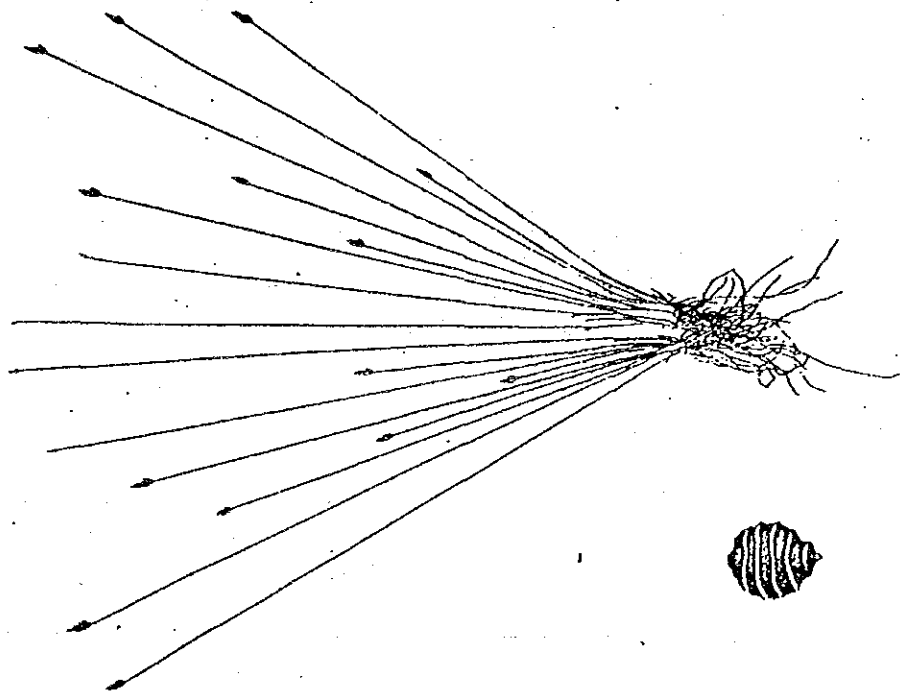
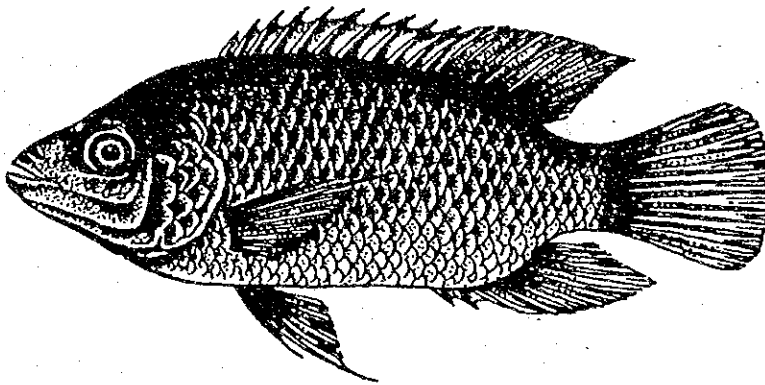


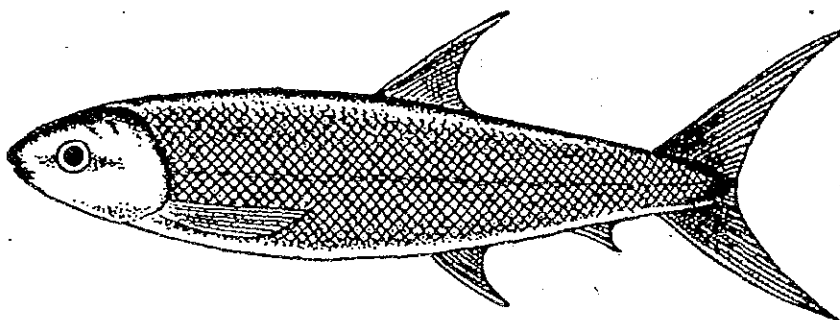
Fimbristylis polytrichoides



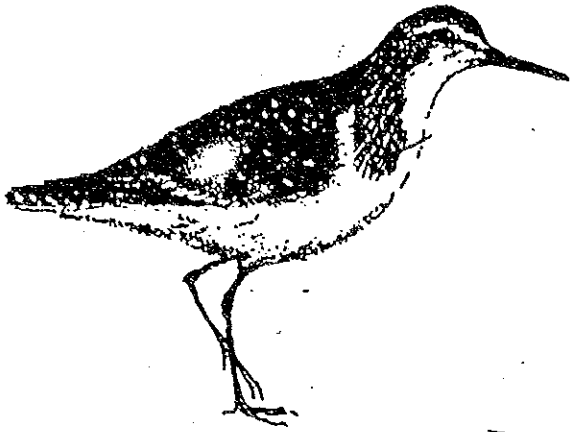
Fimbristylis acuminata



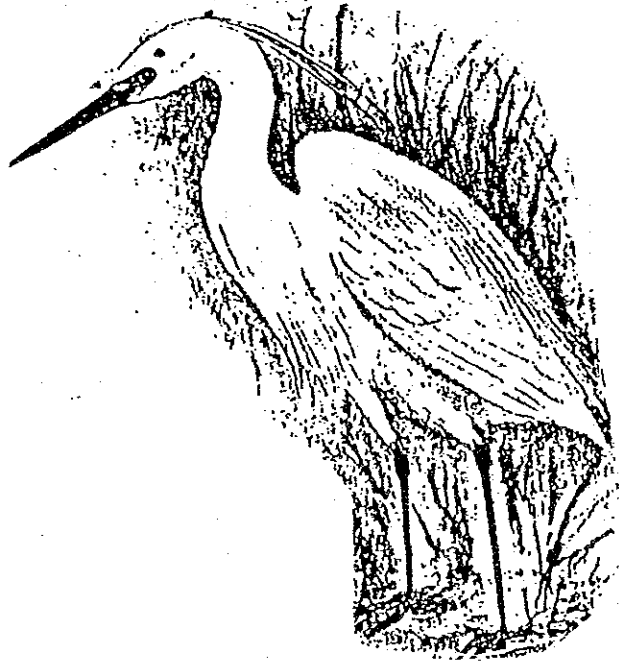
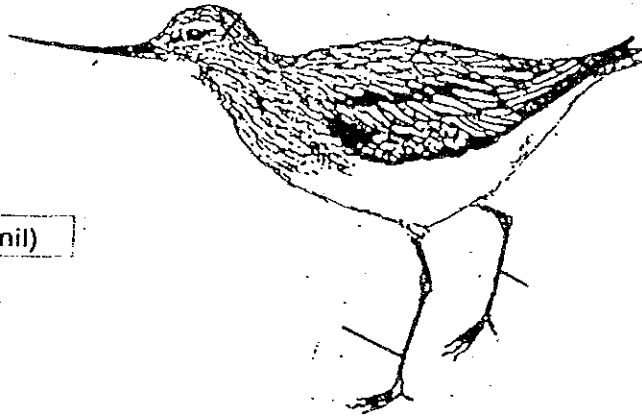
Tilapia mossambica (Mujair)



Chanos chanos (Milk fish/bandeng)

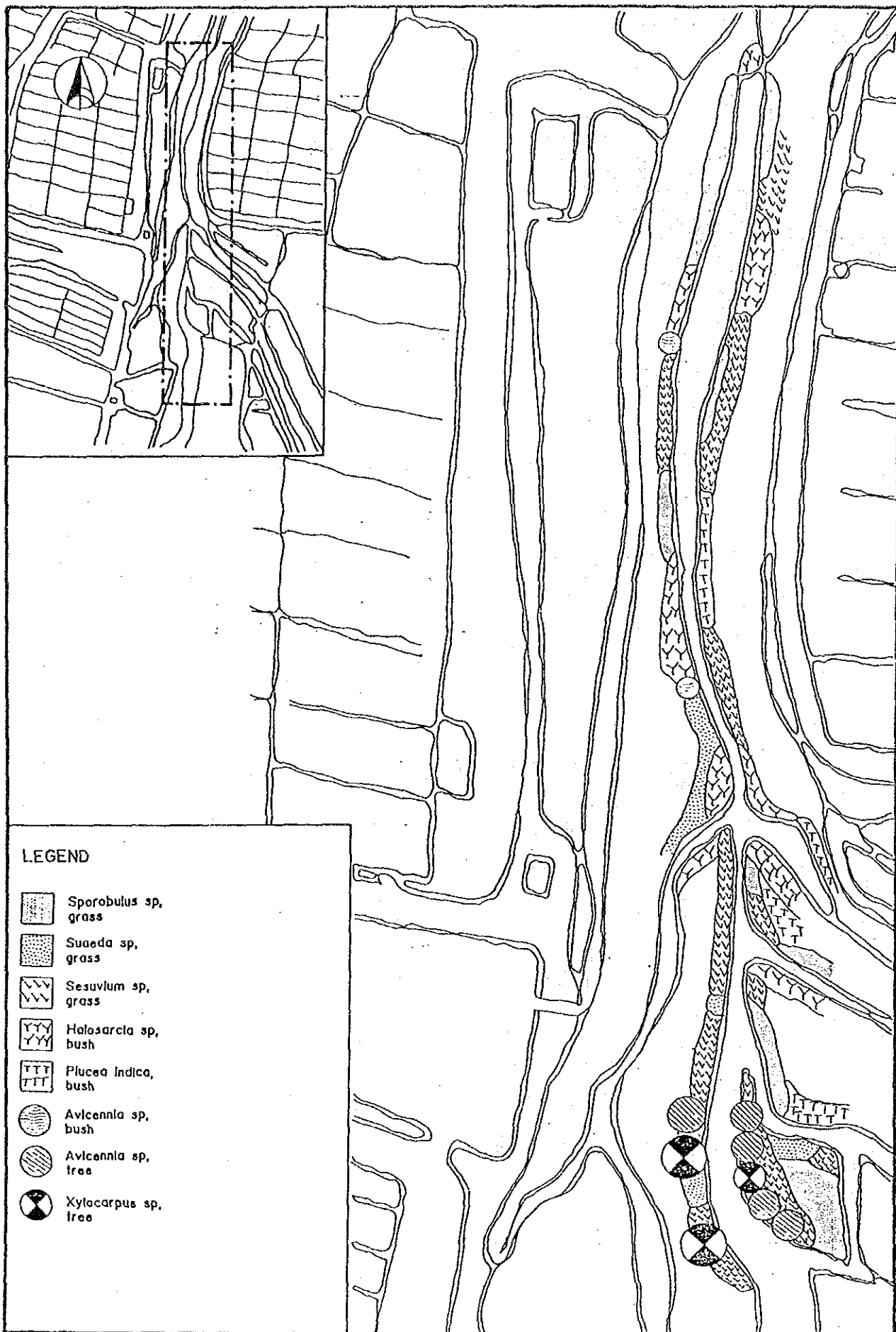


Xenus Cinereus (Trinil)

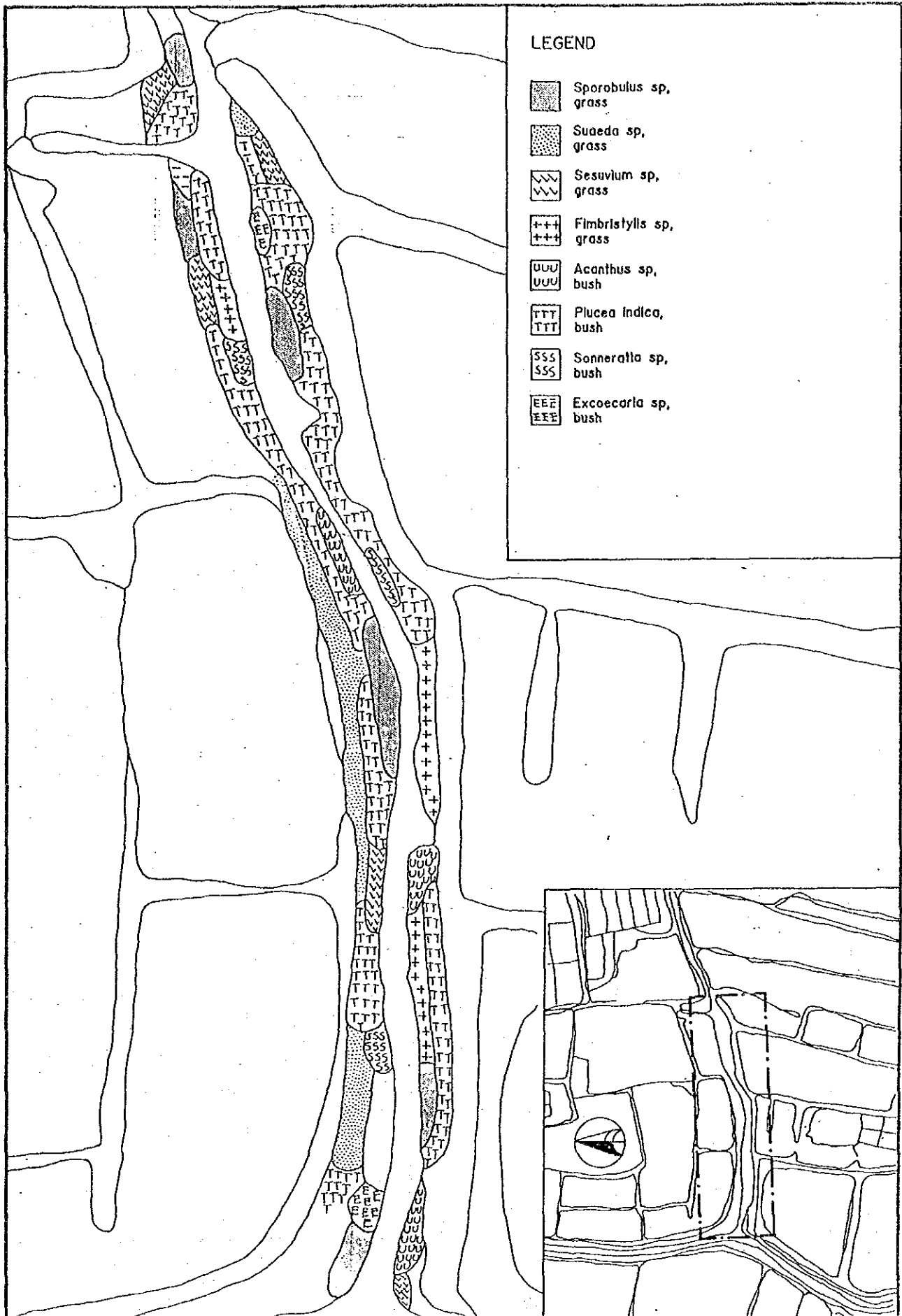


Egreta Garzetta (Kuntul)

