Time 50 sec.	1 ls		103
3)Aerated Lagoon	Volume 246,880 m3	1 ls		3,090
4)Sedimentation Tank	25m x 25m x3m x 10 unit	1 ls		4,720
5)Chlorination Tank	Contact Time 15.8 min.	1 ls		412
6)Digester	ø25m x 12m x 8 unit	1 ls		4,160
7)Drying Bed	20m x 60m x 16 unit	19,200 m2	110,000 Rp./m2	2,112
8)Administration Building		1,200 m2	250,000 Rp./m2	300
9)Miscellaneous		1 ls		320
				11,087
(B) Mechanical/Electrical Work		1 ls		
	Sub Total			27,947
Direct Cost [(2)+(3)+(4)]				193,510
(5) Land Acquisition				
1) Lift Pump Station				
P1		480 m2	456,800 Rp./m2	219
P2		475 m2	456,800 Rp./m2	217
P3		1,340 m2	456,800 Rp./m2	612
P4		465 m2	456,800 Rp./m2	212
P5		1,835 m2	456,800 Rp./m2	285
2) Treatment Plant		16,500 m2	7,100 Rp./m2	1,176
	Sub Total	164,615 m2		2,721
Total				207,211

Table H.49 (4) Breakdown of Construction Cost for Sewerage Development (North East Zone)

ITEM		QUANTITY	UNIT COST	CONSTRUCTION COST (Million Rp.)
(1) House Connection		65,900 unit	360,000 Rp./unit	23,724
(2) Collection Sewer Line				
1)Tertiary and Secondary		226,000 m	152 - 372 x1,000Rp./m	60,600
2)Main		93,000 m	475 - 2,992 x1,000Rp./m	94,026
3)Trunk		19,200 m	3,213 - 5,489 x1,000Rp./m	76,806
4)Conveyance		7,400 m	4940 - 8,313 x1,000Rp./m	40,381
	Sub Total	345,600 m		271,808
(3) Treatment Plant (Capacity : 261,000 m3/day)				
(A) Civil/Architect Works				
1)Pump Station	Capacity 302m3/mn	1 ls		4,825
2)Grit Chamber	Detention Time 51 sec.	1 ls		207
3)Primary Sedimentation Tank	18mx18mx3mx20unit	1 ls		5,228
4)Aeration Tank	8.5mx26mx5mx40unit	1 ls		11,152
5)Secondary Sedimentation Tank	8.5mx32mx3mx40unit	1 ls		8,364
5)Chlorination Tank	Contact Time 17.7 min.	1 ls		815
6)Digester	ø25m x 12m x 8unit	1 ls		4,160
7)Desludging House		9,100 m2	250,000 Rp./m2	2,275
8)Thickner	ø15 x 3.5m x 4 unit	1 ls		600
9)Blower House		2,300 m2	350,000 Rp./m2	805
10)Administration Building		2,300 m2	350,000 Rp./m2	805
11)Miscellaneous		1 ls		6,035
(B) Mechanical/Electrical Work		1 ls		81,480
	Sub Total			126,751
Direct Cost [(2)+(3)]				398,559
(4) Land Acquisition				
1)Treatment Plant		100000 m2	7,100 Rp./m2	710
Total				422,993

Table H.49(5) Breakdown of Construction Cost for Sewerage Development (South East Zone)

ITEM	QUANTITY	UNIT COST	CONSTRUCTION COST (Million Rp.)
(1) House Connection	17,100 unit	360,000 Rp./unit	6,156
(2) Collection Sewer Line			
1)Tertiary and Secondary	62,300 m	152 - 372 x1,000Rp./m	17,433
2)Main	33,100 m	737 - 2,992 x1,000Rp./m	33,425
3)Trunk	4,200 m	3,213 - 5,489 x1,000Rp./m	15,928
4) Force Main	500 m	3213 x1,000Rp./m	1,607
Sub Total	100,100 m		68,393
(3) Lift Pump Station			
P1 Capacity 48.5 m3/min.	1 ls		5,251
(4) Treatment Plant (Capacity : 101,000 m3/day)			
(A) Civil/Architect Works			
1)Pump Station Capacity 134 m3/min.	1 ls		1,280
2)Grit Chamber Detention Time 56 sec.	1 ls		103
3)Aerated Lagoon Volume 197,500 m3	1 ls		2,472
4)Sedimentation Tank 25m x25m x3m x 8unit	1 ls		3,776
5)Chlorination Tank Contact Time 18.2 min.	1 ls		412
6)Digester ø25m x 12m x 6 unit	1 ls		3,122
7)Drying Bed 20mx60mx0.2mx10unit	12,000 m2	110,000 Rp./m2	1,320
8)Administration Building	1,000 m2	250,000 Rp./m2	250
9)Miscellaneous	1 ls		962
(B) Mechanical/Electrical Work	1 ls		9,769
Sub Total			23,466
Direct Cost [(2)+(3)+(4)]			97,110
(5) Land Acquisition			
1) Lift Pump Station P1	1,167 m2	189,800 Rp./m2	89
(2) Treatment Plant	130,000 m2	7,100 Rp./m2	923
Sub Total			1,012
Total			104,278

Table H.49(6) Breakdown of Construction Cost for Sewerage Development (Tanjung Priok Zone)

ITEM	QUANTITY	UNIT COST	CONSTRUCTION COST (Million Rp.)
(1) House Connection	42,100 unit	360,000 Rp./unit	15,156
(2) Collection Sewer Line			
1)Tertiary and Secondary	97,700 m	152 - 372 x1,000Rp./m	26,170
2)Main	40,000 m	475 - 2,992 x1,000Rp./m	40,404
3)Trunk	8,300 m	3,213 - 5,489 x1,000Rp./m	37,228
4)Force Main	1,400 m	3,714 x1,000Rp./m	5,200
5) Conveyance	1,000 m	6,070 x1,000Rp./m	6,070
Sub Total	148,400 m		115,072
(3) Lift Pump Station			
P1 Capacity 81.2 m3/min.	1 ls		6,068
(4) Treatment Plant (Capacity : 120,000 m3/day)			
(A) Civil/Architect Works			
1)Pump Station Capacity 155 m3/min.	1 ls		2,200
2)Grit Chamber Detention Time 49 sec.	1 ls		103
3)Aerated Lagoon Volume 246,880 m3	1 ls		3,090
4)Facultative Pond Volume 534,480 m3	1 ls		-
5)Chlorination Tank Contact time 18.0 min	1 ls		100
6)Sludge Drying Area 20mx60mx0.2mx15unit	18,000 m2	110,000 Rp./m2	1,980
7)Administration Building	1,200 m2	250,000 Rp./m2	300
8)Miscellaneous	1 ls		360
9)Discharge Pump Station	1 ls		1,008
(B) Mechanical/Electrical Work	1 ls		11,569
Sub Total			20,710
Direct Cost [(2)+(3)+(4)]			141,850
(5) Land Acquisition			
1) Lift Pump Station			
P1	1,387 m2	161,000 Rp./m2	223
2) Treatment Plant	150,000 m2	7,100 Rp./m2	1,065
3) Discharge Pump Station	700 m2	161,000 Rp./m2	113
Sub Total			1,401
Total			158,407

Table H.50 Unit Basic Construction Cost

1. Basic Construction Cost

No.	WORKS ITEM	UNIT	UNIT PRICE
1	Common Excavation	m 3	RP. 4,335
2	Back fill	m 3	RP. 1,750
3	a. Concrete Mix. 1:3:5	m 3	RP. 117,500
	b. Concrete Mix. 1:2:3	m 3	RP. 123,500
4	Reinforced Bar	k g	RP. 1,325
5	Worker Form a) Wooden Material	m 2	RP. 6,565
	b) Plywood Material	m 2	RP. 8,800
6	Masonry 1:2	m 3	RP. 87,000
7	Brick 1:2	m 3	RP. 111,500
8	Mortar 1:2	m 2	RP. 5,300
9	Sand fill	m 3	RP. 30,615

2. Unit Construction Cost of Pipe Laying Work

Diameter (mm)	Unit Cost (1,000 Rp./m)	Remarks
150	152	include manhole cost
200	199	
250	266	
300	372	
350	475	
400	596	
450	737	
500	899	
600	1,315	
700	2,338	
800	2,992	
900	3,213	
1,000	3,455	
1,100	3,714	
1,200	3,992	
1,350	4,445	
1,500	4,940	
1,650	5,489	
1,800	6,070	
1,900	6,480	
2,000	6,910	
2,100	7,359	
2,200	7,826	
2,300	8,313	

Table H.51 Breakdown of On-site Construction Cost

(milllion Rp.)

Area		Area A	Area B	Area C	Overall Study Area	Total
Public Toilet	Quantity (unit)		1,473	713		
	Unit Cost		12	20		
	Cost	-	17,680	14,260	-	31,940
Sludge Treatmenr Plant Capacity : 300 m3/d	Quantity (unit)				2	
	Unit Cost				12,000	
	Cost	-	-	-	2,400	2,400
Collection Truck	Quantity (unit)				211	
	Unit Cost				140	
	Cost	-	-	-		29,540
Project Direct Cost						63,880
Toilet with Septic Tank	Quantity (unit)	110,200	189,700	167,000		
	Unit Cost	1.2	1	8.6		
	Cost	132,240	227,640	100,200	-	460,080
Toilet with Leaching pit	Quantity (unit)	20,400				
	Unit Cost	0.3				
	Cost	6,120	-	-	-	6,120
Toilet with Septic Tank with Up Flow Filter	Quantity (unit)		372,200			
	Unit Cost		2.3			
	Cost	-	856,060		-	856,060
Household Treatment						1,322,260
Grand Total						1,386,140

Table H.52(1) Operation and Maintenance Cost for Central Zone

Item	Quantity	Unit Cost	O/M Cost/Annum (million Rp.)
Collection Sewers	635,300 m	300 Rp/m	191
Lift Pump Stations	1 ls		
Treatment Plant			
(1) Inflow Pump	13,997,340 k w h	100 Rp/kwh	1,400
(2) Aeratior Pump	37,072,320 k w h	100 Rp/kwh	3,707
(3) Other Electricity	5,560,848 k w h	100 Rp/kwh	556
(4) Chemicals	1 ls		614
(5) Repairing	1 ls		279
(6) Personnel Expenditure	1 ls		142
Sub Total			6,698
Total			6,889

Table H.52(2) Operation and Maintenance Cost for North West Zone

Item	Quantity	Unit Cost	O/M Cost/Annum (million Rp.)
Collection Sewers	161,700 m	300 Rp/m	49
Lift Pump Stations	1 ls		488
Treatment Plant			
(1) Aeratior	8,689,920 k w h	100 Rp/kwh	869
(2) Other Electricity	1,390,387 k w h	100 Rp/kwh	139
(3) Chemicals	1 ls		144
(4) Repairing	1 ls		60
(5) Personnel Expenditure	1 ls		73
Sub Total			1,285
Total			1,822

Table H.52(3) Operation and Maintenance Cost for South West Zone

Item	Quantity	Unit Cost	O/M Cost/Annum (million Rp.)
Collection Sewers	206,100 m	300 Rp/m	62
Lift Pump Stations	1 ls		581
Treatment Plant			
(1) Inflow Pump	1,141,920 k w h	100 Rp/kwh	114
(2) Aeratior	8,199,360 k w h	100 Rp/kwh	820
(3) Other Electricity	1,311,898 k w h	100 Rp/kwh	131
(4) Chemicals	1 ls		136
(5) Repairing	1 ls		111
(6) Personnel Expenditure	1 ls		70
Sub Total			1,382
Total			2,025

Table H.52(4) Operation and Maintenance Cost for North East Zone

Item	Quantity	Unit Cost	O/M Cost/Annum (million Rp.)
Collection Sewers	345,600 m	300 Rp/m	104
Treatment Plant			
(1) Electrical Charge	28,579,500 k w h	100 Rp/kwh	2,858
(2) Chemicals	1 ls		303
(3) Repairing	1 ls		815
(4) Personnel Expenditure	1 ls		90
(5) Miscellaneous	1 ls		47
Sub Total			4,113
Total			4,217

Table H.52(5) Operation and Maintenance Cost for South East Zone

Item	Quantity	Unit Cost	O/M Cost/Annum (million Rp.)
Collection Sewers	100,100 m	300 Rp/m	30
Lift Pump Station	1 ls		89
Treatment Plant			
(1) Inflow Pump	1,018,080 k w h	100 Rp/kwh	102
(2) Aeratior	7,078,080 k w h	100 Rp/kwh	708
(3) Other Electricity	1,132,493 k w h	100 Rp/kwh	113
(4) Chemicals	1 ls		117
(5) Repairing	1 ls		98
(6) Personnel Expenditure	1 ls		70
Sub Total			1,208
			1,327

Table H.52(6) Operation and Maintenance Cost for Tanjung Priok

Item	Quantity	Unit Cost	O/M Cost/Annum (million Rp.)
Collection Sewers	149,400 m	300 Rp/m	45
Lift Pump Stations			127
Treatment Plant			
(1) Inflow Pump	2,268,000 k w h	100 Rp/kwh	227
(2) Aeratior	8,409,600 k w h	100 Rp/kwh	841
(3) Other Electricity	1,345,536 k w h	100 Rp/kwh	135
(4) Chemicals	1 ls		139
(5) Repairing	1 ls		124
(6) Personnel Expenditure	1 ls		73
(7) Discharge Pump	604,800 k w h	100 Rp/kwh	76
Sub Total			1,615
Total			1,787

LEGEND

: RIVER

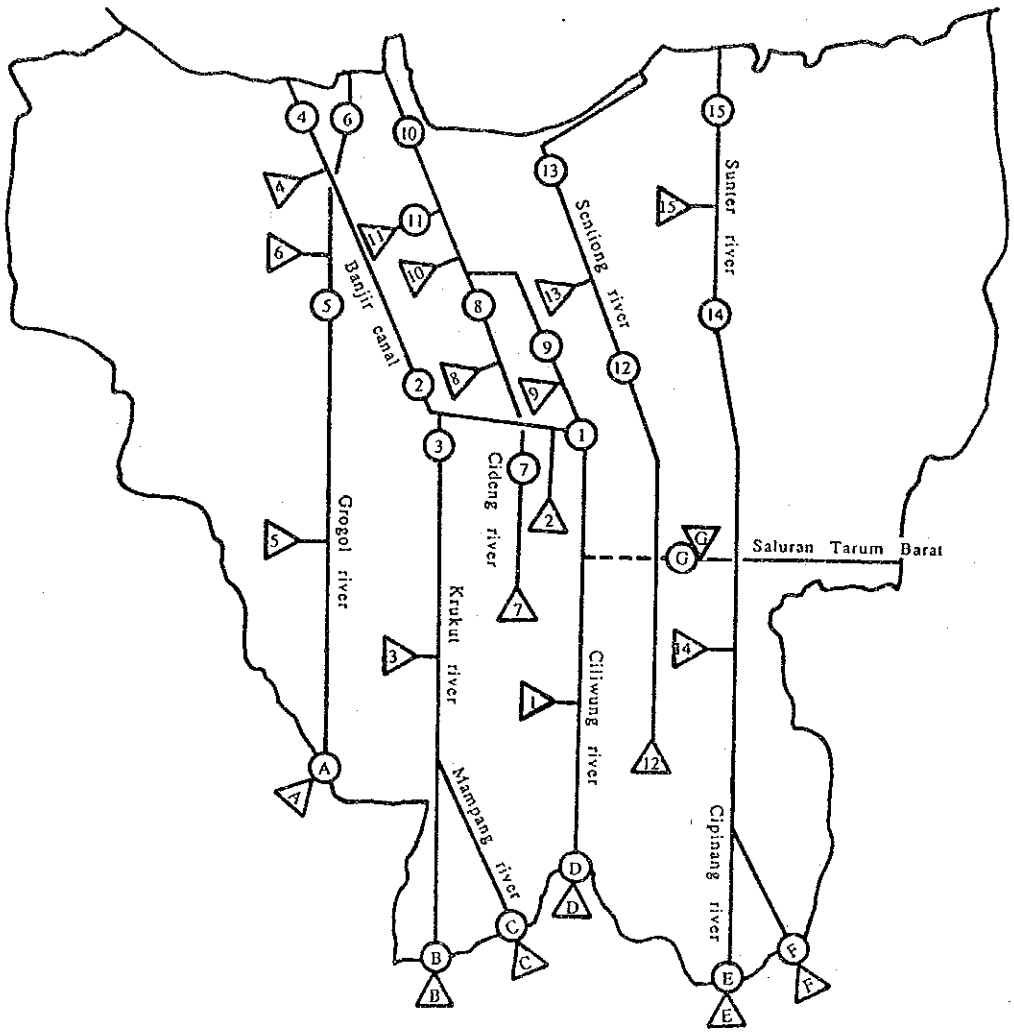
: CATCHMENT AREA BOUNDARY

: STATION

NO. OF SUB-BASIN	NAME OF SUB-BASIN
1	UPPER CILIWUNG
2	KALI BATA
3	KRUKUT
4	LOWER ANGKE
5	UPPER GROGOL
6	LOWER GROGOL
7	UPPER CIDENG
8	MIDDLE CIDENG
9	LOWER CILIWUNG
10	LOWER CIDENG
11	OLD ANGKE
12	UPPER ANGKE
13	LOWER SENTIONG
14	UPPER SUNTER
15	LOWER SUNTER

FIG. H.1 DIVISION OF OBJECTIVE RIVER BASIN

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA



LEGEND

① - ⑮ OUT-PUT STATION OF WATER QUALITY (15 STATIONS)