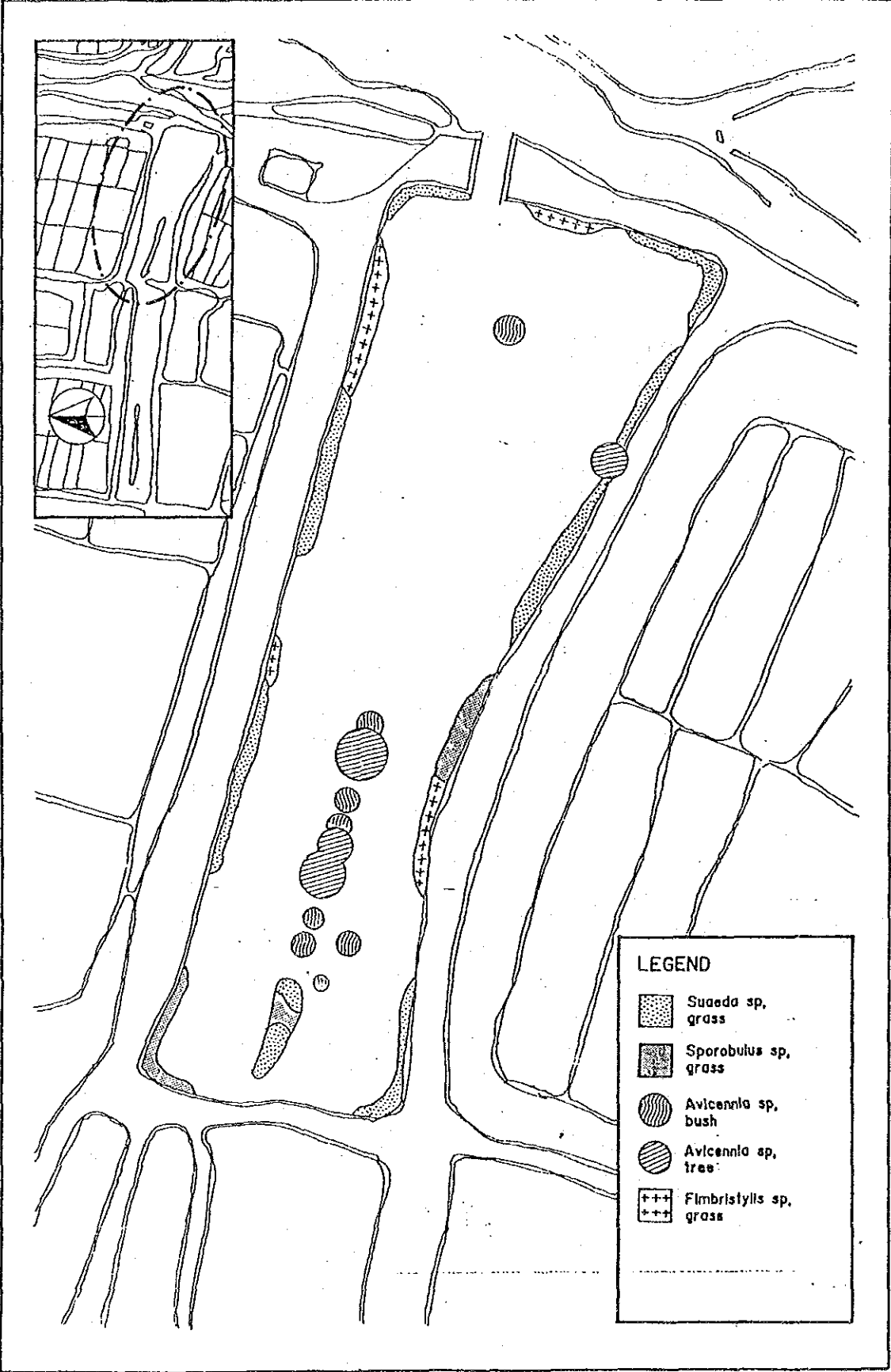
TERRESTRIAL FLORA ON RIVER AND RIVER BANK AT INNER PROPOSED LANDFILL SITE



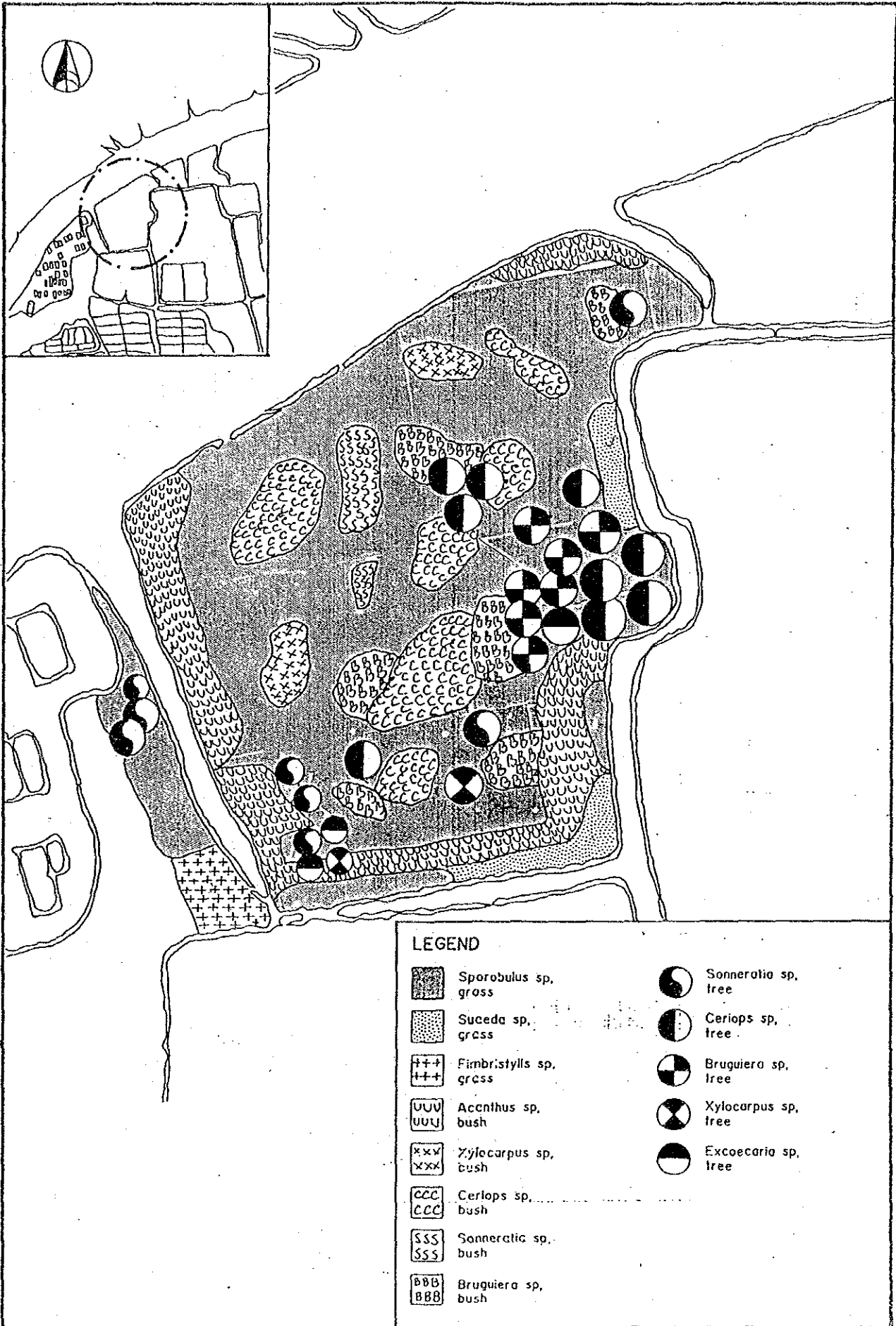
TERRESTRIAL FLORA ON RIVER AND RIVER BANK AT OUTER PROPOSED LANDFILL SITE



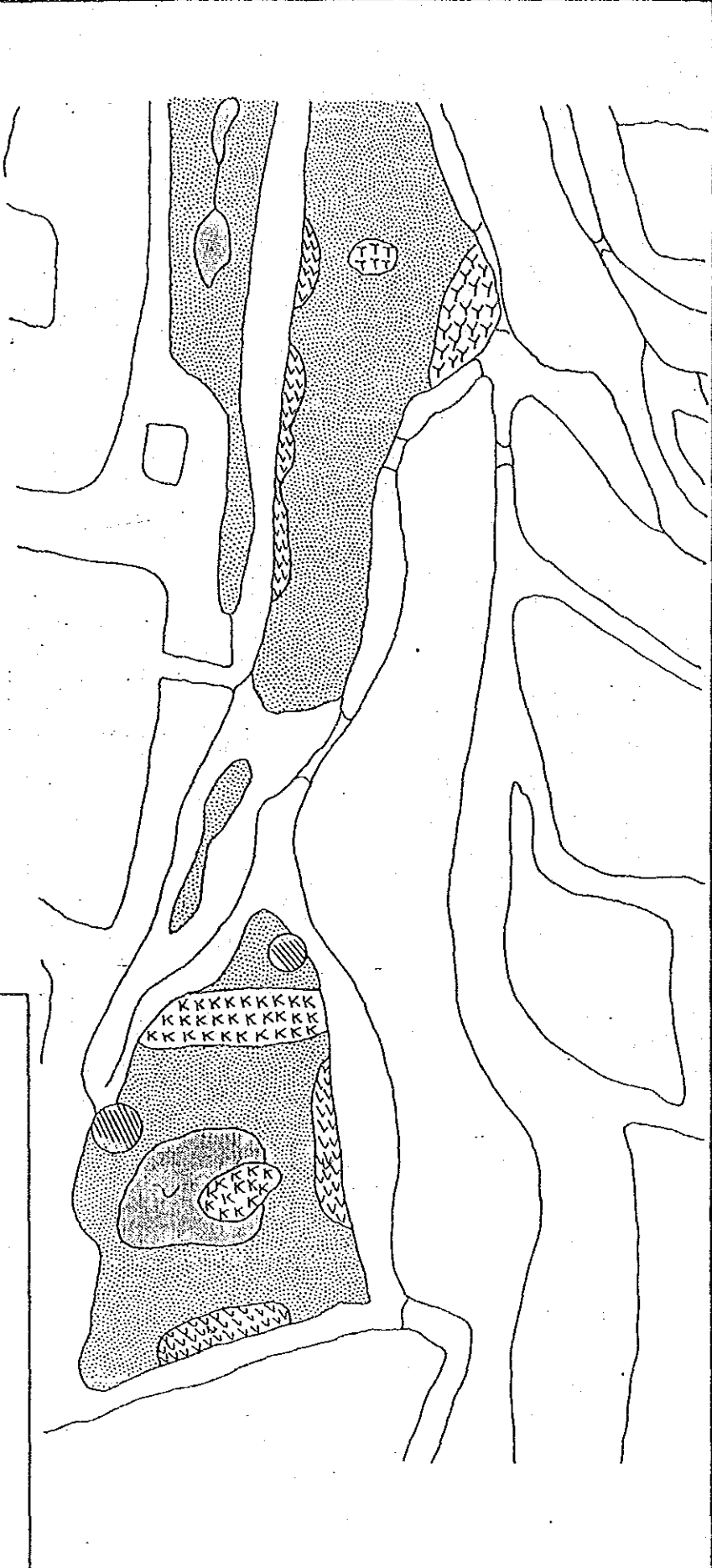
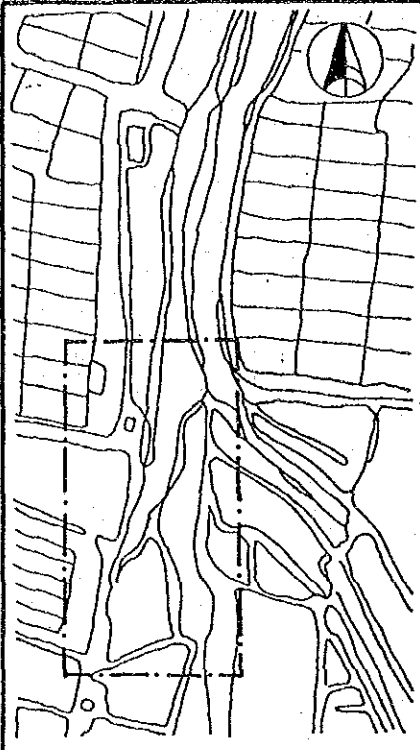
TERRESTRIAL FLORA ON MARSH AT INNER PROPOSED LANDFILL SITE










TERRESTRIAL FLORA ON MARSH AT OUTER PROPOSED LANDFILL SITE



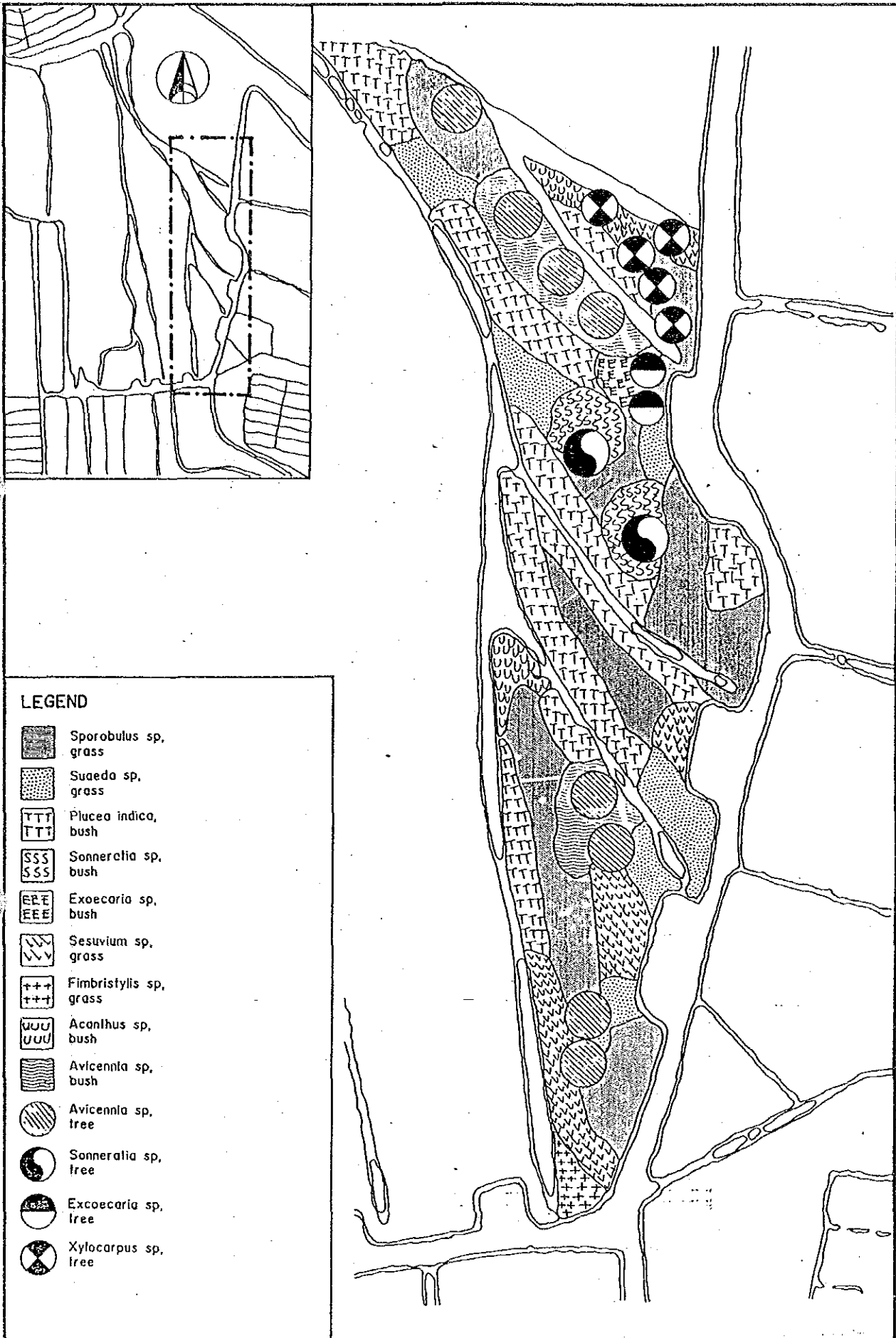
TERRESTRIAL FLORA ON DRY LAND AT INNER PROPOSED LANDFILL SITE



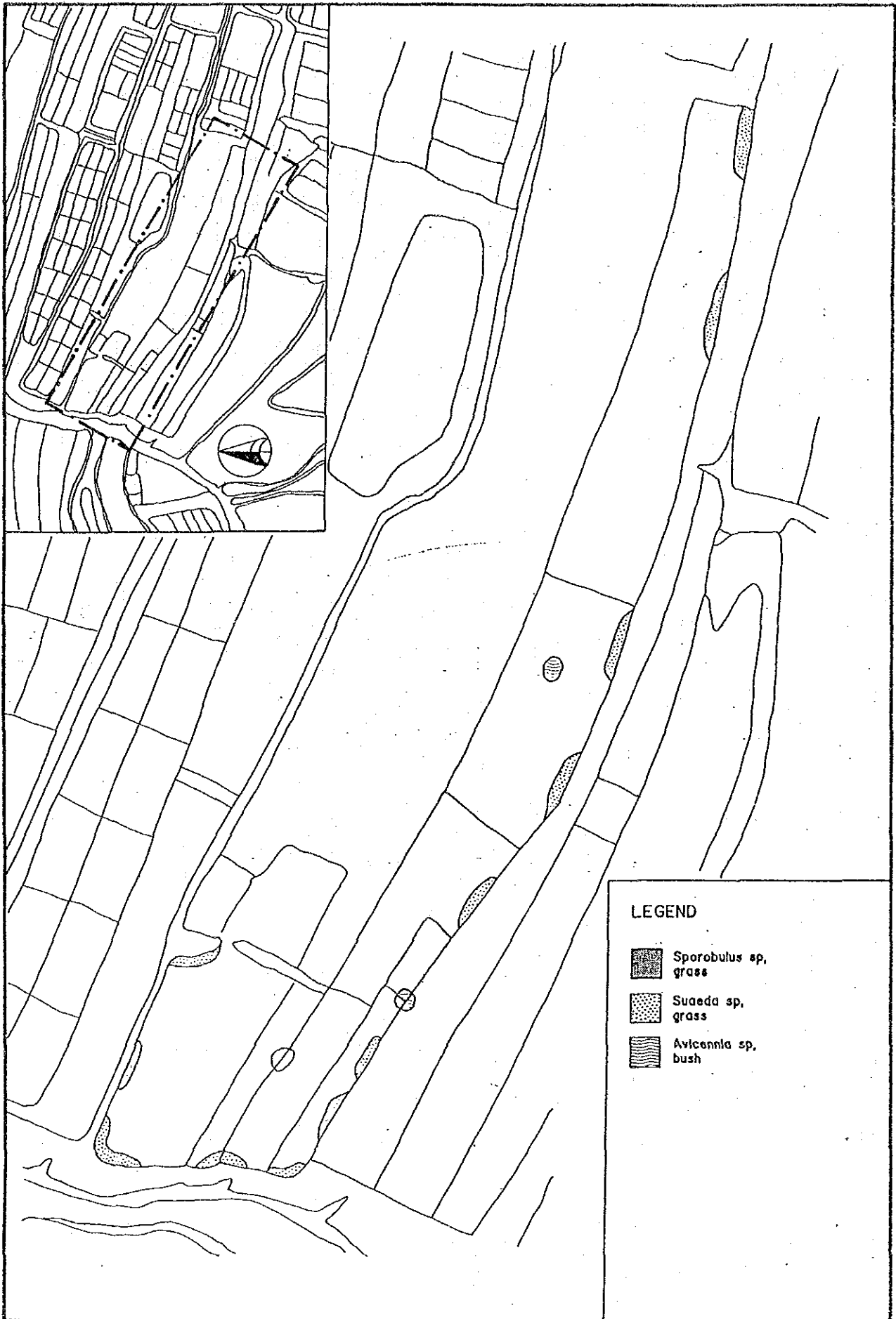
LEGEND

-  Sporobulus sp, grass
-  Suaeda sp, grass
-  Sesuvium sp, grass
-  Plucea Indica, bush
-  Opuntia sp, tree
-  Halosarcia sp, bush
-  Avicennia sp, tree