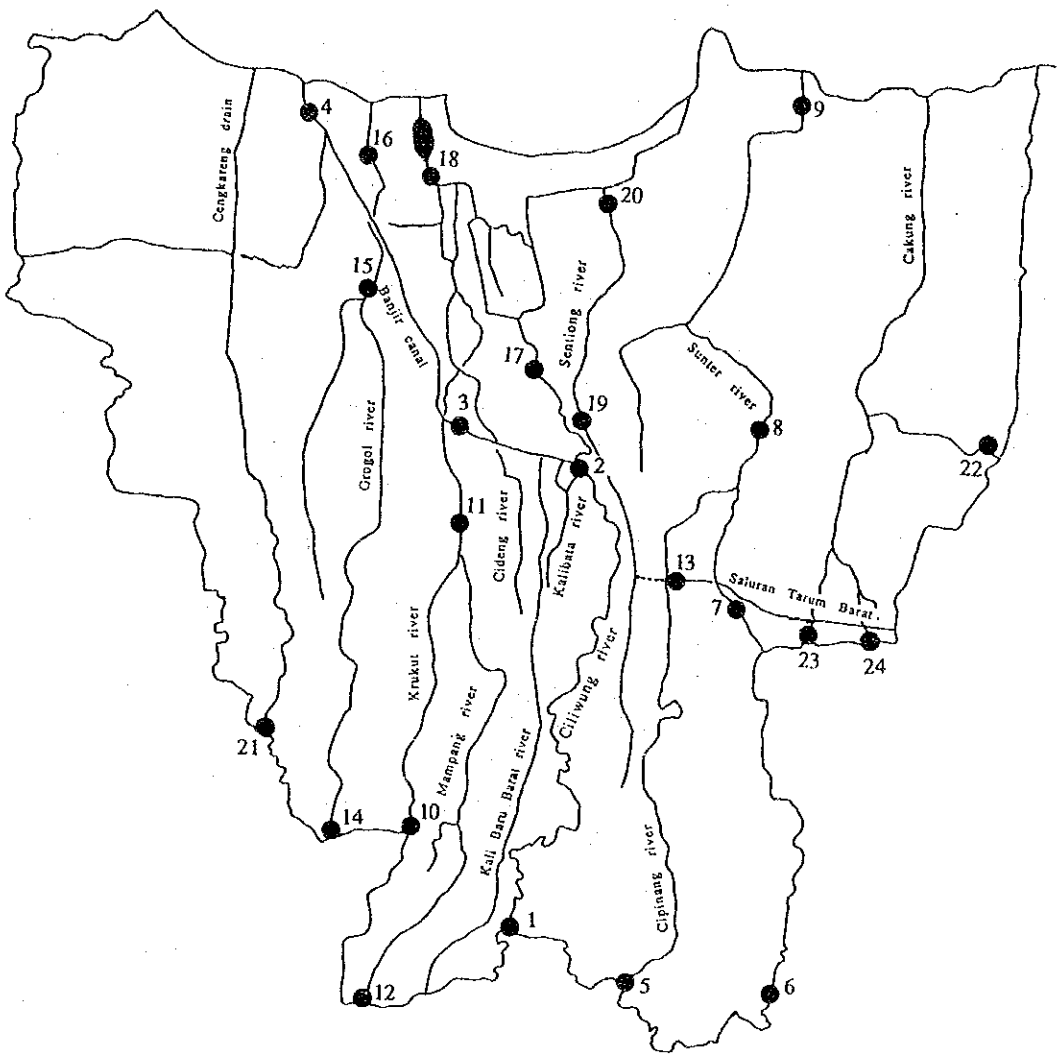
Ⅰ - Ⅹ SUB-BASIN OF WASTEWATER AND POLLUTION LOAD DISCHARGE

Ⓐ - Ⓖ INPUT STATION OF WATER FLOW AND POLLUTION LOAD (7 STATIONS)

Ⓐ - Ⓖ RIVER BASIN OUTSIDE THE STUDY AREA

FIG. H.2 MODEL OF RIVER SYSTEM

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA



LEGEND

RIVER

WATER FLOW OBSERVATION STATION

FIG. H.3 RIVER WATER FLOW OBSERVATION STATION (P4L)

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

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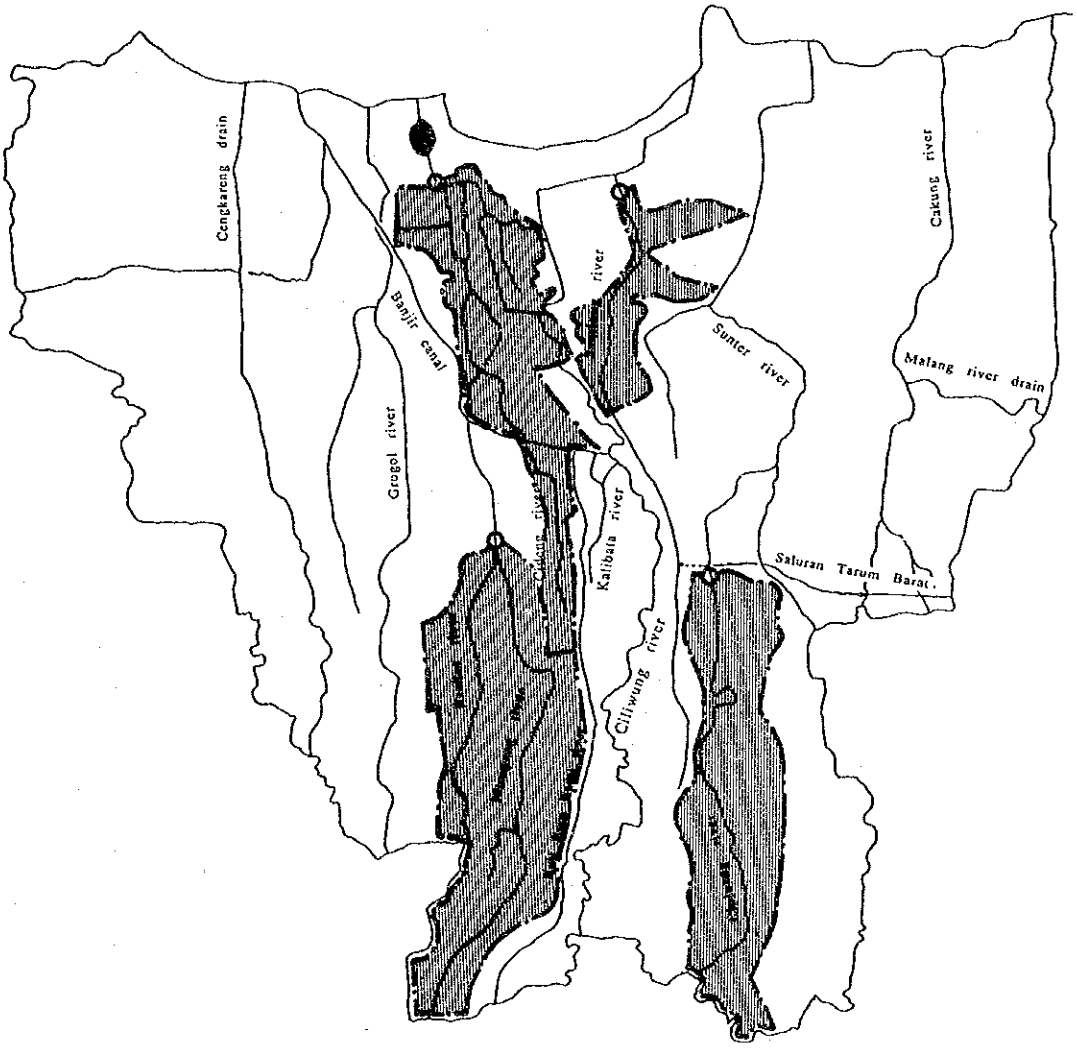

LEGEND

RIVER
CATCHMENT AREA BOUNDARY
CALCULATED STATION

FIG. H.4 CATCHMENT AREA FOR RUN-OFF COEFFICIENT ESTIMATION

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

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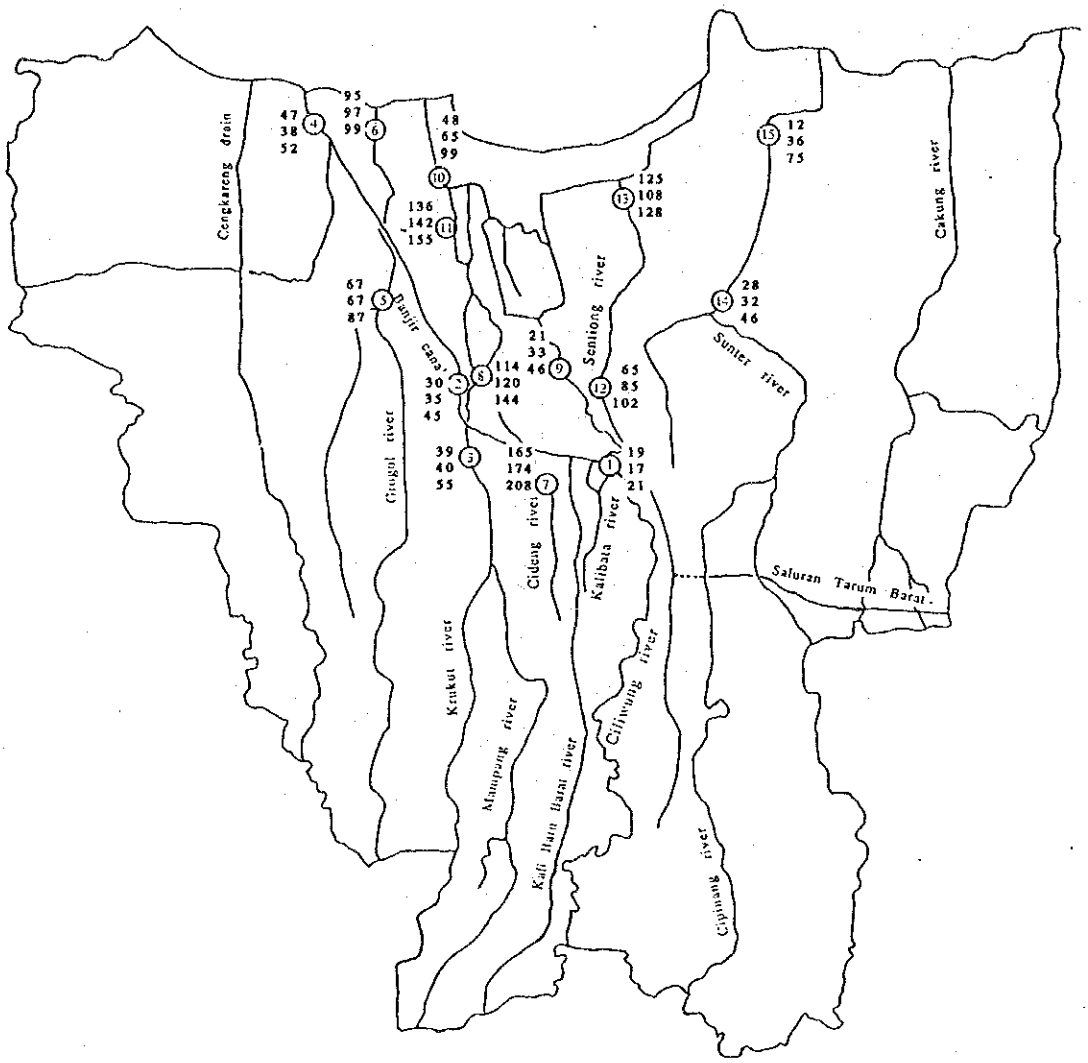

LEGEND

River

① - ⑮ Water Quality Simulated Station

Figures mean river water quality of BOD in mg/l

1 9 Top:Observed Existing River water Quality

1 7 Mid:Simulated Existing River water Quality

2 1 Bottom:Simulated Future River water Quality

FIG. H.5 SIMULATED FUTURE RIVER WATER QUALITY

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

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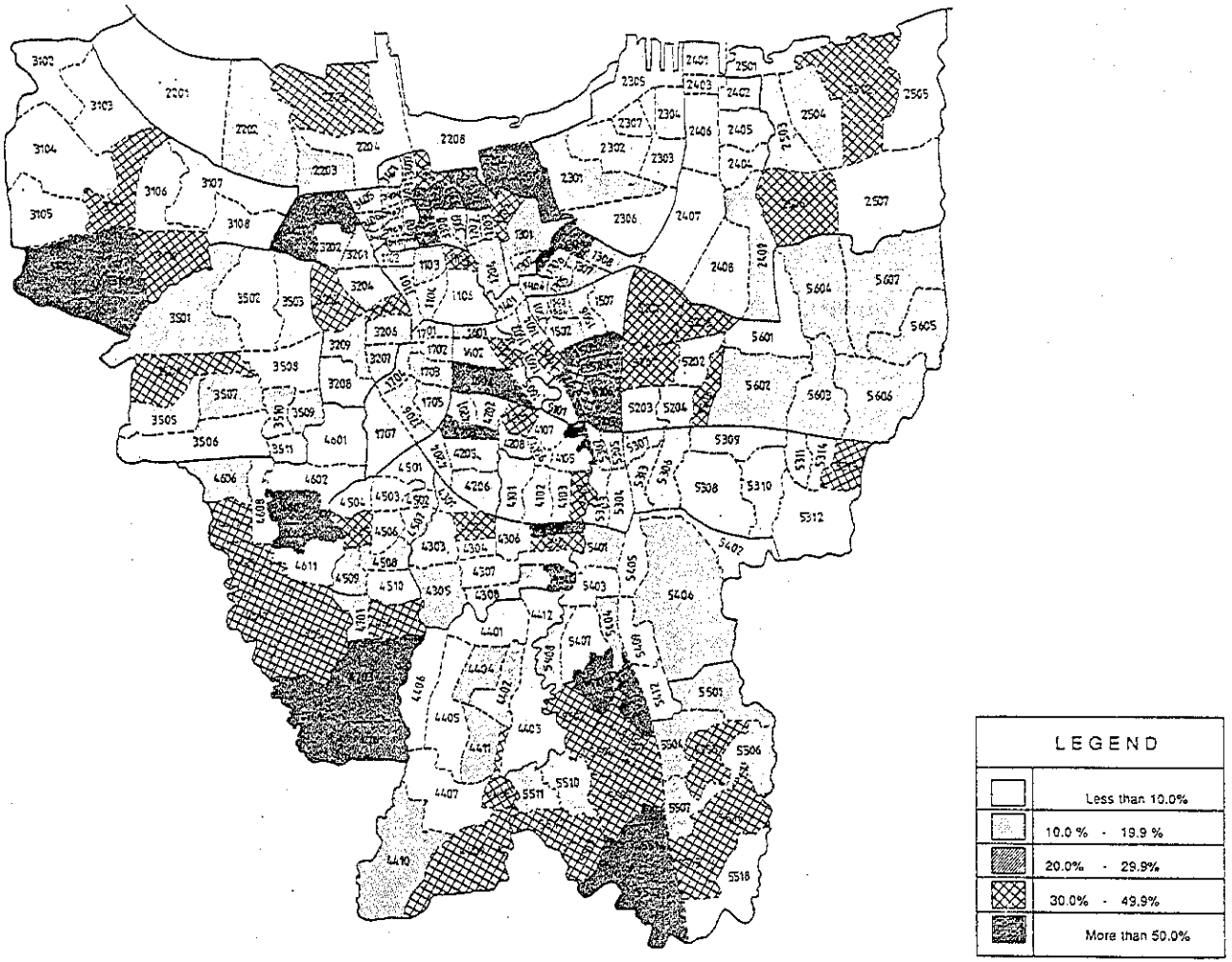