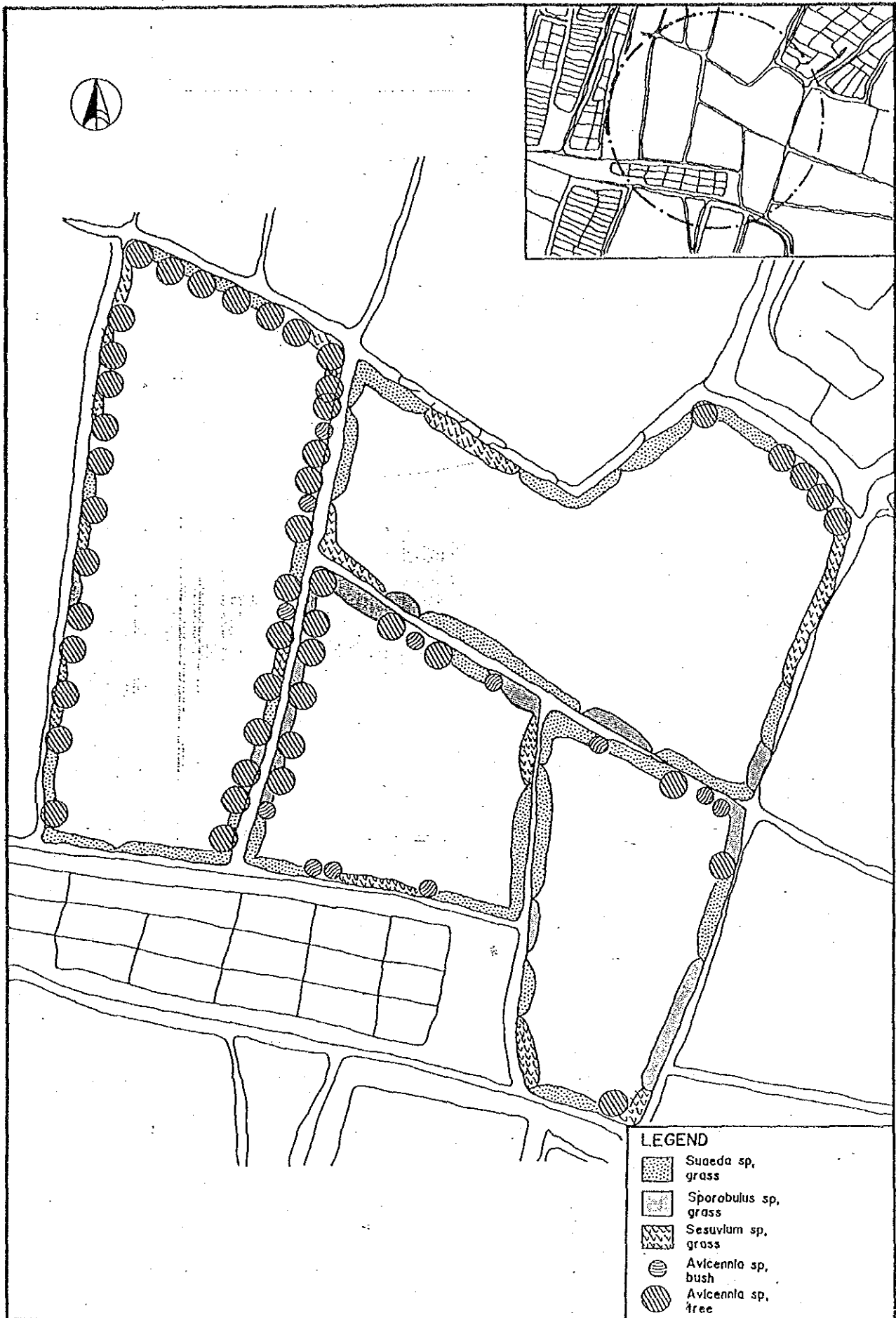
TERRESTRIAL FLORA ON DRYLAND AT OUTER PROPOSED LANDFILL SITE



TERRESTRIAL FLORA ON FISH POND OR SALT FARM AT OUTER PROPOSED LANDFILL SITE



TERRESTRIAL FLORA ON FISH POND AND SALT FARM AT INNER PROPOSED LANDFILL SITE



4.

**RESULTS OF WASTE
AMOUNT SURVEY**

4 Results of Waste Amount Survey

PART 1. Rainy Season

I. Unit Generation Survey

(1) Survey Area

Waste samples are collected at those primary collection points located in the following area:

- High income residential area
- Middle income residential area
- Low income residential area
- Market
- Commercial District

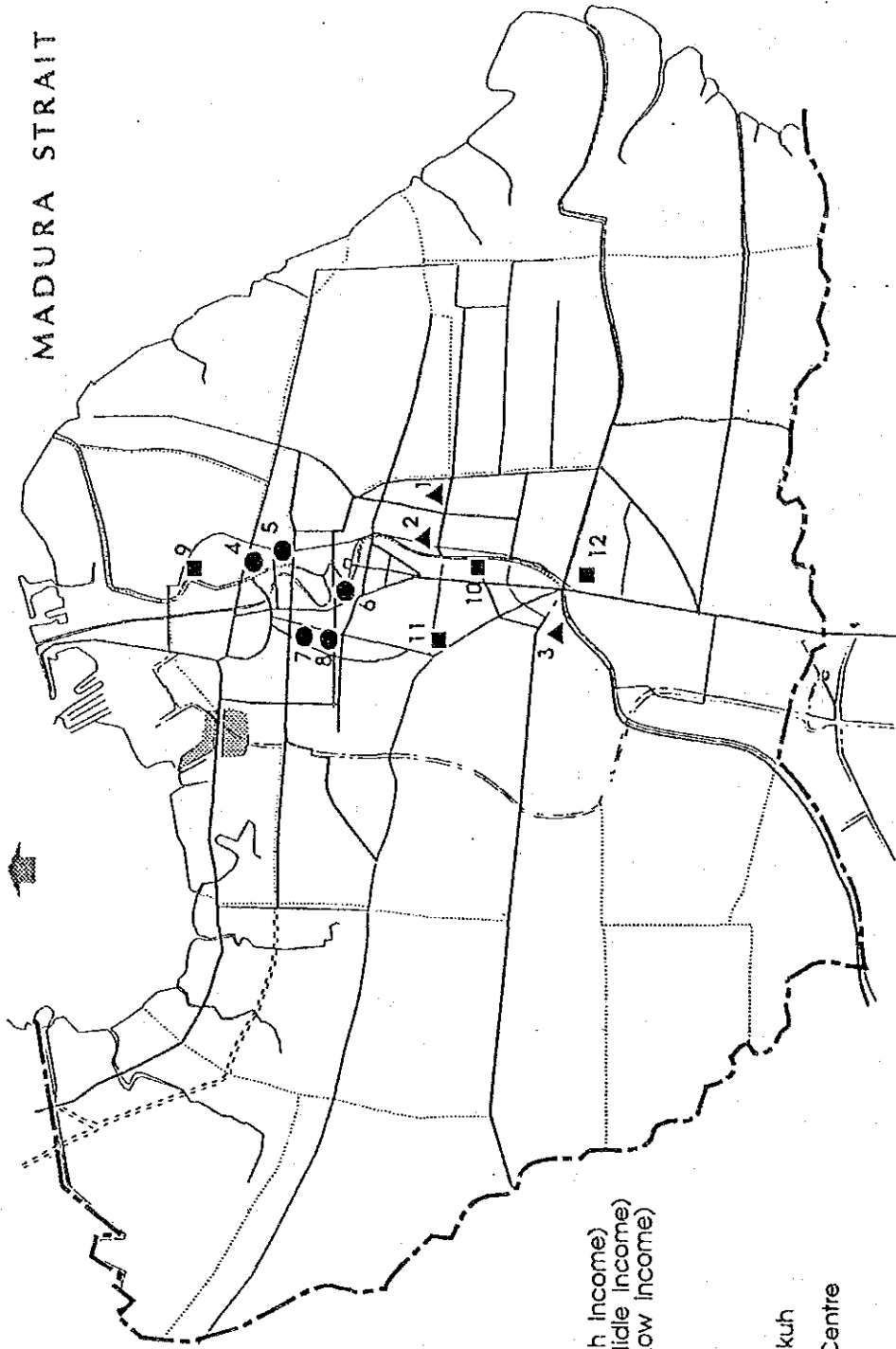
For residential area, the size of the collection stands are chosen among those which serve with 20 households or more.

In each type of area, 12 points were selected as shown in Table and the map.

Location of Waste Generation Survey

No	Waste Generation	Kelurahan	Kecamatan	Survey Location
I	1 RESIDENTIAL High Income	Manyar Sabrangan	Sukolilo	Jl. manyar Kertoarjo Indah Jl. manyar Kertoarjo I Jl. manyar Kertoarjo II
	2 Middle Income	Gubeng	Gubeng	Jl. Gubeng Kertajaya I,IA,IB,IDKA,ID Jl. Gubeng Kertajaya IIIA,IIIB,IIIC,IIIF
	3 Low Income	Wonokromo	Wonokromo	Jl. Karang Rejo IV,VI,VIB,IX Jl. Karang Rejo X,XIII,XIV Jl. Pulo Wonokromo
II	MARKET	Wonorejo Ampel Jagir Keputran	Tegalsari Semampir Wonokromo Tegalsari	Pasar Kupang Pasar Pegirian Pasar Wonokromo Pasar Keputran
III	COMMERCIAL	Alon-alon Contong Bubutan Genteng Kapasari Bongkaran	Bubutan Bubutan Genteng Genteng Pabean Cantikan	Jl. Baliwerti, Gembongan, Praban Wijaya Shopig Centre Jl. Genteng Besar Jl. Kalianyar Jl. Slompretan

MADURA STRAIT



Legend :

▲ Residential

- 1. Depo Manyar (High Income)
- 2. Depo Kangean (Middle Income)
- 3. Depo Kintamani (Low Income)

● Commercial

- 4. Depo Bunguran
- 5. LPS Pecindilian
- 6. Depo Simpang Dukuh
- 7. Depo Pirngadi
- 8. Wijaya Shopping Centre

■ Market

- 9. LPS Pegirian
- 10. Depo Keputran
- 11. LPS Kupang
- 12. LPS Wanakromo

MAP OF UNIT WASTE GENERATION SURVEY

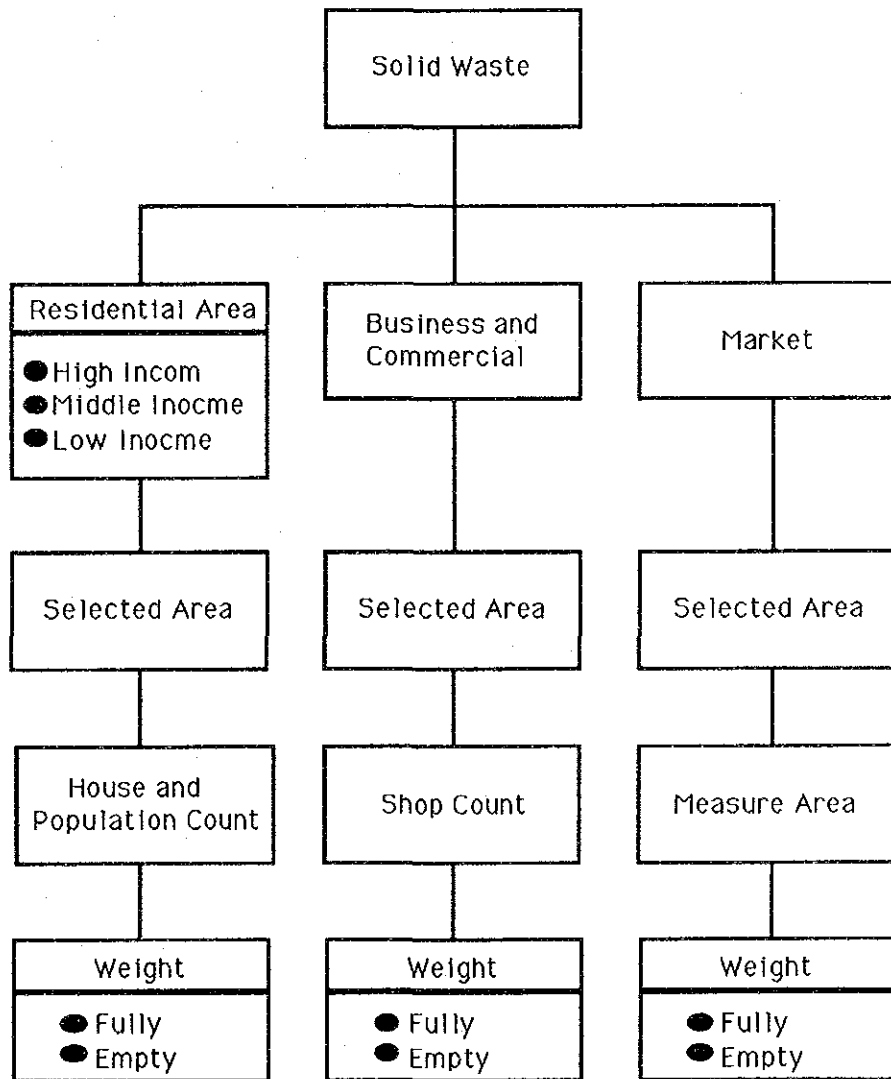
(2) Survey Method

1. Residential & Commercial Area

- One Surveyor follows the cart collecting waste from house to house and interviews the number of household and registered population of each house.
- Measure the cart weight in full loaded and empty at Depo/LPS.
- Record the weight and cart size

2. Market

- One Surveyor had waited at Depo/LPS and watched waste from market dumped into container and got information of the market area.
- Container was carried by truck and the truck weight was measured in full loaded and empty.
- Record the weight and container size.



FLOW CHART OF UNIT WASTE GENERATION SURVEY

(3) Summary of Results

Summary of Unit Waste Generation Survey

No.	Waste Generation	Weight	Volume
I	RESIDENTIAL		
1	High Income	0.83 kg/cap/day	4.37 l/cap/day
2	Middle Income	0.77 kg/cap/day	2.60 l/cap/day
3	Low Income	0.48 kg/cap/day	1.43 l/cap/day
II	COMMERCIAL		
1	Jl. Genteng Besar	5.95 kg/shop/day	31.41 l/shop/day
2	Jl. Kalianyar	5.28 kg/shop/day	30.04 l/shop/day
3	Jl. Baliwerti, Gemblongan, Praban	2.07 kg/shop/day	13.41 l/shop/day
4	Jl. Slompretan	1.64 kg/shop/day	10.59 l/shop/day
III	MARKET		
1	Pasar Keputran	1.44 kg/m ² /day	4.08 l/m ² /day
2	Pasar Wonokromo	1.06 kg/m ² /day	2.78 l/m ² /day
3	Pasar Pegirian	0.83 kg/m ² /day	2.41 l/m ² /day
4	Pasar Kupang	0.49 kg/m ² /day	1.80 l/m ² /day
5	Wijaya Shopping Centre	0.06 kg/m ² /day	0.29 l/m ² /day

(4) Data

THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA

Type of Survey : PER CAPITA GENERATION

Kelurahan : Manyar Sabrangan

Location of Survey : Jl. Manyar Kertoarjo Indah, Manyar kertoarjo I, Manyar Kertoarjo II