FIG. H.6 RATIO OF HOUSEHOLDS DESIRING TO USE SEWERAGE FACILITES IN 1989

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

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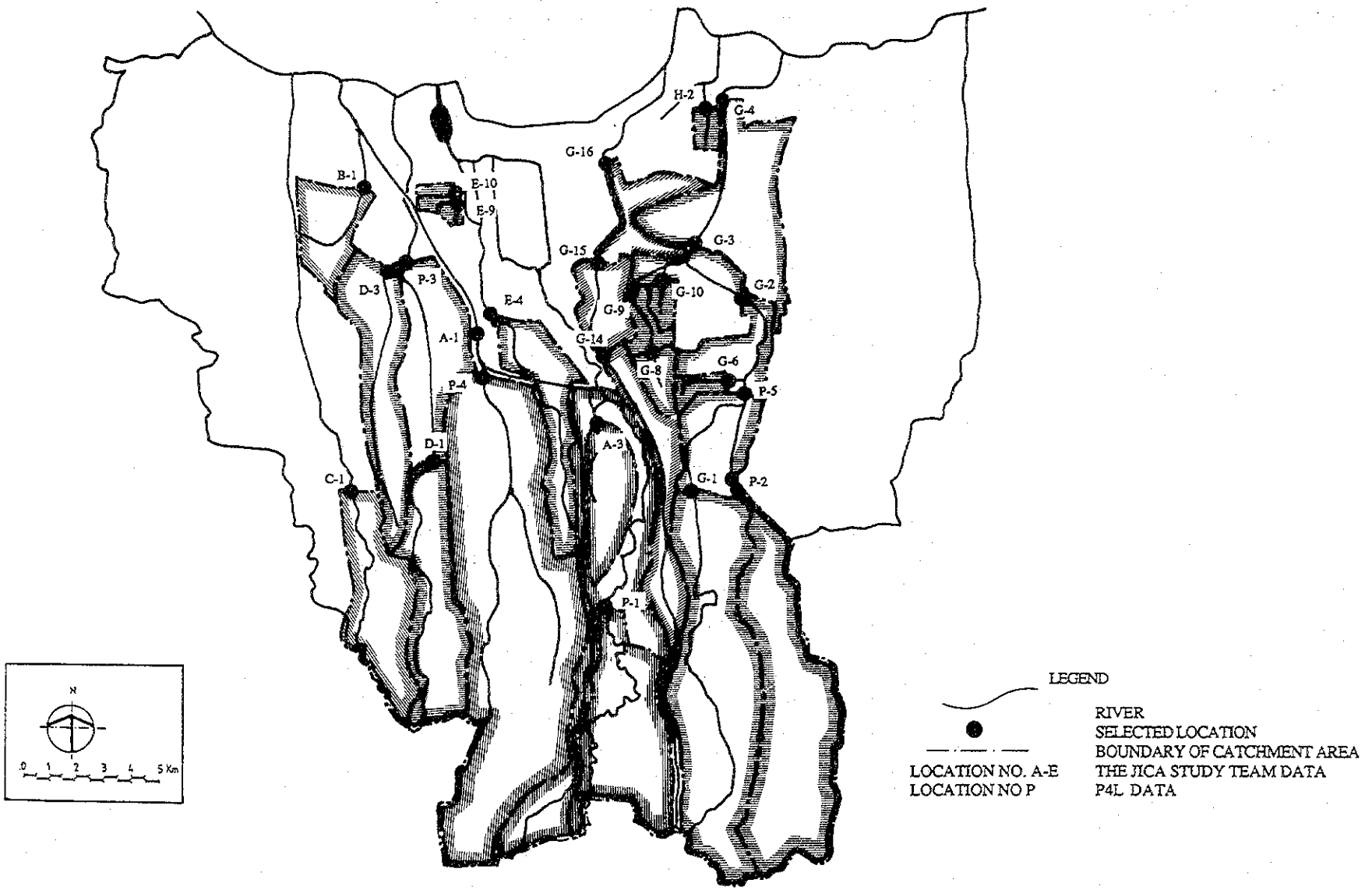

FIG. H.7 SELECTED STATIONS AND THEIR CATCHMENT AREA

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

JICA A.D 1991

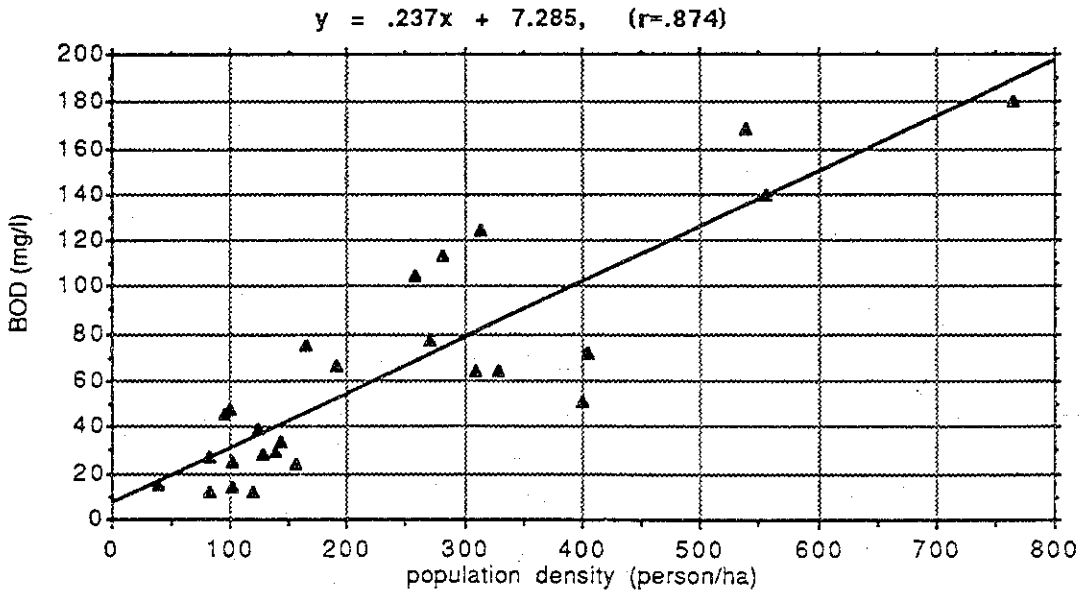

FIG. H.8	CORRELATION BETWEEN RIVER WATER QUALITY AND POPULATION DENSITY

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

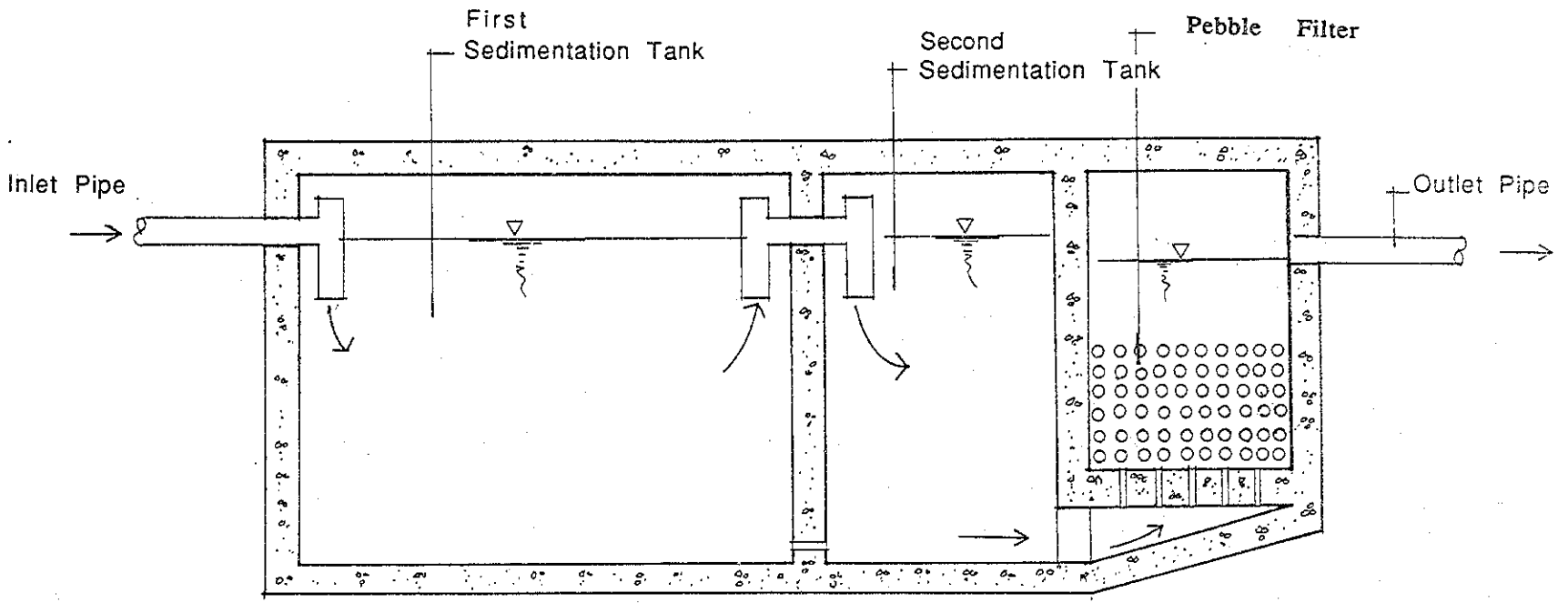

FIG. H.9 SEPTIC TANK WITH UPFLOW FILTER

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

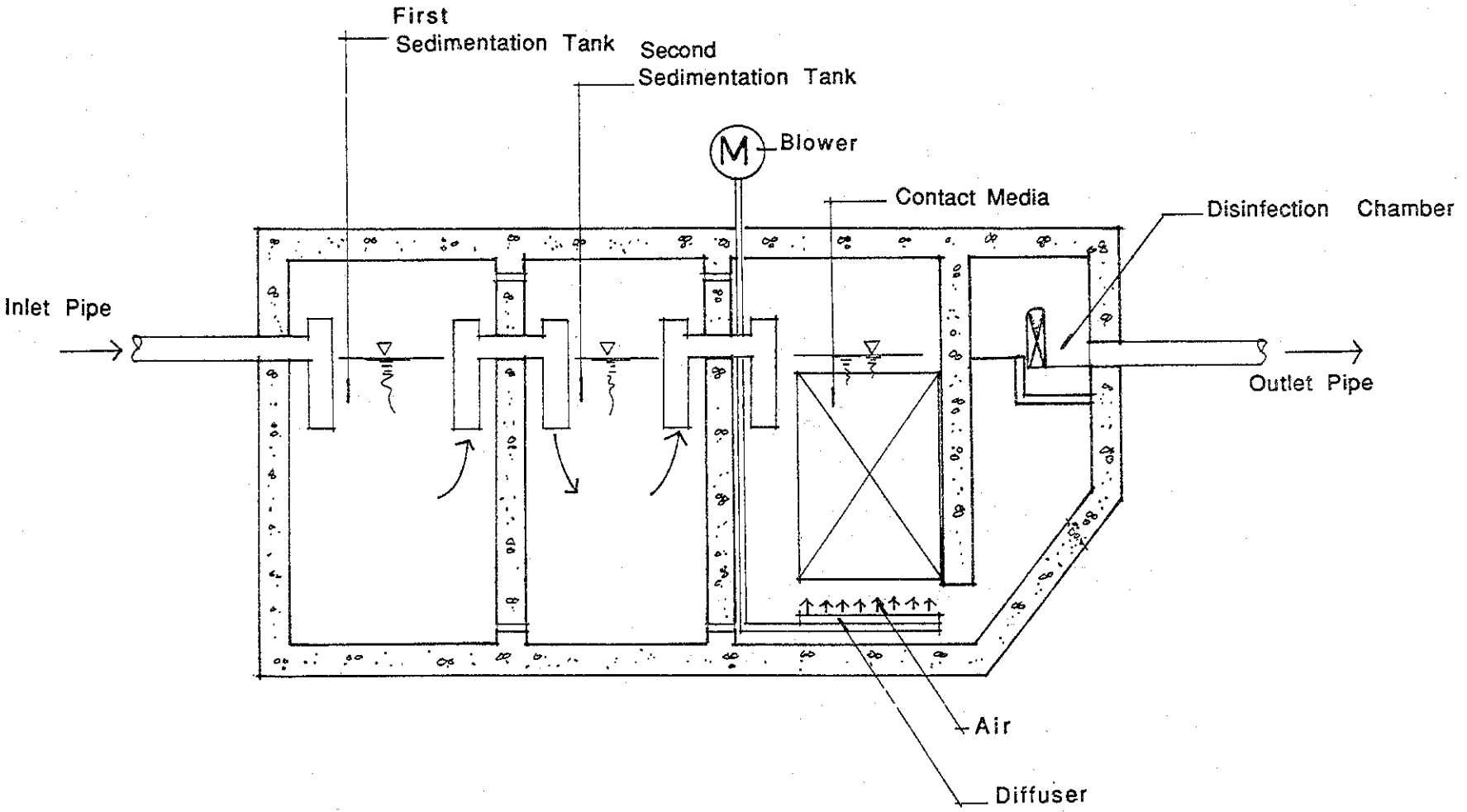

FIG. H.10 HOUSEHOLD PACKAGE TREATMENT PLANT

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

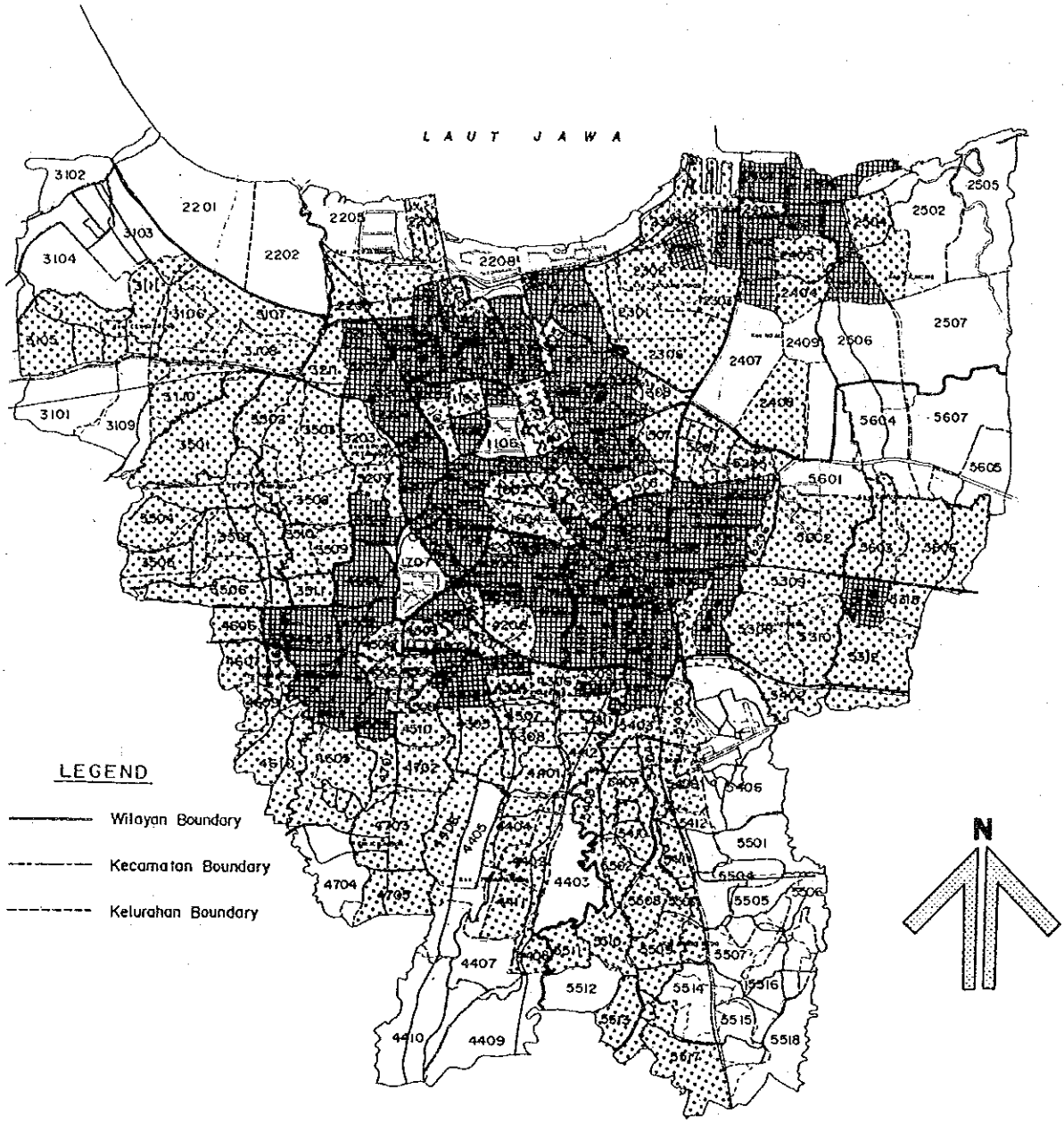

FIG. H.11 DIVISION OF PROJECT AREA BY POPULATION DENSITY