Income Level : High

Type of Equipment : Handcart

Dimension of Handcart (m) : L x W x H

I. 1.5 x 0.8 x 1.2

II. 2.0 x 1.0 x 1.3

Body / Container Size : I. 1.44 m³

II. 2.60 m³

Name of Depo : Manyar

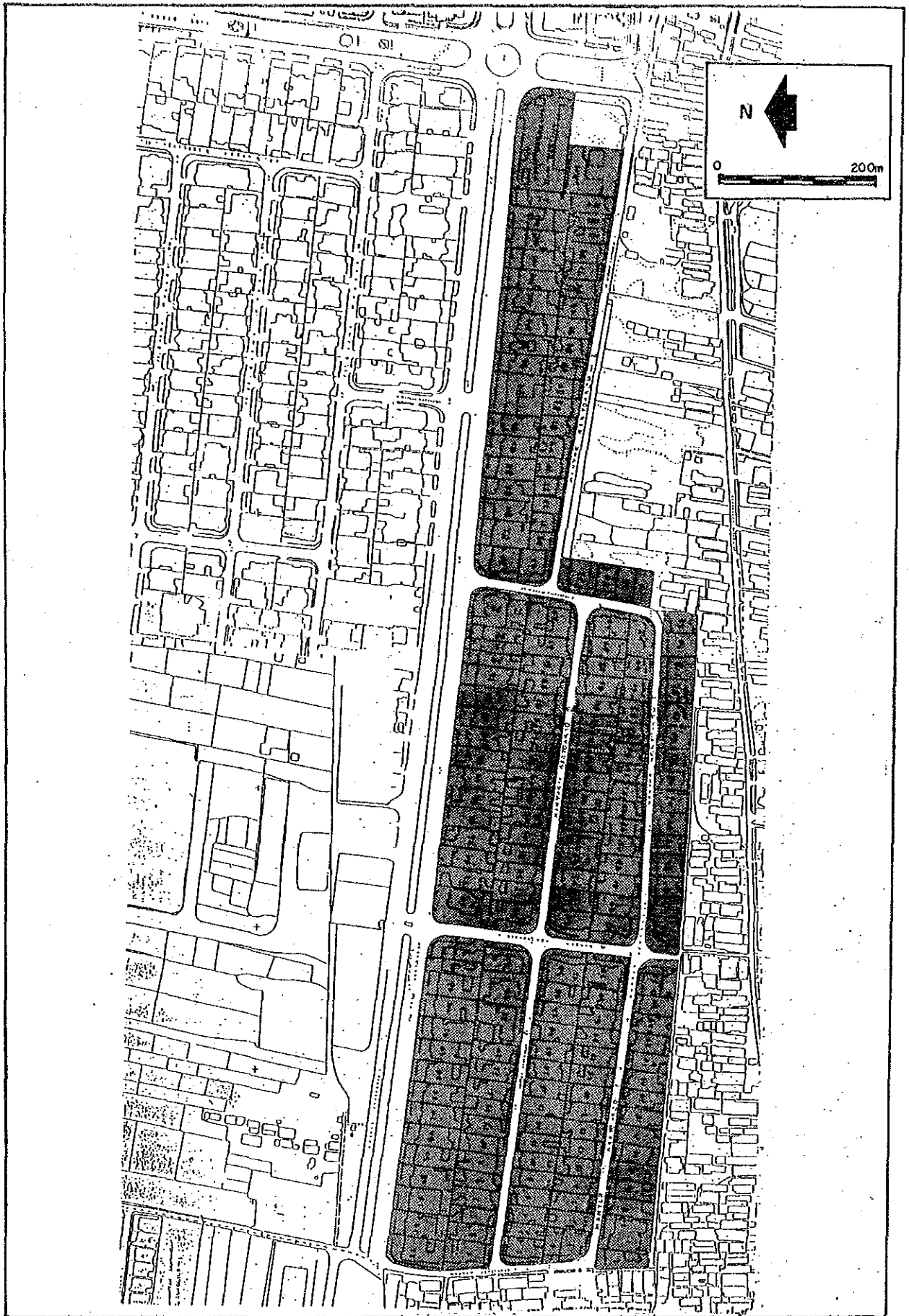
Address of Depo : Jl. sukodami

Surveyor : Rully & Hendrayana

Days	Date	Time Start	No. of HH	Pop.	Handcart Weight (kg)			Waste		Time in Depo / LPS		Waste Condition	Cart No.	
					Full	Empty	Net	Height (m)	Volume (m ³)	In	Out			
1	6 March 1992	7.00	62	373	500	114	386	1.38	1.66	8.15	13.15	Wet	I	
		13.20	35	188	287	114	173	0.72	0.86	14.05	*)	Wet	I	
		13.10	66	498	800	216	584	1.43	2.86	15.20	*)	Wet	II	
2	7 March 1992	7.05	62	373	416	114	302	0.96	1.15	8.13	13.00	Wet	I	
		7.30	77	537	670	216	454	1.30	2.60	9.11	*)	Wet	II	
		13.05	29	161	237	114	123	0.60	0.72	13.25	*)	Wet	I	
3	8 March 1992	7.30	60	357	405	114	291	0.90	1.08	8.35	12.00	Wet	I	
		12.05	32	182	319	114	205	1.70	2.04	13.05	*)	Wet	I	
4	9 March 1992	6.15	63	377	293	114	179	0.90	1.08	7.10	11.45	Wet	I	
		12.05	32	182	356	114	242	1.50	1.80	13.05	*)	Wet	I	
		15.30	96	546	996	216	780	1.30	2.60	18.05	*)	Wet	II	
5	10 March 1992	6.45	63	377	300	114	186	0.90	1.08	7.40	9.00	Wet	I	
		11.45	33	182	323	114	209	0.75	0.90	13.05	*)	Wet	I	
		13.00	71	337	651	216	435	1.30	2.60	14.30	*)	Wet	II	
6	11 March 1992	6.40	43	241	372	114	258	1.35	1.62	7.40	9.00	Wet	I	
		10.30	61	376	358	114	244	1.95	2.34	13.55	*)	Wet	I	
		13.20	89	459	599	216	383	1.35	2.70	15.27	*)	Wet	II	
7	12 March 1992	6.45	57	362	377	114	263	1.00	1.20	7.58	11.20	Wet	I	
		11.30	29	206	248	114	134	0.33	0.40	12.40	*)	Wet	I	
		13.00	60	366	672	216	456	0.80	1.60	14.45	*)	Wet	II	
Total Net of Waste					=	6,287 kg								
Total Volume of Waste					=	32.89 m ³ (on cart)								
Max no. of Population					=	1,076 persons								
Period of Survey					=	7 days								
Per Capita Generation					=	0.83 kg/cap/day								
					=	4.37 ltr/cap/day (on cart)								

Notes : *) after work the handcart stay at Depo

PERCAPITA SURVEY AREA HIGH INCOME



THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA

Type of Survey : PER CAPITA GENERATION

Kelurahan : Gubeng

Location of Survey : Days 1 Jl. Gubeng Kertajaya III F
Days 2 Jl. Gubeng Kertajaya III B, III A, I A
Days 3 Jl. Gubeng Kertajaya I DKA, I
Days 4 Jl. Gubeng Kertajaya I DKA, I, I B
Days 5 Jl. Gubeng Kertajaya I, I B, I D, III C, III F
Days 6 Jl. Gubeng Kertajaya I
Days 7 Jl. Gubeng Kertajaya I, I A, I B, III A, III B, III C

Income Level : Middle

Type of Equipment : Handcart

Dimension of Handcart (m) : L x W x H
1.56 x 0.85 x 1.00

Body / Container Size : 1.33 m³

Name of Depo : Kangean

Address of Depo : Jl. Kangean

Surveyor : Agus H. & Agus T.

Days	Date	Time Start	No. of HH	Pop.	Handcart Weight (kg)			Waste		Time In Depo / LPS		Waste Condition
					Full	Empty	Net	Height (m)	Volume (m ³)	In	Out	
1	6 March 1992	7.58	15	65	663	175	488	1.10	1.46	9.25	10.55	Wet
		14.04	19	104	719	175	544	1.15	1.52	14.47	*)	Wet
2	7 March 1992	7.50	22	119	650	175	475	1.10	1.46	9.21	10.43	Wet
		10.54	12	72	613	175	438	1.10	1.46	12.04	*)	Wet
3	8 March 1992	8.10	20	116	703	175	528	1.10	1.46	9.30	10.40	Wet
		11.00	28	155	590	175	415	1.15	1.52	12.45	*)	Wet
4	9 March 1992	7.58	20	98	673	175	498	1.27	1.68	9.47	11.20	Wet
		11.45	9	56	506	175	331	1.18	1.56	13.04	*)	Wet
5	10 March 1992	8.11	19	118	538	175	363	1.10	1.46	9.53	10.39	Wet
		11.07	20	145	592	175	417	1.05	1.39	12.55	*)	Wet
6	11 March 1992	Off			Off			Off		Off		
7	12 March 1992	8.01	25	140	558	175	383	1.09	1.45	9.37	*)	Wet
		13.01	18	107	698	175	523	1.20	1.59	14.46	*)	Wet
Total Net of Waste		=	5,756 kg									
Total Volume of Waste		=	19.478 m ³ (on cart)									
Max no. of Population		=	938 persons									
Period of Survey		=	8 days									
Per capita Generation		=	0.77 kg/cap/day									
		=	2.60 ltr/cap/day (on cart)									

Notes : *) after work the handcart stay at Depo

PERCAPITA SURVEY AREA MIDDLE INCOME



THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA

Type of Survey : PER CAPITA GENERATION

Kelurahan : Wonokromo

Location of Survey : Days 1 Jl. Karang Rejo VI, X, Pulo Wonokromo
Days 2 Jl. Karang Rejo VI, VI B, X, XIII, XIV
Days 3 Jl. Karang Rejo VI, IX
Days 4 Jl. Karang Rejo IV, VI, X, XIV, Pulo Wonokromo
Days 5 Jl. Karang Rejo VI, VI B, IX
Days 6 Jl. Karang Rejo VI, VI B, IX, X
Days 7 Jl. Karang Rejo VI, X, XIV, Pulo Wonokromo

Income Level : Low

Type of Equipment : Handcart

Dimension of Handcart (m) : L x W x H
1.50 x 0.80 x 1.00

Body / Container Size : 1.20 m³

Name of Depo : Kintamani

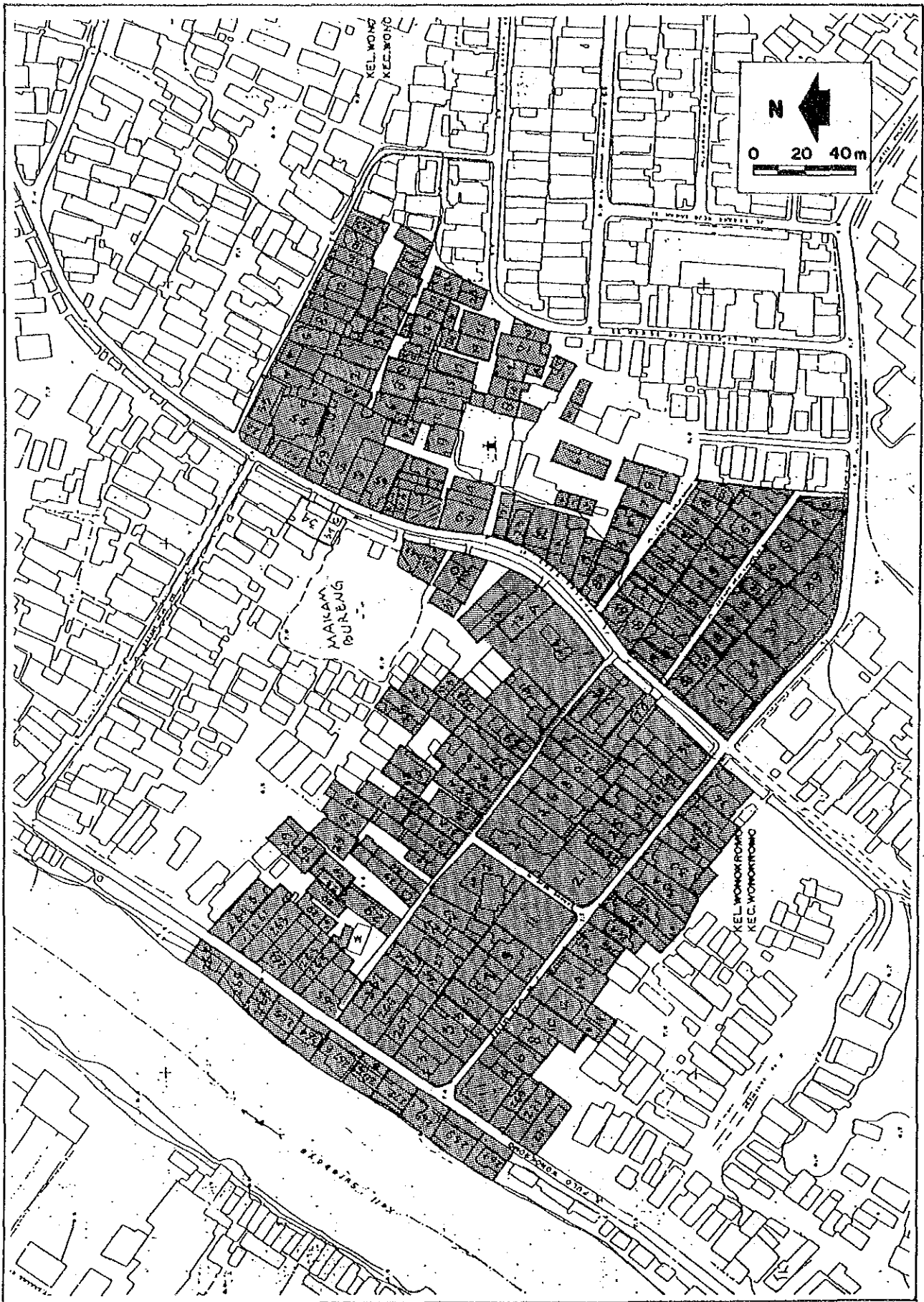
Address of Depo : Jl. Kintamani

Surveyor : Yos & Rachmat

Days	Date	Time Start	No. of HH	Pop.	Handcart Weight (kg)			Waste		Time in Depo / LPS		Waste Condition
					Full	Empty	Net	Height (m)	Volume (m ³)	In	Out	
1	6 March 1992	6.40	56	328	680	137	543	1.40	1.68	7.45	*)	Wet
2	7 March 1992	6.30	37	212	675	137	538	1.27	1.52	7.38	9.35	Wet
		9.49	61	333	558	137	421	0.97	1.16	10.50	*)	Wet
3	8 March 1992		Off			Off		Off			Off	
4	9 March 1992	6.42	49	291	654	137	517	1.30	1.56	7.43	*)	Wet
5	10 March 1992	6.46	28	176	633	137	496	1.15	1.38	7.40	9.23	Wet
		9.31	51	330	579	137	442	1.05	1.26	10.36	*)	Wet
6	11 March 1992	6.36	52	269	526	137	389	1.10	1.32	7.41	*)	Wet
7	12 March 1992	6.40	52	285	576	137	439	1.10	1.32	7.40	9.09	Wet
		9.18	45	289	495	137	358	1.00	1.20	10.19	*)	Wet
8	13 March 1992	6.40	61	360	633	137	496	1.10	1.32	7.55	*)	Wet
Total Net of Waste					=	4,639 kg						
Total Volume of Waste					=	13.73 m ³ (on cart)						
Max no. of Population					=	1,196 persons						
Period of Survey					=	8 days						
Per Capita Generation					=	0.48 kg/cap/day						
						1.43 ltr/cap/day (on cart)						

Notes : *) after work the handcart stay at Depo

PERCAPITA SURVEY AREA LOW INCOME



THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA

Type of Survey : COMMERCIAL GENERATION

Kelurahan : Genteng

Location of Survey : Jl. Genteng Besar

Type of Equipment : Handcart

Type of Commodity : Grocery (Food Stuff Shop)

Dimension of Handcart (m) : L x W x H
1.80 x 1.00 x 1.00

Body / Container Size : 1.80 m³

Name of Depo / LPS : Depo Simpang Dukuh

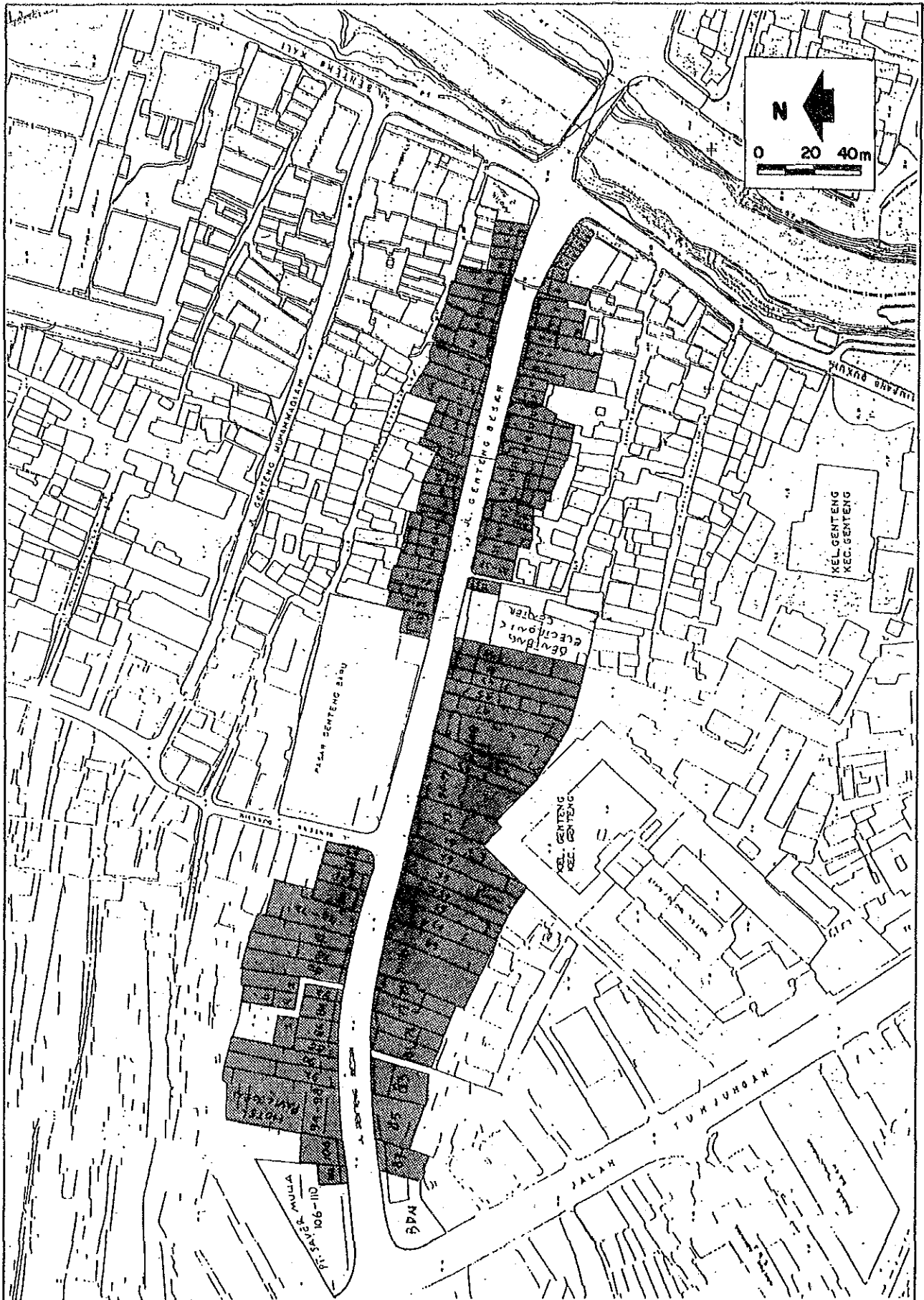
Address of Depo / LPS : Jl Simpang Dukuh

Surveyor : Karwoto & Agus Sahid

Days	Date	Time Start	Shop Number	Handcart Weight (kg)			Waste		Time in Depo / LPS		Waste Condition
				Full	Empty	Net	Height (m)	Volume (m ³)	In	Out	
1	17 March 1992	7.00	38	527	206	321	0.95	1.71	8.35	*)	Wet
2	18 March 1992	7.25	49	699	206	493	1.35	2.43	9.15	*)	Wet
3	19 March 1992	7.00	46	600	206	394	1.30	2.34	8.45	*)	Dry
4	20 March 1992	6.45	39	595	206	389	1.00	1.80	8.50	*)	Wet
5	21 March 1992	7.30	50	677	206	471	1.30	2.34	9.30	*)	Dry
6	22 March 1992	7.00	51	642	206	436	1.25	2.25	8.45	*)	Dry
7	23 March 1992	6.55	70	617	206	411	1.40	2.52	8.55	*)	Dry
Total Net of Waste				=	2,915 kg						
Total Volume of Waste				=	15.39 m ³ (on cart)						
Max no. of Shop during Survey				=	70 shops						
Period of Survey				=	7 days						
Commercial Generation				=	5.95 kg/shop/day						
				=	31.41 ltr/shop/day (on cart)						

Notes : *) after work the handcart stay at Depo

COMMERCIAL SURVEY AREA JL. GENTENG BESAR



THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA

Type of Survey : COMMERCIAL GENERATION

Kelurahan : Kapasari

Location of Survey : Jl. Kallanyar

Type of Equipment : Handcart

Type of Commodity : Restaurant, Fruit Shop, School, Office, Bank

Dimension of Handcart (m) : L x W x H
I. 1.87 x 1.00 x 1.00
II. 1.54 x 0.97 x 0.80

Body / Container Size : I. 1.87 m³
II. 1.20 m³

Name of Depo / LPS : LPS Pecindilan

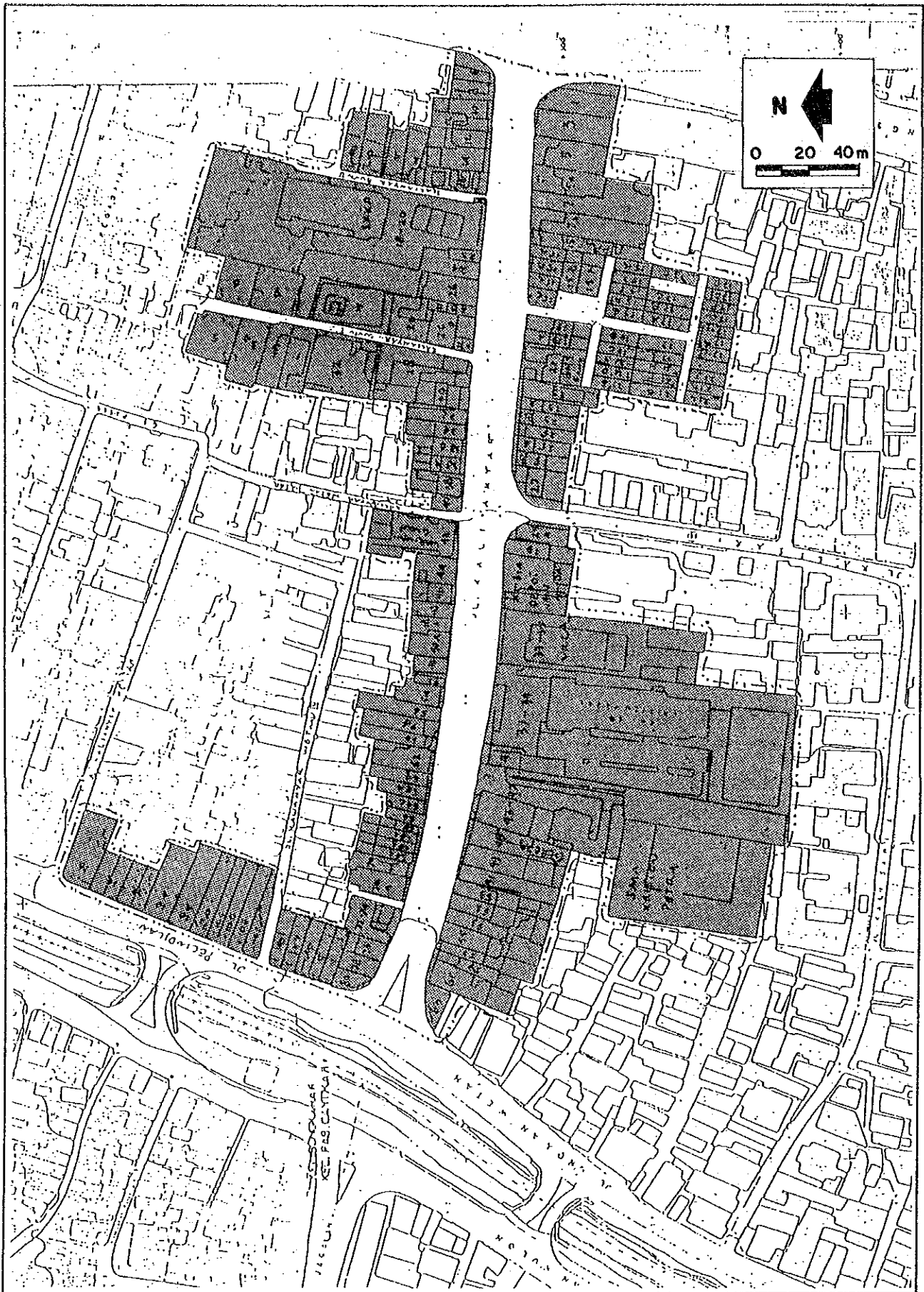
Address of Depo / LPS : Jl Pecindilan

Surveyor : Mufti & Prastowo

Days	Date	Time Start	Shop Number	Handcart Weight (kg)			Waste		Time In		Waste Condition	Cart No.
				Full	Empty	Net	Height (m)	Volume (m ³)	Depo / LPS In	Out		
1	17 March 1992	9.00	60	540	214	326	1.25	2.34	9.45	*)	Wet	I
		15.00	85	542	174	368	1.40	2.10	16.15	*)	Wet	II
2	18 March 1992	9.00	60	557	214	343	1.25	2.34	9.30	*)	Wet	I
		15.00	42	525	174	351	1.40	2.10	16.25	*)	Wet	II
3	19 March 1992	8.00	60	532	214	318	1.00	1.87	9.30	*)	Wet	I
		15.00	61	608	174	434	1.10	1.65	16.00	*)	Wet	II
4	20 March 1992	8.00	50	563	214	349	0.90	1.68	9.30	*)	Wet	I
		15.00	54	486	174	312	1.10	1.65	16.35	*)	Wet	II
5	21 March 1992	7.30	40	570	214	356	1.10	2.06	9.25	*)	Wet	I
		15.30	30	549	174	375	1.20	1.80	16.30	*)	Wet	II
6	22 March 1992	7.30	30	375	214	161	0.60	1.12	8.45	*)	Wet	I
		15.30	45	484	174	310	1.07	1.61	16.30	*)	Wet	II
7	23 March 1992	7.30	45	511	214	297	1.00	1.87	9.30	*)	Wet	I
		15.00	45	491	174	317	1.40	2.10	16.00	*)	Wet	II
Total Net of Waste				=			4,617 kg					
Total Volume of waste				=			26,28 m ³ (on cart)					
Max no. of Shop During Survey				=			125 shops					
Period of Survey				=			7 days					
Commercial Generation				=			5.28 kg/shop/day					
				=			30.04 ltr/shop/day (on cart)					

Notes : *) after work the handcart stay at Depo

COMMERCIAL SURVEY AREA JL. KALIANYAR



THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA

Type of Survey : COMMERCIAL GENERATION

Kelurahan : Bubutan

Location of Survey : Jl. Ballwerf, Gembongan, Praban

Type of Commodity : Building Material, Furniture, Shoes Shop

Type of Equipment : Handcart

Dimension of Handcart (m) : L x W x H
1.75 x 0.95 x 1.31

Body / Container Size : 2.18 m³

Name of Depo / LPS : Depo Pirngadi

Address of Depo / LPS : Jl Pirngadi

Interval Collection : Every Day

Surveyor : Hari Tamtomo

Days	Date	Time Start	Shop Number	Handcart Weight (kg)			Waste		Time in Depo / LPS		Waste Condition
				Full	Empty	Net	Height (m)	Volume (m ³)	In	Out	
1	17 March 1992	9.00	95	622	267	355	1.31	2.18	11.45	*	Dry
2	18 March 1992	8.30	102	645	267	378	1.20	1.99	12.00	*	Dry
3	19 March 1992	8.30	124	592	267	325	1.25	2.08	12.00	*	Dry
4	20 March 1992	8.00	199	695	267	428	1.20	1.99	12.00	*	Dry
5	21 March 1992	9.00	188	715	267	448	1.29	2.14	12.30	*	Dry
6	22 March 1992	7.00	160	610	267	343	1.15	1.91	12.00	*	Dry
7	23 March 1992	9.00	194	683	267	416	1.36	2.26	12.30	*	Dry
Total Net of Waste (Incl. HH)				=	2,693 kg		14.56 m ³				
Household Waste (Low Income)				=	824 kg **)		2.45 m ³ **)				
Total Net of Waste				=	1,869 kg		12.109 m ³ (on cart)				
Max no. of Shop During Survey				=	129 shops						
Period of Survey				=	7 days						
Commercial Generation				=	2.07 kg/shop/day						
				=	13.41 ltr/shop/day (on cart)						

Notes : *) after work the handcart stay at Depo

***) 1 House = 5.5 persons, 78 HH, 0.48 kg/cap/day, 1.43 ltr/cap/day, 4 days data

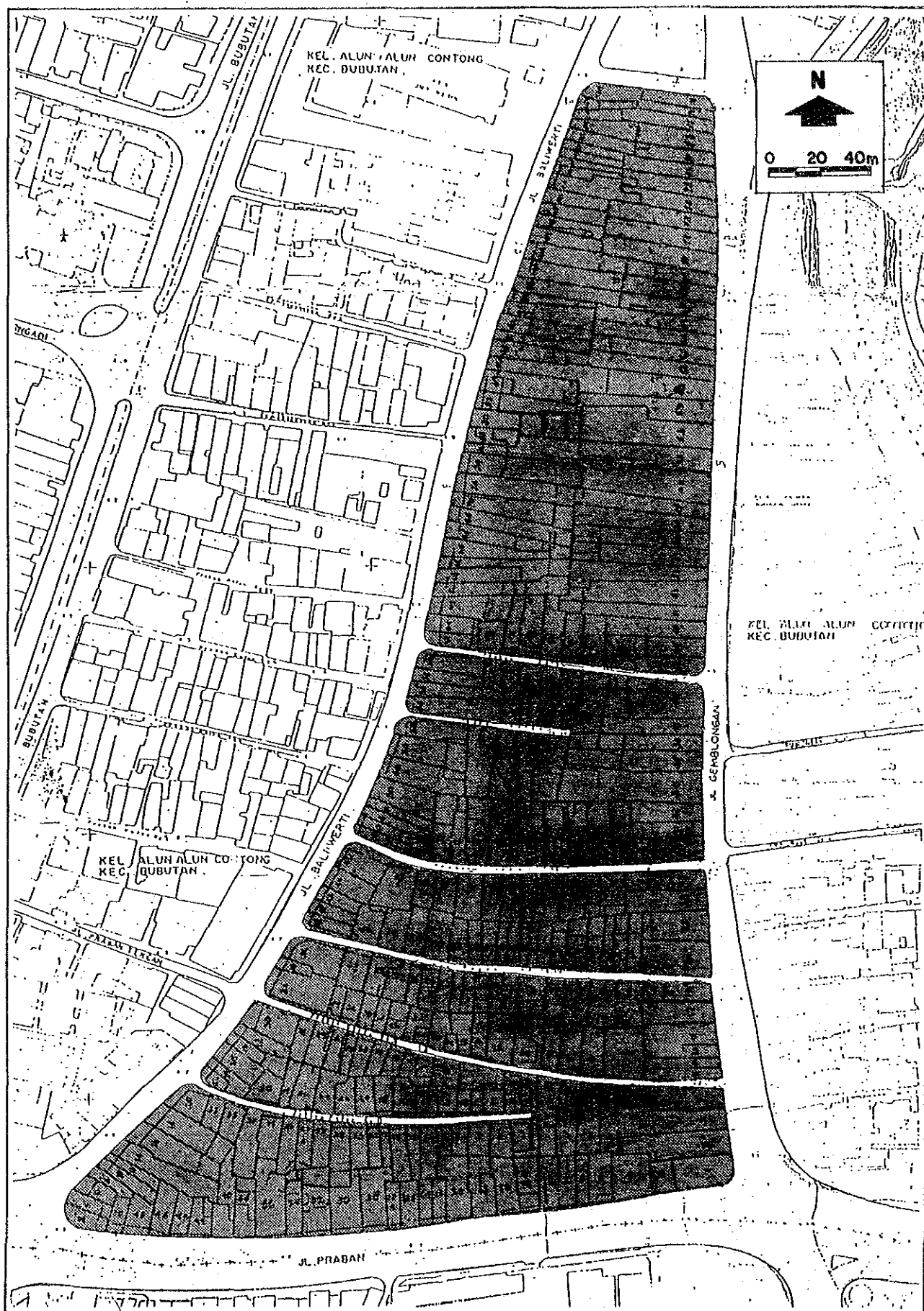
Days 4 including 70 household waste (Low Income)

Days 5 including 72 household waste (Low Income)

Days 6 including 73 household waste (Low Income)

Days 7 including 78 household waste (Low Income)

COMMERCIAL SURVEY AREA
JL.BALIWERTI, JL.GEMBLONGAN, JL.PRABAN



THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA

Type of Survey : COMMERCIAL GENERATION

Kelurahan : Bongkaran

Location of Survey : Jl. Slompretan

Type of Commodity : Office, Bank, Textile Shop, Glass Ware Shop

Type of Equipment : Handcart

Dimension of Handcart (m) : L x W x H
I. 1.70 x 0.80 x 1.04
II. 1.80 x 1.00 x 1.00
III. 1.75 x 0.90 x 1.00

Body / Container Size : I. 1.41 m³
II. 1.80 m³
III. 1.58 m³

Name of Depo / LPS : Depo Bunguran

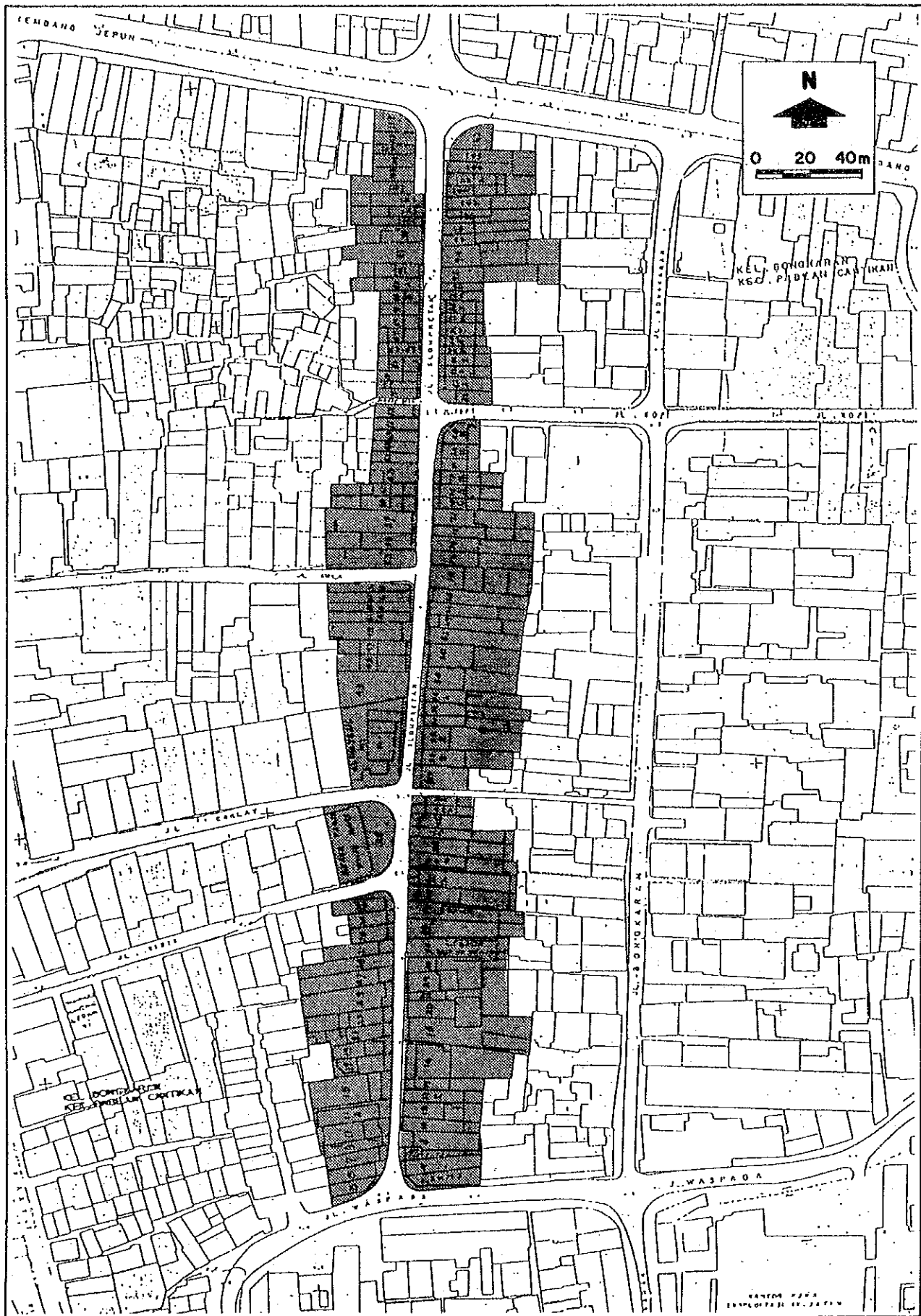
Address of Depo / LPS : Jl. Bunguran

Surveyor : Arief Abdullah

Days	Date	Time Start	Shop Number	Handcart Weight (kg)			Waste		Time In		Waste Condition	Cart No.
				Full	Empty	Net	Height (m)	Volume (m ³)	In	Out		
1	17 March 1992	17.10	65	417	217	200	0.80	1.44	18.30	*)	Dry	II
2	18 March 1992	7.50	54	378	202	176	0.70	1.11	8.30	*)	Wet	III
		17.10	65	393	217	176	0.79	1.42	19.05	*)	Wet	II
3	19 March 1992	7.10	130	277	123	154	0.80	1.08	8.15	*)	Wet	I
		4.00	65	430	217	213	0.60	1.08	6.00	*)	Wet	II
4	20 March 1992	7.15	130	304	123	181	0.75	1.02	8.25	*)	Wet	I
		18.30	65	398	217	181	0.80	1.44	20.30	*)	Wet	II
5	21 March 1992	7.00	130	333	123	210	0.90	1.22	10.05	*)	Dry	I
		18.30	65	380	217	183	0.75	1.35	20.10	*)	Dry	II
6	22 March 1992	7.15	58	322	123	199	0.70	0.95	8.40	*)	Dry	I
7	23 March 1992	7.30	130	393	217	176	0.50	0.90	9.00	*)	Dry	II
		16.30	58	431	217	214	0.80	1.44	18.45	*)	Dry	II
Total Net of Waste				=	2,243 kg							
Total Volume of Waste				=	14.45 m ³ (on cart)							
Max no. of Shop During Survey				=	195 shops							
Period of Survey				=	7 days							
Commercial Generation				=	1.64 kg/shop/day							
				=	10.59 ltr/shop/day (on cart)							