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

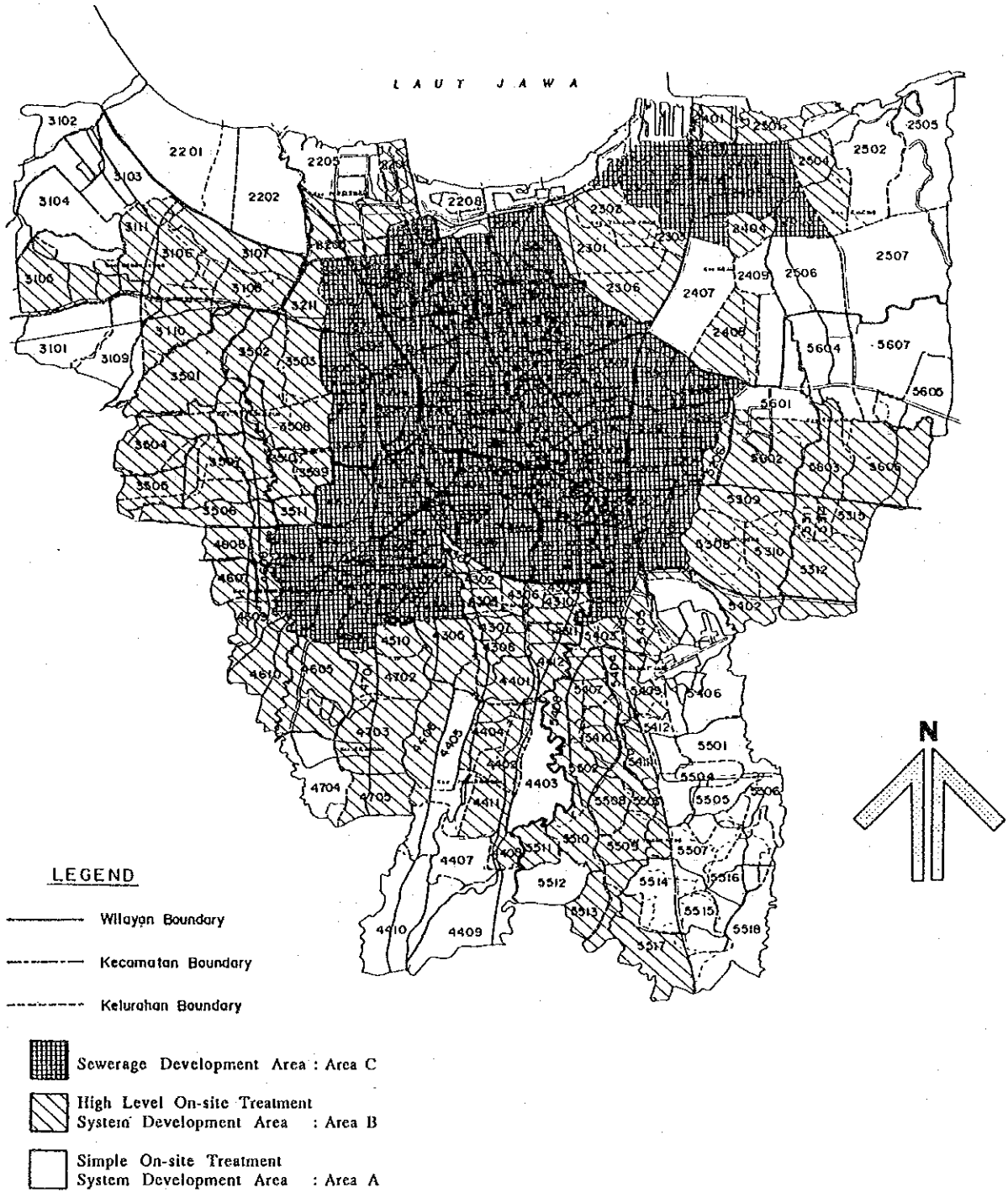

FIG. H.12 DIVISION OF PROJECT AREA BY SANITATION SYSTEM

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

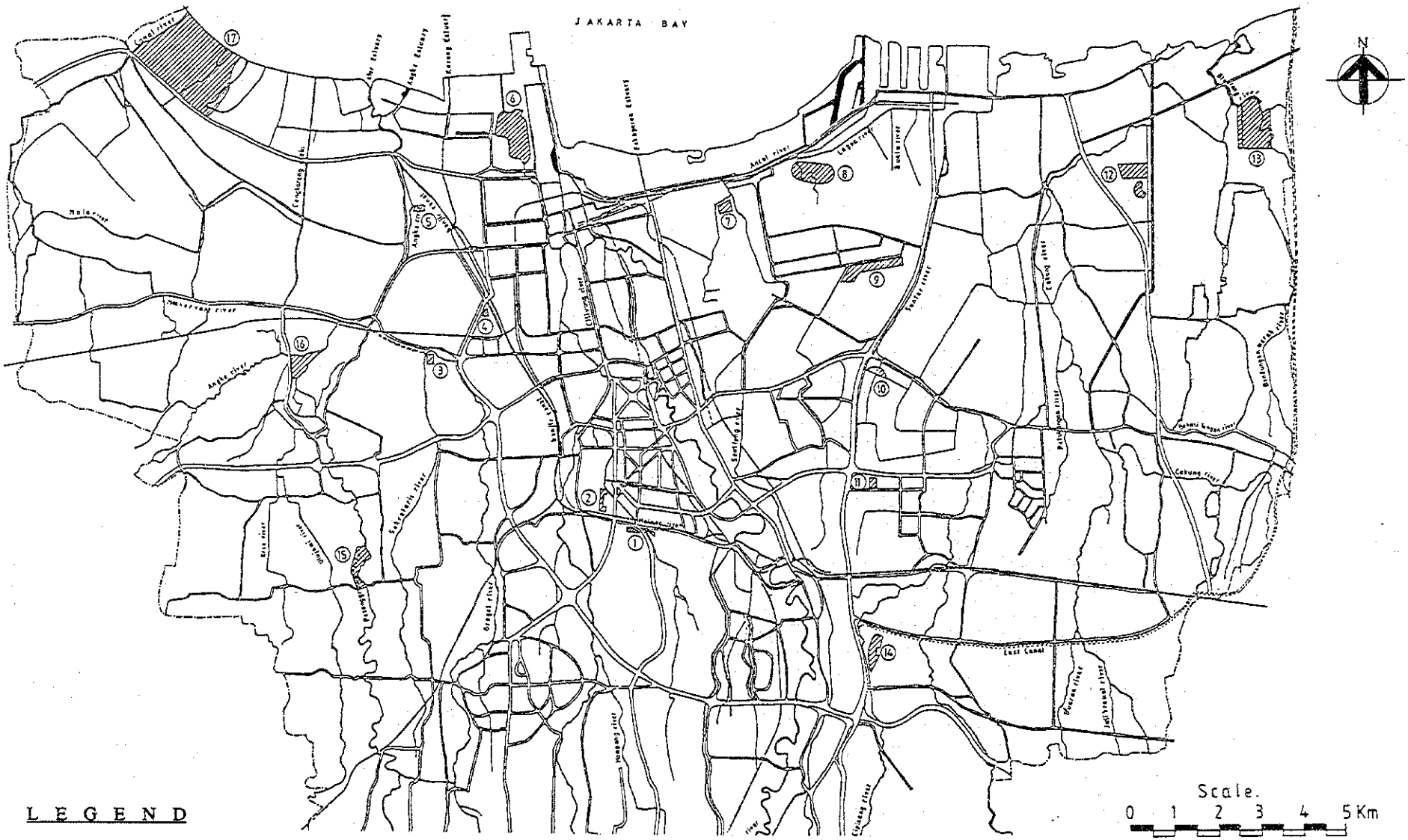

FIG. H.13 LOCATION MAP OF POTENTIAL SITES OF WASTEWATER TREATMENT

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

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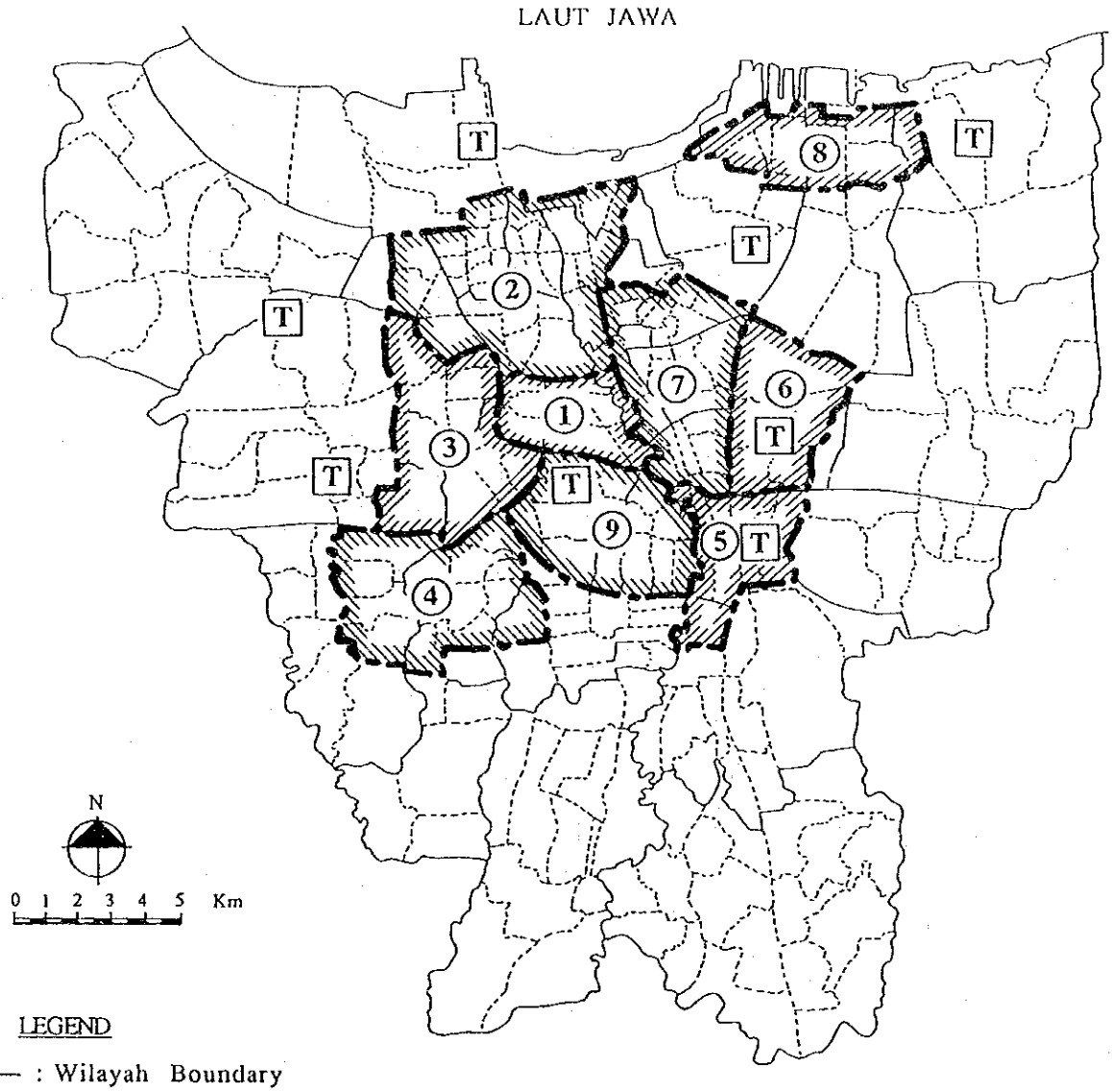


LEGEND

——— : Wilayah Boundary

—·—·— : Kecamatan Boundary

- - - - - - : Kelurahan Boundary

▬ ▬ ▬ : Boundary of Sewerage Development Zone

(1) : Zone No.