Notes : *) after work the handcart stay at Depo

COMMERCIAL SURVEY AREA JL. SLOMPRETAN



**THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA**

Type of Survey : **COMMERCIAL GENERATION**

Kelurahan : **Bubutan**

Location of Survey : **Wijaya Shopping Centre**

Type of Commodity : **Watch Shop, Gold Shop, Cosmetic, Textile shop**

Area : **10,000 m²**

Type of Equipment : **Container Truck**

Truck Number : **L 9657 CG**

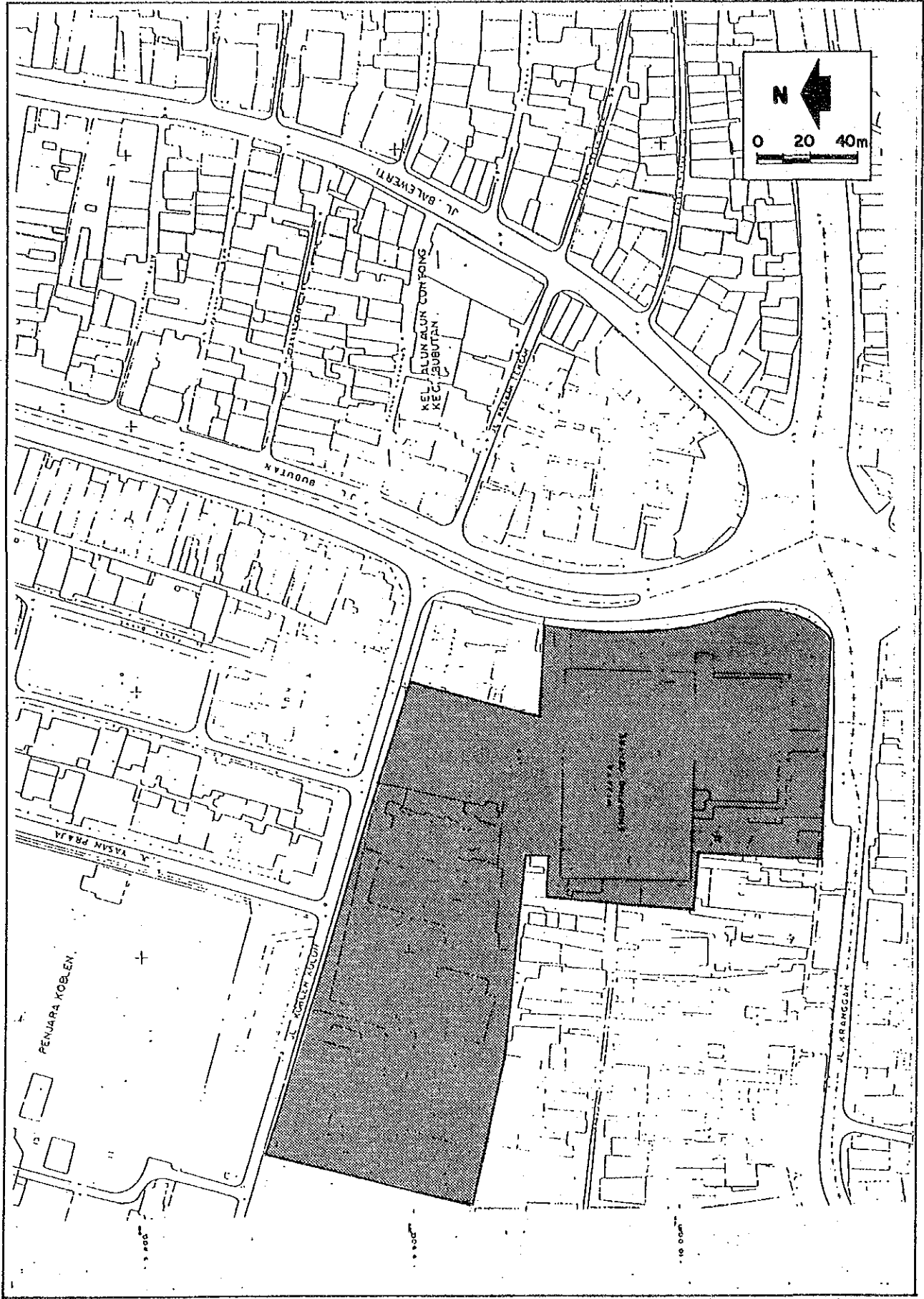
Body / Container Size : **6 m³**

Interval Collection : **Every Day**

Surveyor : **Syamsuddin & Rustamadji**

Days	Date	Time Start	Cont. Number	Truck Weight (kg)			Waste		Time In LPA		Waste Condition
				Full	Empty	Net	Vol. (%)	Volume (m ³)	In	Out	
1	19 March 1992	8.40	B 257	4,600	4,100	500	40	2.40	9.12		Dry
2	20 March 1992	9.05	B 252	4,440	4,120	320	35	2.10	9.35		Wet
3	21 March 1992	9.27	B 255	4,660	3,820	840	60	3.60	10.57		Wet
4	22 March 1992	Off		Off			Off		Off		
5	23 March 1992	9.37		4,460	3,330	1,130	100	6.00	10.13		Dry
6	24 March 1992	10.15	B247	4,310	3,440	870	80	4.80	10.33		Dry
7	25 March 1992	10.35	B 255	4,460	3,820	640	50	3.00	10.59		Dry
8	26 March 1992	10.30	B 169	4,140	3,790	350	25	1.50	10.51		Wet
Total Net of waste		=	4,650 kg								
Total Volume of waste		=	23.40 m ³ (on truck)								
Period of Survey		=	8 days								
Commercial Generation		=	0.06 kg/m ² /day								
		=	0.29 ltr/m ² /day (on truck)								

COMMERCIAL SURVEY AREA
WIJAYA SHOPPING CENTRE



**THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA**

Type of Survey : **MARKET GENERATION**

Location of Survey : Pasar Keputran

Address : Jl. Keputran

Area : 17,157 m²

Type of Equipment : Dump Truck

Type of Waste : Vegetables

Interval of Collection : Every Day

Surveyor : Moch. Tauhid & Rustamadji

No. of Trip	Truck Number	Cont. No.	Time Start	Truck Weight (kg)			Waste Vol. (m ³)	Time in LPA		Waste Condition
				Full	Empty	Net		In	Out	
16 March 92										
1	L 9605 CF	A 01	11.10	5,560	3,260	2,300	5.95	11.31		Wet
2	L 9605 CF	A 01	12.45	5,400	3,260	2,140	5.95	13.03		Wet
3	L 9605 CF	A 01	14.14	5,600	3,260	2,340	5.95	14.35		Wet
1	L 9606 CF	A 02	10.45	5,120	3,240	1,880	5.95	11.10		Wet
2	L 9606 CF	A 02	12.20	4,780	3,240	1,540	5.95	12.45		Wet
3	L 9606 CF	A 02	14.10	5,480	3,240	2,240	5.95	14.30		Wet
1	L 9609 CB	A 04	10.55	5,040	3,140	1,900	5.95	11.14		Wet
2	L 9609 CB	A 04	12.30	5,420	3,140	2,280	5.95	12.40		Wet
3	L 9609 CB	A 04	14.00	5,380	3,140	2,240	5.95	14.18		Wet
1	L 9611 CB	A 05	11.00	5,360	3,260	2,100	5.95	11.20		Wet
2	L 9611 CB	A 05	13.20	5,340	3,260	2,080	5.95	13.45		Wet
3	L 9611 CB	A 05	14.50	6,800	3,260	3,540	5.95	15.25		Wet
1	L 9665 CL	A 06	11.05	5,960	3,480	2,480	5.95	11.23		Wet
2	L 9665 CL	A 06	12.35	5,940	3,480	2,460	5.95	12.55		Wet
3	L 9665 CL	A 06	14.05	5,780	3,480	2,300	5.95	14.23		Wet
				Total			33,820	89.25		

**THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA**

Type of Survey : MARKET GENERATION

Location of Survey : Pasar Keputran

Address : Jl. Keputran

Area : 17,157 m²

Type of Equipment : Dump Truck

Type of Waste : Vegetables

Interval of Collection : Every Day

Surveyor : Moch. Tauhid & Rustamadji

No. of Trip	Truck Number	Cont. No.	Time Start	Truck Weight (kg)			Waste Vol. (m ³)	Time in LPA		Waste Condition
				Full	Empty	Net		In	Out	
	17 March 92									
1	L 9605 CF	A 01	11.02	5,560	3,260	2,300	5.95	11.24		Wet
2	L 9605 CF	A 01	12.37	5,200	3,260	1,940	5.95	12.58		Wet
3	L 9605 CF	A 01	14.06	4,740	3,260	1,480	5.95	14.25		Wet
1	L 9606 CF	A 02	11.35	5,400	3,240	2,160	5.95	11.55		Wet
2	L 9606 CF	A 02	12.55	5,380	3,240	2,140	5.95	13.25		Wet
3	L 9606 CF	A 02	14.25	5,960	3,240	2,720	5.95	14.47		Wet
1	L 9609 CB	A 04	10.41	6,020	3,140	2,880	5.95	11.05		Wet
2	L 9609 CB	A 04	12.32	5,200	3,140	2,060	5.95	12.55		Wet
3	L 9609 CB	A 04	14.01	5,140	3,140	2,000	5.95	14.24		Wet
1	L 9611 CB	A 05	10.46	4,960	3,260	1,700	5.95	11.12		Wet
2	L 9611 CB	A 05	12.25	5,260	3,260	2,000	5.95	12.47		Wet
3	L 9611 CB	A 05	13.55	4,740	3,260	1,480	5.95	14.35		Wet
1	L 9665 CL	A 06	10.58	5,340	3,480	1,860	5.95	11.14		Wet
2	L 9665 CL	A 06	12.17	5,660	3,480	2,180	5.95	12.42		Wet
3	L 9665 CL	A 06	14.10	5,380	3,480	1,900	5.95	14.28		Wet
				Total 30,800 89.25						

**THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA**

Type of Survey : MARKET GENERATION

Location of Survey : Pasar Keputran

Address : Jl. Keputran

Area : 17,157 m²

Type of Equipment : Dump Truck

Type of Waste : Vegetables

Interval Collection : Every Day

Surveyor : Moch. Tauhid & Rustarnadji

No. of Trip	Truck Number	Cont. No.	Time Start	Truck Weight (kg)			Waste Vol. (m ³)	Time in LPA		Waste Condition	
				Full	Empty	Net		In	Out		
	18 March 92										
1	L 9605 CF	A 01	9.16	6,000	3,260	2,740	5.95	9.55		Wet	
2	L 9605 CF	A 01	11.25	6,140	3,260	2,880	5.95	12.45		Wet	
3	L 9605 CF	A 01	13.08	7,360	3,260	4,100	5.95	13.32		Wet	
1	L 9606 CF	A 02	9.25	6,240	3,240	3,000	5.95	9.47		Wet	
2	L 9606 CF	A 02	11.14	6,880	3,240	3,640	5.95	12.36		Wet	
3	L 9606 CF	A 02	13.00	6,760	3,240	3,520	5.95	13.23		Wet	
1	L 9609 CB	A 04	9.46	6,320	3,140	3,180	5.95	10.08		Wet	
2	L 9609 CB	A 04	11.45	6,820	3,140	3,680	5.95	13.05		Wet	
3	L 9609 CB	A 04	13.19	6,720	3,140	3,580	5.95	13.50		Wet	
1	L 9611 CB	A 05	9.35	6,640	3,260	3,380	5.95	9.59		Wet	
2	L 9611 CB	A 05	11.35	6,540	3,260	3,280	5.95	12.58		Wet	
3	L 9611 CB	A 05	13.30	7,060	3,260	3,800	5.95	13.58		Wet	
1	L 9665 CL	A 06	9.05	6,160	3,480	2,680	5.95	9.27		Wet	
2	L 9665 CL	A 06	11.06	6,420	3,480	2,940	5.95	12.22		Wet	
3	L 9665 CL	A 06	12.50	7,010	3,480	3,530	5.95	13.12		Wet	
				Total 49,930 89.25							

THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA

Type of Survey : MARKET GENERATION

Location of Survey : Pasar Keputran

Address : Jl. Keputran

Area : 17,157 m²

Type of Equipment : Dump Truck

Type of Waste : Vegetables

Interval Collection : Every Day

Surveyor : Moch. Tauhid & Rustamadji

No. of Trip	Truck Number	Cont. No.	Time Start	Truck Weight (kg)			Waste Vol. (m ³)	Time in LPA		Waste Condition
				Full	Empty	Net		In	Out	
	19 March 92									
1	L 9605 CF	A 01	10.48	5,480	3,260	2,220	5.95	11.13		Wet
2	L 9605 CF	A 01	12.30	4,780	3,260	1,520	5.95	12.55		Wet
3	L 9605 CF	A 01	14.04	5,280	3,260	2,020	5.95	14.25		Wet
1	L 9606 CF	A 02	10.33	5,460	3,240	2,220	5.95	10.56		Wet
2	L 9606 CF	A 02	12.15	5,160	3,240	1,920	5.95	12.47		Wet
3	L 9606 CF	A 02	14.00	4,680	3,240	1,440	5.95	14.20		Wet
1	L 9609 CB	A 04	10.38	4,820	3,140	1,680	5.95	11.03		Wet
2	L 9609 CB	A 04	12.35	5,040	3,140	1,900	5.95	12.58		Wet
3	L 9609 CB	A 04	14.09	5,280	3,140	2,140	5.95	14.32		Wet
1	L 9611 CB	A 05	11.44	4,980	3,260	1,720	5.95	12.08		Wet
2	L 9611 CB	A 05	12.43	5,160	3,260	1,900	5.95	13.03		Wet
3	L 9611 CB	A 05	14.17	5,160	3,260	1,900	5.95	14.46		Wet
1	L 9665 CL	A 06	11.34	5,960	3,480	2,480	5.95	11.56		Wet
2	L 9665 CL	A 06	13.16	5,540	3,480	2,060	5.95	13.33		Wet
3	L 9665 CL	A 06	14.25	6,000	3,480	2,520	5.95	14.42		Wet
				Total			29,640	89.25		

**THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FORSURABAYA CITY, INDONESIA**

Type of Survey : MARKET GENERATION

Location of Survey : Pasar Keputran

Address : Jl. Keputran

Area : 17,157 m²

Type of Equipment : Dump Truck

Type of Waste : Vegetables

Interval Collection : Every Day

Surveyor : Moch. Tauhid & Rustamadji

No. of Trip	Truck Number	Cont. No.	Time Start	Truck Weight (kg)			Waste Vol. (m ³)	Time in LPA		Waste Condition
				Full	Empty	Net		In	Out	
	20 March 92		Off			Off				Off

**THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA**

Type of Survey : MARKET GENERATION

Location of Survey : Pasar Keputran

Address : Jl. Keputran

Area : 17,157 m²

Type of Equipment : Dump Truck

Type of Waste : Vegetables

Interval Collection : Every Day

Surveyor : Moch. Tauhid & Rustamadji

No. of Trip	Truck Number	Cont. No.	Time Start	Truck Weight (kg)			Waste Vol. (m ³)	Time in LPA		Waste Condition
				Full	Empty	Net		In	Out	
	21 March 92									
1	L 9605 CF	A 01	12.00	5,920	3,260	2,660	6.55	12.25		Wet
1	L 9606 CF	A 02	10.14	5,680	3,240	2,440	7.14	10.38		Wet
2	L 9606 CF	A 02	12.18	6,060	3,240	2,820	7.14	12.40		Wet
1	L 9609 CB	A 04	11.00	5,480	3,140	2,340	7.14	11.28		Wet
1	L 9611 CB	A 05	10.09	5,480	3,260	2,220	5.95	10.43		Wet
2	L 9611 CB	A 05	12.29	6,540	3,260	3,280	7.14	12.51		Wet
1	L 9665 CL	A 06	10.17	6,280	3,480	2,800	7.14	10.40		Wet
2	L 9665 CL	A 06	12.10	5,920	3,480	2,440	5.95	12.25		Wet
Total				21,000	54.74					

THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
 FORSURABAYA CITY, INDONESIA

Type of Survey : MARKET GENERATION

Location of Survey : Pasar Keputran

Address : Jl. Keputran

Area : 17,157 m²

Type of Equipment : Dump Truck

Type of Waste : Vegetables

Interval Collection : Every Day

Surveyor : Moch. Tauhid & Rustamadji

No. of Trip	Truck Number	Cont. No.	Time Start	Truck Weight (kg)			Waste Vol. (m ³)	Time in LPA		Waste Condition	
				Full	Empty	Net		In	Out		
	22 March 92										
1	L 9605 CF	A 01	10.40	4,440	3,260	1,180	5.95	11.00		Wet	
2	L 9605 CF	A 01	12.00	3,890	3,260	630	5.95	12.17		Wet	
1	L 9606 CF	A 02	10.20	4,390	3,240	1,150	6.55	10.40		Wet	
2	L 9606 CF	A 02	11.29	4,370	3,240	1,130	6.55	11.48		Wet	
3	L 9606 CF	A 02	12.58	4,710	3,240	1,470	5.95	13.14		Wet	
1	L 9609 CB	A 04	10.31	4,010	3,140	870	5.95	10.49		Wet	
2	L 9609 CB	A 04	11.40	4,710	3,140	1,570	7.14	11.56		Wet	
3	L 9609 CB	A 04	12.50	4,830	3,140	1,690	5.95	13.09		Wet	
1	L 9611 CB	A 05	10.35	4,290	3,260	1,030	5.95	10.54		Wet	
2	L 9611 CB	A 05	11.54	4,930	3,260	1,670	5.95	12.13		Wet	
3	L 9611 CB	A 05	13.01	4,250	3,260	990	5.95	13.51		Wet	
1	L 9665 CL	A 06	10.25	4,470	3,480	990	5.95	10.41		Wet	
				Total			14,370	73.78			

**THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA**

Type of Survey : MARKET GENERATION

Location of Survey : Pasar Keputran

Address : Jl. Keputran

Area : 17,157 m²

Type of Equipment : Dump Truck

Type of Waste : Vegetables

Interval Collection : Every Day

Surveyor : Moch. Tauhid & Rustarnadji

No. of Trip	Truck Number	Cont. No.	Time Start	Truck Weight (kg)			Waste Vol. (m ³)	Time in LPA		Waste Condition	
				Full	Empty	Net		In	Out		
	23 March 92										
1	L 9605 CF	A 01	10.55	4,740	3,260	1,480	7.74	11.13		Wet	
2	L 9605 CF	A 01	12.34	4,680	3,260	1,420	8.33	12.57		Wet	
1	L 9606 CF	A 02	10.41	5,860	3,240	2,620	8.33	10.57		Wet	
2	L 9606 CF	A 02	12.06	4,340	3,240	1,100	5.95	12.23		Wet	
1	L 9609 CB	A 04	10.32	5,140	3,140	2,000	8.03	10.50		Wet	
2	L 9609 CB	A 04	12.14	5,600	3,140	2,460	7.08	12.45		Wet	
1	L 9611 CB	A 05	10.45	4,760	3,260	1,500	7.74	11.05		Wet	
2	L 9611 CB	A 05	12.25	5,360	3,260	2,100	7.74	12.49		Wet	
1	L 9665 CL	A 06	11.28	5,650	3,480	2,170	5.95	11.45		Wet	
2	L 9665 CL	A 06	12.57	4,620	3,480	1,140	7.14	13.10		Wet	
				Total 17,990 74.02							

Average	24,694 kg/day
	69.94 m ³ /day (on truck)
Market Generation	1.44 kg/m ² /day
	4.08 ltr/m ² /day (on truck)

MARKET SURVEY AREA PASAR KEPUTRAN



**THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA**

Type of Survey : MARKET GENERATION

Location of Survey : Pasar Wonokromo

Address : Jl. Stasiun Wonokromo

Area : 14,276 m²

Truck Number : L 2190 CJ
N 2392 S

Type of Equipment : Dump Truck

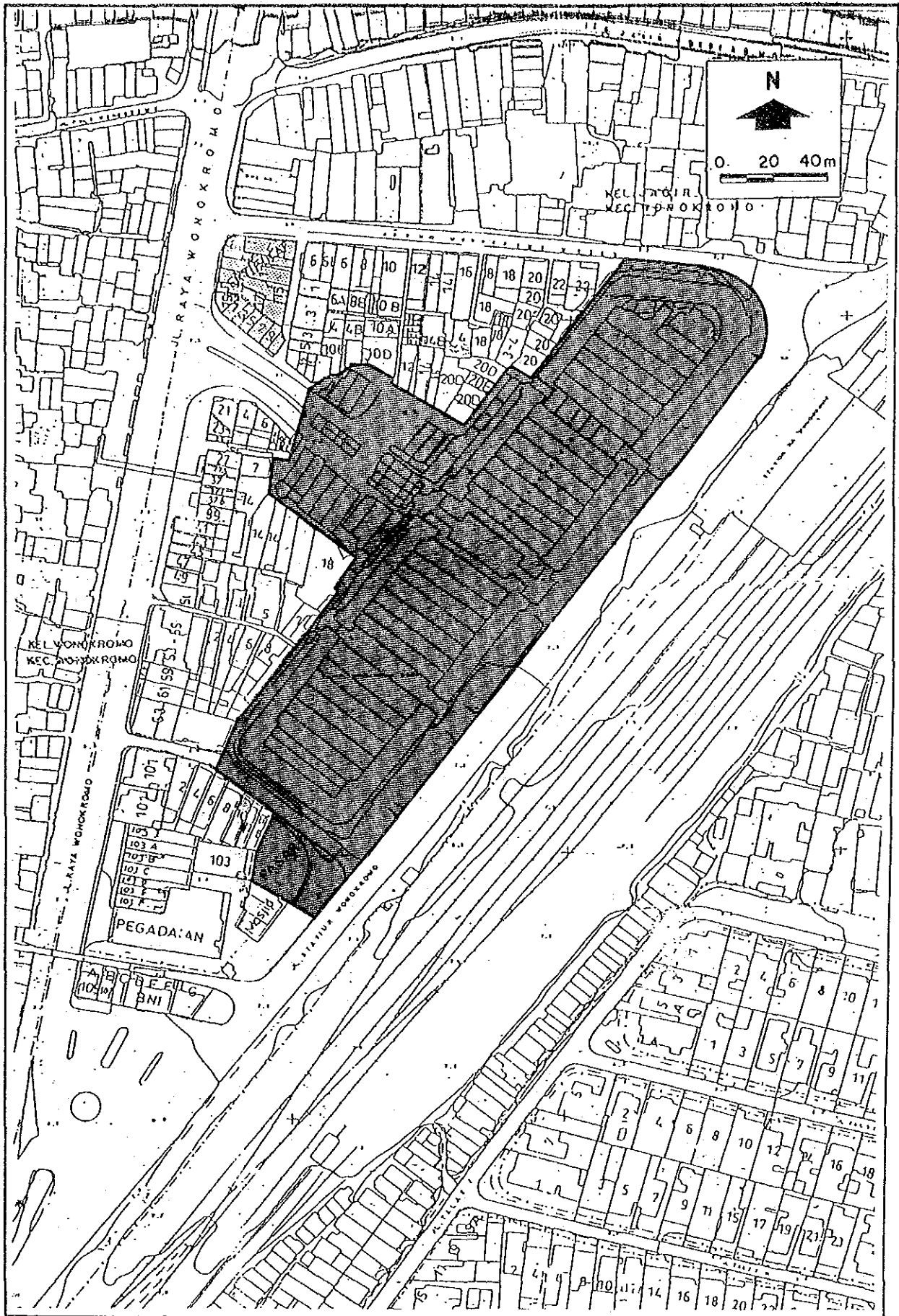
Type of Waste : Vegetables

Interval Collection : Every Day

Surveyor : Agus Herinomo & Rustamadji

No. of Trip	Date	Cont. No.	Time Start	Truck Weight (kg)			Waste Vol. (m ³)	Time in LPA		Waste Condition
				Full	Empty	Net		In	Out	
1	16 March 1992		10.32	12,720	5,480	7,240	18.72	11.03		Wet
2			14.24	13,140	5,480	7,660	18.24	15.25		Wet
1	17 March 1992		9.07	14,160	5,480	8,680	20.16	9.37		Wet
2			14.55	14,160	5,480	8,980	20.16	15.18		Wet
1	18 March 1992		10.30	12,000	5,480	6,520	20.52	10.57		Wet
2			14.20	10,100	5,480	4,620	17.28	16.00		Wet
1	19 March 1992		8.45	14,280	5,480	8,800	21.19	9.25		Wet
2			14.10	12,240	5,480	6,760	20.52	14.38		Wet
1	20 March 1992		8.07	14,920	5,480	9,440	20.52	8.58		Wet
2			13.10	13,280	5,480	7,800	21.12	13.40		Wet
1	21 March 1992		8.20	14,700	5,480	9,220	20.16	8.47		Wet
2			12.32	12,700	5,480	7,220	19.20	12.55		Wet
1	22 March 1992		8.45	12,440	5,480	6,960	21.12	9.14		Wet
2			13.25	11,660	5,480	6,180	19.20	14.03		Wet
				Average		15,154 kg/day				
						39.73 m ³ /day (on truck)				
				Market Generation		1.06 kg/m ² /day				
						2.78 ltr/m ² /day (on truck)				

MARKET SURVEY AREA PASAR WONOKROMO



**THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA**

Type of Survey : MARKET GENERATION

Location of Survey : Pasar Pegirian

Address : Jl. Nyamplungan

Area : 4,140 m²

Truck Number : L 9695 CG

Type of Equipment : Container Truck

Body / Container Size : 10 m³

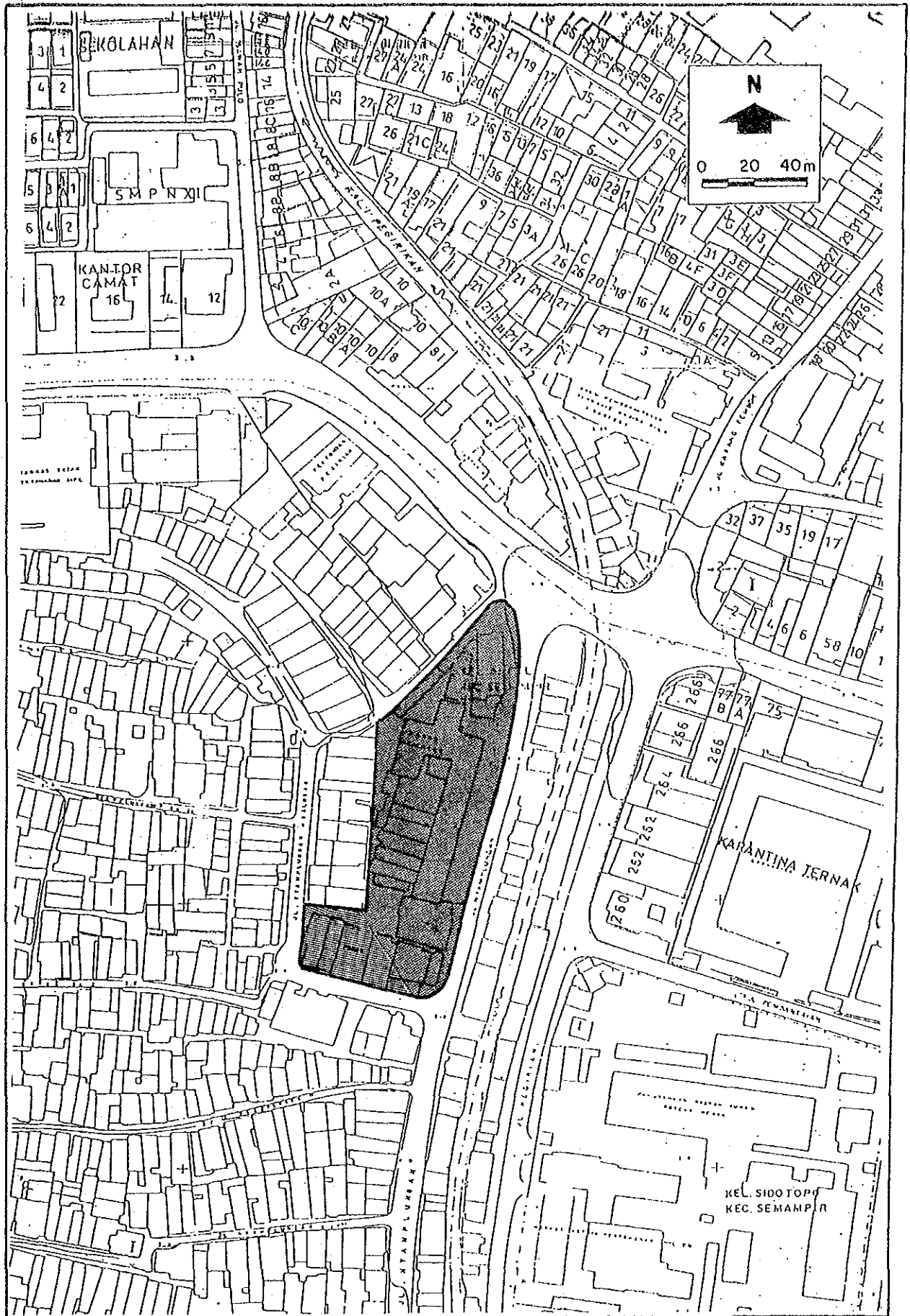
Type of Waste : Fruit & Grass

Interval Collection : Every Day

Surveyor : Transpiosa & Rustamadji

No. of Trip	Date	Cont. No.	Time Start	Truck Weight (kg)			Waste		Time in LPA		Waste Condition
				Full	Empty	Net	Vol. (%)	Vol. (m ³)	In	Out	
1	17 March 1992	C 59	12.45	1,020	6,820	4,200	100	10	13.35		Wet
1	18 March 1992	C 59	8.50	1,340	6,820	4,520	100	10	11.56		Wet
1	20 March 1992	C 38	10.15	9,700	6,780	2,920	100	10	11.25		Wet
1	21 March 1992	C 59	11.40	9,680	6,820	2,860	100	10	12.28		Wet
1	22 March 1992	C 48	9.48	9,630	5,960	3,670	100	10	10.13		Wet
1	23 March 1992	C 42	8.55	8,140	5,470	2,670	100	10	9.19		Wet
1	24 March 1992	C 29	10.17	8,560	5,360	3,200	100	10	10.40		Wet
Average 3,434 kg/day 10.00 m ³ /day (on truck) Market Generation 0.83 kg/m ² /day 2.41 ltr/m ² /day (on truck)											

MARKET SURVEY AREA PASAR PEGIRIAN



THE STUDY ON THE SOLID WASTE MANAGEMENT IMPROVEMENT
FOR SURABAYA CITY, INDONESIA

Type of Survey : MARKET GENERATION

Location of Survey : Pasar Kupang

Address : Jl. Pandegiling

Area : 3,000 m²

Truck Number : L 9654 CG

Type of Equipment : Container Truck

Body / Container Size : 6 m³

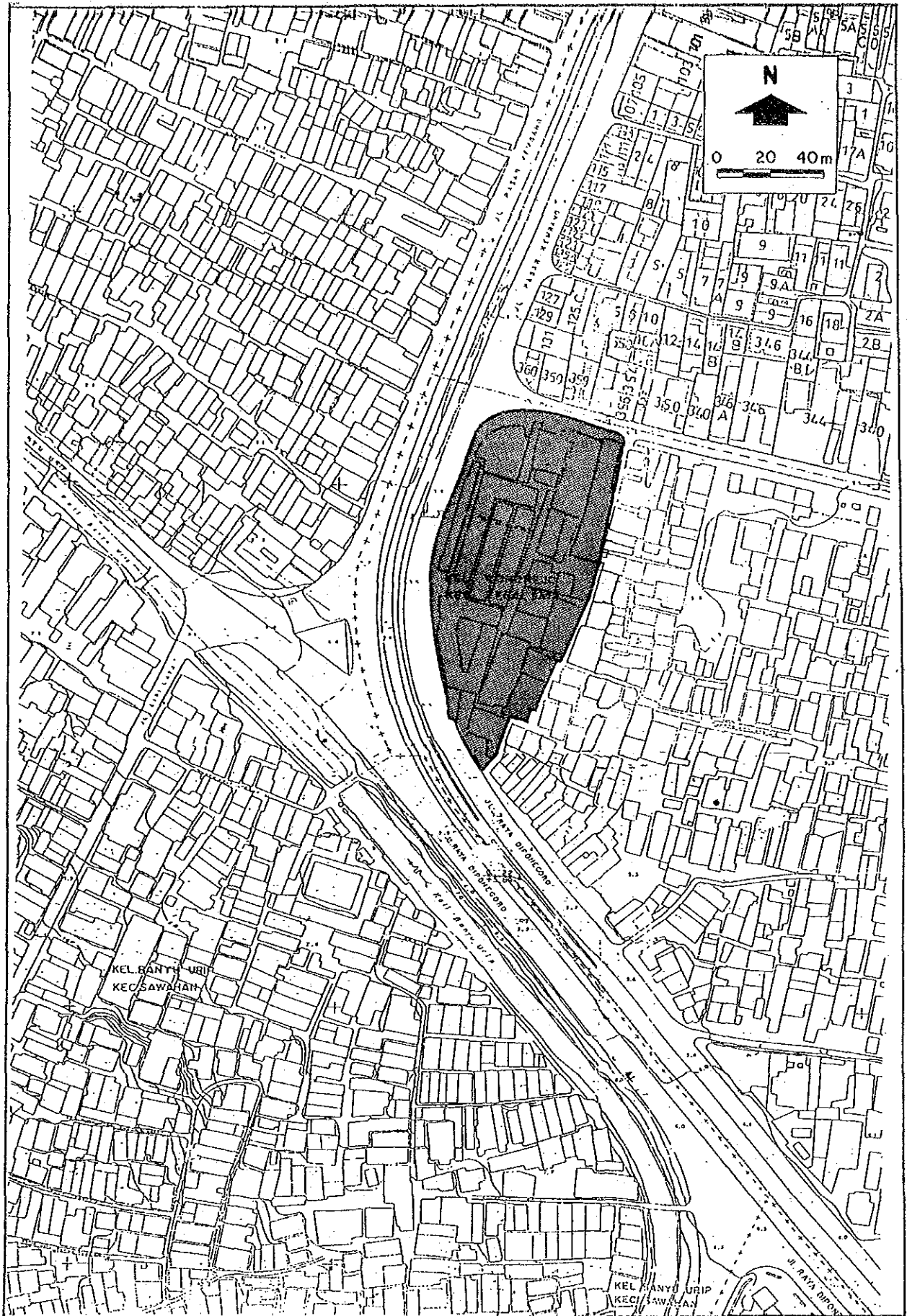
Type of Waste : Fruit & Grass

Interval Collection : Every Day

Surveyor : Agus Thaufan & Rustamadji

No. of Trip	Date	Cont. No.	Time start	Truck Weight (kg)			Waste		Time in LPA		Waste Condition
				Full	Empty	Net	Vol. (%)	Vol. (m ³)	In	Out	
1	16 March 1992	B 270	12.00	5,140	4,120	1,020	90	5.40	12.23		Wet
1	17 March 1992	B 141	12.15	5,460	4,100	1,360	90	5.40	12.45		Wet
1	18 March 1992	B 264	13.00	5,960	4,120	1,840	90	5.40	13.30		Wet
1	19 March 1992	B 262	13.45	5,400	4,100	1,300	90	5.40	14.32		Wet
1	20 March 1992	B 264	13.35	5,520	4,120	1,400	90	5.40	14.02		Wet
1	21 March 1992	W 002	12.35	5,660	4,100	1,560	90	5.40	12.59		Wet
1	22 March 1992	B 264	12.55	5,880	4,120	1,760	90	5.40	13.16		Wet
Average				1,463 kg/day			5.40 m ³ /day (on truck)				
Market Generation				0.49 kg/m ² /day			1.80 ltr/m ² /day (on truck)				

MARKET SURVEY AREA PASAR KUPANG



II Vehicle Weight Survey

(1) Survey Point

The survey was conducted at the entrance of Kenjeran Landfill Site and Lakarsantri.