[T] : Sewerage Treatment Plant

FIG. H.14 MULTIPLE SMALL SCALE ON-LAND TREATMENT SYSTEM

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

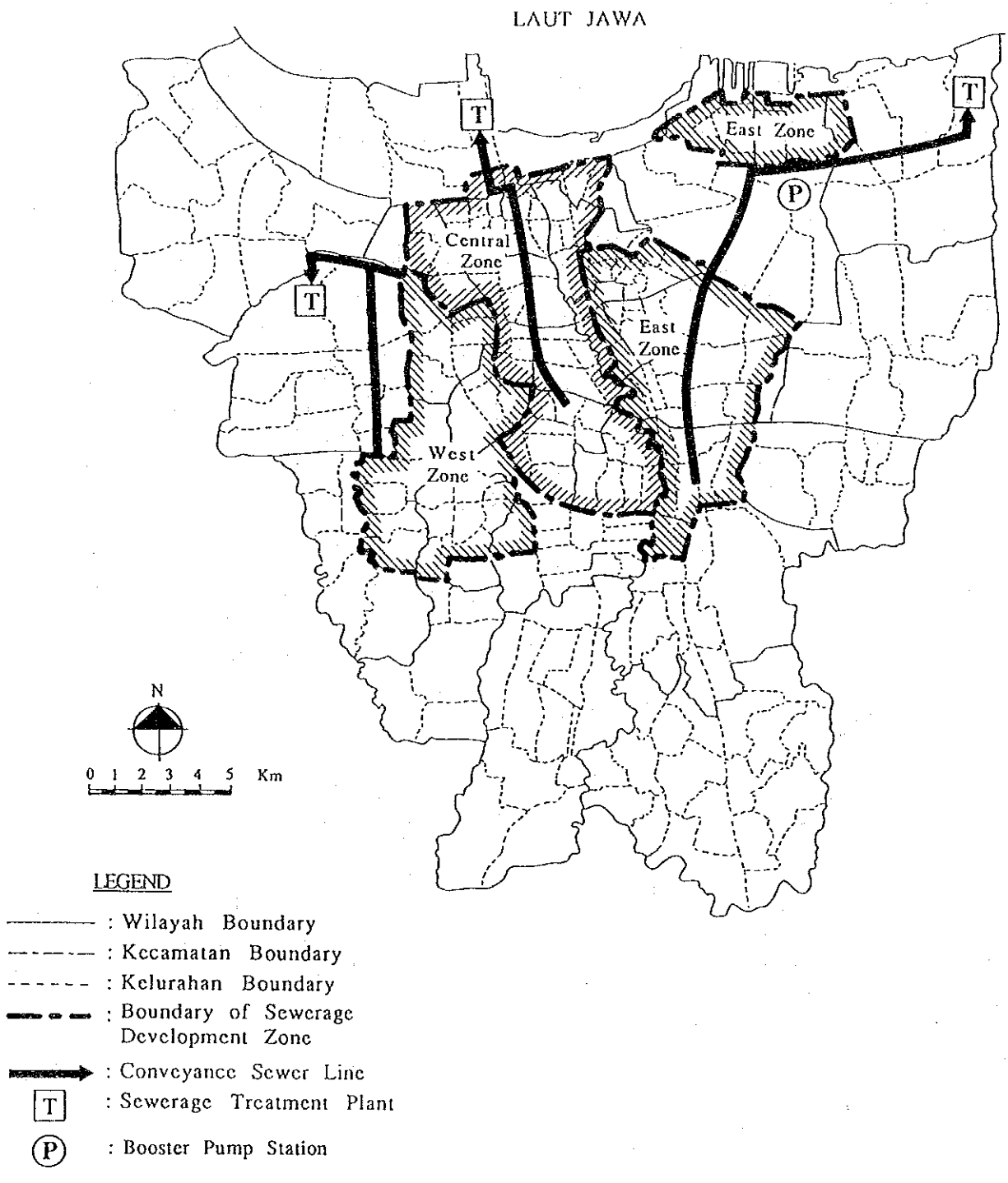
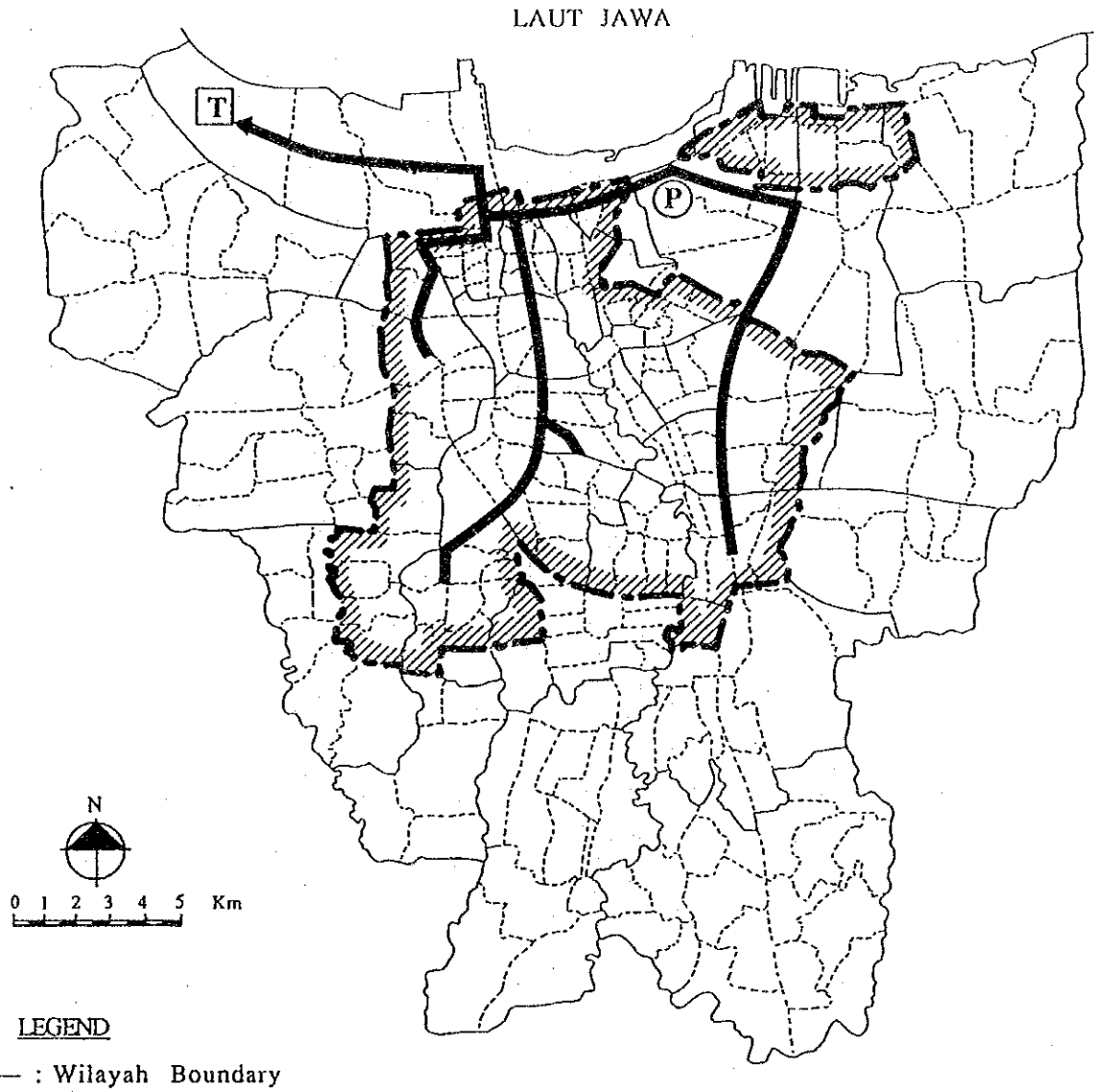


FIG. H.15 MULTIPLE MEDIUM SCALE ON-LAND TREATMENT SYSTEM

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA



LEGEND

——— : Wilayah Boundary

—·—·— : Kecamatan Boundary

- - - - - - : Kelurahan Boundary

— — — : Boundary of Sewerage Development Zone

➡ : Conveyance Sewer Line

T : Sewerage Treatment Plant

P : Booster Pump Station

FIG. H.16 SINGLE LARGE SCALE ON-LAND TREATMENT SYSTEM

THE STUDY ON URBAN DRAINAGE AND WASTE WATER DISPOSAL PROJECT IN THE CITY OF JAKARTA

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