(2) Survey Method

By using a portable weighing bridge, the weight of axles were measured. Measuring process is divided into two parts; namely front axle and rear axle because the size of censor is not enough to contain the whole vehicle on it at one time. Then the vehicle weight is calculated as the sum of both axles' weight. Measuring was conducted twice for each arrival of vehicle, before and after dumping the load, so as to know the net weight of dumped weight.

The loading rate was observed by eye measure comparing with the full capacity of each vehicle.

(3) Summary of Results

Type	Loaded (kg)	Empty (kg)	Net (kg)	Loading Rate (%)
A	9,282	5,308	3,974	95
B	9,602	5,934	3,668	99
C	5,455	3,487	1,968	99
D	10,050	6,896	3,154	84
E	5,113	4,099	1,014	63
F	5,270	2,948	2,322	99
G	9,477	4,217	5,260	133
H	2,785	1,845	940	101
I	6,707	3,288	3,419	130

Notes :

Type	Vehicle
A	KMS Container 12 m ³
B	KMS Container 10 m ³
C	KMS Container 6 m ³
D	KMS Compactor 10 m ³
E	KMS Compactor 6 m ³
F	KMS Dump Truck
G	Private Dump Truck (Contractor Nominated by KMS)
H	Other (Self Carry by Factory, etc)
I	Other (KMS Vehicle, Non Cleansing Department)

Raw Data

Type of Survey : Vehicle Weight
 Location Measured : Kenjeran & Lakarsantri
 Season : Rainy Season

No	Date	Vehicle No.	Type	Vehicle Weight (kg)			Loading Rate (%)
				Loaded	Empty	Net	
1	1-4-1992	2067	H	3.790	2.160	1.630	200
2	1-4-1992	2067	H	3.770	2.390	1.380	200
3	1-4-1992	2199	G	10.920	4.730	6.190	200
4	1-4-1992	2201	G	11.470	4.930	6.540	200
5	1-4-1992	2201	G	11.570	4.910	6.660	200
6	1-4-1992	2764	H	1.870	1.540	330	150
7	1-4-1992	3103	H	2.190	1.280	910	200
8	1-4-1992	9613 CH	E	6.140	4.290	1.850	70
9	1-4-1992	9615 CH	E	4900	4350	550	50
10	1-4-1992	9653 CG	C	5.800	3.920	1.880	90
11	1-4-1992	9653 CG	C	6.120	3.990	2.130	100
12	1-4-1992	9653 CG	C	5.930	3.750	2.180	100
13	1-4-1992	9653 CG	C	5.550	4.010	1.540	90
14	1-4-1992	9653 CG	C	5.860	3.940	1.920	100
15	1-4-1992	9656 CG	C	6.240	4.040	2.200	90
16	1-4-1992	9656 CG	C	6.150	3.970	2.180	100
17	1-4-1992	9656 CG	C	5.580	3.990	1.590	100
18	1-4-1992	9656 CG	C	5.880	3.930	1.950	100
19	1-4-1992	9656 CG	C	5.810	3.840	1.970	100
20	1-4-1992	9661 CE	A	10.500	6.580	3.920	100
21	1-4-1992	9665	I	4.720	3.740	980	50
22	1-4-1992	9668 CG	C	6.160	3.790	2.370	100
23	1-4-1992	9668 CG	C	5.240	3.740	1.500	100
24	1-4-1992	9668 CG	C	3.660	1.700	1.960	100
25	1-4-1992	9668 CG	C	5.820	3.740	2.080	100
26	1-4-1992	9672 CF	D	10.530	8.040	2.490	70
27	1-4-1992	9672 CF	D	11.030	8.070	2.960	70
28	1-4-1992	9675 CF	D	9.470	8.010	1.460	50
29	1-4-1992	9678 CF	B	11.750	7.460	4.290	100
30	1-4-1992	9679 CG	B	10.640	6.890	3.750	100
31	1-4-1992	9679 CG	B	10.680	6.780	3.900	100
32	1-4-1992	9679 CG	B	11.130	7.050	4.080	100
33	1-4-1992	9679 CG	B	11.440	6.980	4.460	100
34	1-4-1992	9679 CG	B	11.140	6.940	4.200	100
35	1-4-1992	9687 CH	C	6.250	3.950	2.300	100
36	1-4-1992	9687 CH	C	5.750	3.830	1.920	100
37	1-4-1992	9687 CH	C	5.830	3.900	1.930	90

Raw Data

Type of Survey : Vehicle Weight
 Location Measured : Kenjeran & Lakarsantri
 Season : Rainy Season

No	Date	Vehicle No.	Type	Vehicle Weight (kg)			Loading Rate (%)
				Loaded	Empty	Net	
38	1-4-1992	9687 CH	C	6.640	3.880	2.760	100
39	1-4-1992	9687 CH	C	5.350	3.840	1.510	100
40	1-4-1992	9687 CH	C	6.430	3.990	2.440	100
41	1-4-1992	9687 CH	C	5.850	3.900	1.950	100
42	1-4-1992	9688 CH	C	6.320	3.820	2.500	100
43	1-4-1992	9688 CH	C	6.480	4.060	2.420	100
44	1-4-1992	9688 CH	C	6.350	4.000	2.350	100
45	1-4-1992	9688 CH	C	6.780	4.020	2.760	100
46	1-4-1992	9688 CH	C	6.210	3.840	2.370	100
47	1-4-1992	9688 CH	C	5.900	4.020	1.880	100
48	1-4-1992	9688 CH	C	6.490	4.230	2.260	100
49	1-4-1992	9688 CH	C	6.250	4070	2.180	100
50	1-4-1992	9688 CH	C	6.710	3.890	2.820	100
51	1-4-1992	9688 CH	C	6.270	3.940	2.330	100
52	1-4-1992	9693 CG	C	5.350	3.710	1.640	100
53	1-4-1992	9693 CG	C	5.920	3.740	2.180	100
54	1-4-1992	9693 CG	C	6.080	3.880	2.200	100
55	1-4-1992	9693 CG	C	6.040	3.690	2.350	100
56	1-4-1992	9693 CG	C	5.400	3.510	1.890	100
57	1-4-1992	9693 CG	C	5.640	3.650	1.990	100
58	21-3-1992	2190	G	7.450	5.360	2.090	100
59	21-3-1992	3144	H	1.660	880	780	200
60	21-3-1992	9603 CF	C	4.650	3.500	1.150	100
61	21-3-1992	9603 CF	C	5.060	3.470	1.590	100
62	21-3-1992	9603 CF	C	5.340	3.440	1.900	100
63	21-3-1992	9608	I	5.850	3.310	2.540	100
64	21-3-1992	9609 CB	F	5.370	3.120	2.250	100
65	21-3-1992	9626 CE	C	5.720	4.030	1.690	100
66	21-3-1992	9626 CE	C	6.260	3.770	2.490	100
67	21-3-1992	9630 CE	B	9.830	6.850	2.980	100
68	21-3-1992	9649 CB	C	5.680	3.620	2.060	100
69	21-3-1992	9649 CB	C	6.300	4.520	1.780	100
70	21-3-1992	9649 CB	C	5.440	3.760	1.680	100
71	21-3-1992	9653 CG	C	6.310	3.770	2.540	100
72	21-3-1992	9653 CG	C	6.470	4.020	2.450	100
73	21-3-1992	9653 CG	C	5.760	4.120	1.640	100
74	21-3-1992	9654 CG	C	6.030	3.620	2.410	100

Raw Data

Type of Survey : Vehicle Weight
 Location Measured : Kenjeran & Lakarsantri
 Season : Rainy Season

No	Date	Vehicle No.	Type	Vehicle Weight (kg)			Loading Rate (%)
				Loaded	Empty	Net	
75	21-3-1992	9655 CG	C	5.680	4.040	1.640	90
76	21-3-1992	9655 CG	C	5.920	3.890	2.030	100
77	21-3-1992	9655 CG	C	5.730	3.830	1.900	100
78	21-3-1992	9657 BE	A	5.750	4.600	1.150	100
79	21-3-1992	9657 BE	A	8.980	5.980	3.000	100
80	21-3-1992	9660 CE	A	10.300	6.070	4.230	100
81	21-3-1992	9665	I	3.830	3.340	490	100
82	21-3-1992	9669 CG	C	5.520	3.610	1.910	100
83	21-3-1992	9673 CF	B	9.600	7.540	2.060	90
84	21-3-1992	9674 CF	D	10.460	8.260	2.200	100
85	21-3-1992	9676 CG	C	5.650	4.060	1.590	90
86	21-3-1992	9678 CF	B	10.650	7.320	3.330	100
87	21-3-1992	9683 CG	B	8.990	6.680	2.310	100
88	21-3-1992	9685 CF	D	12.330	8.180	4.150	100
89	21-3-1992	9687 CH	C	6.080	3.890	2.190	90
90	21-3-1992	9691 CG	B	9.610	6.100	3.510	100
91	21-3-1992	9695 CG	B	9.260	6.420	2.840	100
92	22-3-1992	2008	G	6.850	3.830	3.020	100
93	22-3-1992	2182	G	2.840	950	1.890	100
94	22-3-1992	2190	G	12.640	4.790	7.850	200
95	22-3-1992	2392	G	9.420	3.560	5.860	100
96	22-3-1992	2392	G	6.380	2.900	3.480	100
97	22-3-1992	2597	G	7.530	3.770	3.760	100
98	22-3-1992	2597	G	11.670	3.540	8.130	120
99	22-3-1992	2932	H	1.500	740	760	100
100	22-3-1992	2932	H	1.080	830	250	100
101	22-3-1992	9603 CF	C	4.970	3.250	1.720	100
102	22-3-1992	9605 CF	F	4.440	2.810	1.630	100
103	22-3-1992	9605 CF	F	3.890	2.780	1.110	100
104	22-3-1992	9606 CF	F	4.390	2.900	1.490	100
105	22-3-1992	9606 CF	F	4.370	2.370	2.000	100
106	22-3-1992	9606 CF	F	4.710	2.600	2.110	100
107	22-3-1992	9609 CB	F	4.830	2.360	2.470	100
108	22-3-1992	9609 CB	F	4.710	2.520	2.190	100
109	22-3-1992	9609 CB	F	4.010	2.610	1.400	100
110	22-3-1992	9611 CB	F	4.290	2.500	1.790	100
111	22-3-1992	9611 CB	F	4.930	2.930	2.000	100

Raw Data

Type of Survey : Vehicle Weight

Location Measured : Kenjeran & Lakarsantri

Season : Rainy Season

No	Date	Vehicle No.	Type	Vehicle Weight (kg)			Loading Rate (%)
				Loaded	Empty	Net	
112	22-3-1992	9626 CE	C	5.280	3.300	1.980	100
113	22-3-1992	9626 CE	C	5.110	3.320	1.790	100
114	22-3-1992	9626 CE	C	4.980	2.730	2.250	100
115	22-3-1992	9626 CE	C	4.610	1.590	3.020	100
116	22-3-1992	9630 CF	C	4.390	2.910	1.480	100
117	22-3-1992	9630 CF	C	4.950	3.190	1.760	100
118	22-3-1992	9630 CE	B	9.720	5.240	4.480	100
119	22-3-1992	9630 CF	C	4.110	3.420	690	90
120	22-3-1992	9631 CF	C	5.070	3.130	1.940	100
121	22-3-1992	9649 CB	C	5.090	3.080	2.010	100
122	22-3-1992	9649 CB	C	4.860	2.920	1.940	100
123	22-3-1992	9653 CG	C	5.560	3.430	2.130	100
124	22-3-1992	9653 CG	C	5.190	3.090	2.100	100
125	22-3-1992	9654 CG	C	4.150	3.040	1.110	100
126	22-3-1992	9654 CG	C	3.650	2.860	790	100
127	22-3-1992	9654 CG	C	3.880	3.320	560	90
128	22-3-1992	9654 CG	C	5.210	3.490	1.720	100
129	22-3-1992	9654 CG	C	5.390	3.410	1.980	90
130	22-3-1992	9654 CG	C	5.990	3.880	2.110	100
131	22-3-1992	9655 CG	C	4.460	3.120	1.340	90
132	22-3-1992	9655 CG	C	3.980	3.150	830	50
133	22-3-1992	9655 CG	C	4.970	2.860	2.110	100
134	22-3-1992	9657 CG	C	5.090	3.270	1.820	100
135	22-3-1992	9657 CG	C	5.260	3.390	1.870	100
136	22-3-1992	9660 CE	A	8.100	4.810	3.290	100
137	22-3-1992	9660 CE	A	9.760	5.280	4.480	100
138	22-3-1992	9661 CE	A	9.680	5.220	4.460	100
139	22-3-1992	9665	I	4.470	2.880	1.590	100
140	22-3-1992	9669 CG	C	5.290	3.140	2.150	100
141	22-3-1992	9670 CG	C	4.880	1.420	3.460	100
142	22-3-1992	9670 CG	C	4.950	2.870	2.080	100
143	22-3-1992	9671 CG	C	4.600	3.020	1.580	100
144	22-3-1992	9671 CG	C	5.350	3.020	2.330	100
145	22-3-1992	9676 CF	B	9.820	6.150	3.670	100
146	22-3-1992	9676 CG	C	4.880	3.760	1.120	100
147	22-3-1992	9676 CG	C	5.360	3.550	1.810	100
148	22-3-1992	9676 CF	B	9.160	6.310	2.850	100

Raw Data

Type of Survey : Vehicle Weight
 Location Measured : Kenjeran & Lakarsantri
 Season : Rainy Season

No	Date	Vehicle No.	Type	Vehicle Weight (kg)			Loading Rate (%)
				Loaded	Empty	Net	
149	22-3-1992	9677 CF	B	9.680	6.340	3.340	100
150	22-3-1992	9677 CF	B	7.540	5.430	2.110	100
151	22-3-1992	9677 CF	B	9.260	3.590	5.670	100
152	22-3-1992	9678 CF	B	8.770	6.050	2.720	100
153	22-3-1992	9678 CF	B	6.790	2.120	4.670	100
154	22-3-1992	9682 CF	B	7.470	5.110	2.360	100
155	22-3-1992	9682 CF	B	7.260	5.980	1.280	100
156	22-3-1992	9683 CF	D	10.020	6.710	3.310	100
157	22-3-1992	9683 CG	B	9.460	5.850	3.610	100
158	22-3-1992	9686 CG	C	4.630	2.850	1.780	100
159	22-3-1992	9686 CG	C	4.360	3.330	1.030	100
160	22-3-1992	9687 CG	C	4.800	2.830	1.970	100
161	22-3-1992	9691 CG	B	9.390	4.880	4.510	100
162	22-3-1992	9691 CG	B	9.960	6.320	3.640	100
163	22-3-1992	9692 CG	B	8.520	5.810	2.710	100
164	22-3-1992	9695 CG	B	9.630	5.960	3.670	100
165	22-3-1992	9695 CG	B	8.960	5.210	3.750	100
166	22-3-1992	9697 CG	C	5.460	3.300	2.160	100
167	23-3-1992	2008	G	10.700	1.340	9.360	150
168	23-3-1992	2182	G	2.210	1.760	450	50
169	23-3-1992	2332	G	10.980	4.140	6.840	200
170	23-3-1992	2392	G	5.970	3.000	2.970	100
171	23-3-1992	2395	H	2.970	2.440	530	50
172	23-3-1992	2433	G	8.180	3.340	4.840	120
173	23-3-1992	2597	G	9.190	3.590	5.600	120
174	23-3-1992	2690	G	7.660	3.880	3.780	100
175	23-3-1992	2917	H	1.890	1.630	260	100
176	23-3-1992	9603 CF	C	3.990	2.710	1.280	100
177	23-3-1992	9603 CF	C	4.320	3.050	1.270	100
178	23-3-1992	9603 CF	C	4.690	3.670	1.020	100
179	23-3-1992	9603 CF	C	4.360	3.080	1.280	100
180	23-3-1992	9605 CF	F	4.740	2.640	2.100	100
181	23-3-1992	9605 CF	F	4.680	1.110	3.570	100
182	23-3-1992	9606 CF	F	5.860	2.530	3.330	100
183	23-3-1992	9606 CF	F	4.340	2.950	1.390	100
184	23-3-1992	9609 CB	F	5.140	2.270	2.870	100
185	23-3-1992	9626 CE	C	4.230	2.590	1.640	100