

2.Waste Amount And Composition Survey (Rainy Season)

PART-A: INTRODUCTORY REPORT

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INTRODUCTORY REPORT

1.0 INTRODUCTION

1.1 Background and Objective of the Study

The Solid Waste Amount and Composition Survey is required as a part of the Master Plan Study to identify the amount and composition of different kinds of waste generated in the capital city. The generated waste include residential, commercial, public facilities, market, road sweeping and slum area. The Terms of Reference (ToR) as prescribed during the last dry season study remains same excepting that this study is conducted during the rainy season. The ToR also indicates that the **samples shall be taken from the same points which were pointed in the last dry season survey**. It may be mentioned here that during the last dry season study the weighing machine was not available and as such the incoming waste at landfill site was based on estimation of the rated carrying capacity of the Collection Vehicles (CV). During the present study weighing machine has been made available by the JICA Study Team.

Objective of the Study

The objective of the survey comprises - determination of the waste quantity/volume generated at different sources viz residential area, commercial area, market, street sweeping and slum area. The survey will reflect the unit generation at different sources. Even in the residential area the unit generation will vary, because the upper income group, lower income group, slum area etc are not using the same type of commodity for their daily use. This statement will be justified when the generated waste is segregated and individual amount/volume is measured through the composition survey. In Bangladesh cities and towns major portion of the solid waste consists of organic waste. This organic waste if separated right at the source can be a good source of compost for agricultural purpose. The other part i.e inorganic portion, most of the ingredients can be recycled for use in the different industries.

Thus, if the organic and inorganic portions are separated properly at the sources and put to beneficial use the volume of total rest of the waste to be transported to LF site will be reduced which will eventually reduce the cost of transportation and the land required for controlled tipping.

This survey will also determine the weight and volume ratio i.e the density at different stages. The density viz, right at the source (as presented density), density at the communal bin and on-truck density and in-situ density at LF site will increase gradually. The knowledge of the density at different stages is required for designing the handling equipment, communal bins, and design of Sanitary Land Fill Projects. Thus, all those basic information will be required to formulate the Master Plan.

2.0 SCOPE OF WORK

2.1 General

The Consultant under the guidance of the JICA Study Team and as per ToR shall conduct the survey so that realistic field data are obtained. The survey consists of the following sub components:

- (i) Measurement of waste generation amount/volume.
- (ii) Waste composition physical and as well as laboratory analysis.
- (iii) Measurement of incoming waste at landfill site.
- (iv) Survey on collection vehicle activity at the central garage.
- (v) Determination of empty weight of all collection vehicles used for transportation of solid waste.
- (vi) Data analysis and
- (vii) Preparation of the draft and final report including furnishing of raw data.

2.2 Measurement of Waste Amount/Volume

1. The ToR provides that the waste is to be collected at different income levels within the City Corporation area and following are different category that has been selected by the JICA Study Team.

The survey area has been classified into following 10 categories:

| | | |
|--|---------------------------------------|---------------|
| 1. Domestic | a. Upper (Gulshan, Banani) | = 50 Samples |
| | b. Middle (Dhanmondi, Lalmatia) | = 50 Samples |
| | c. Lower Middle (Mohammadpur-Mirpur) | = 50 Samples |
| | d. Lower (Lalbag, Hazaribagh-Kotwali) | = 50 Samples |
| | e. Slum (Kuril) | = 50 Samples |
| | | = 250 Samples |
| 2. Commercial | a. Restaurants | = 10 |
| | b. Shops/ Hotel/ Guest house | = 10 |
| 3. Public Facilities (School, DCC Office, Zone Office) | | = 10 |
| 4. Market | | = 10 |
| 5. Road Sweeping | | = 10 |
| | | = 50 |

The Survey shall cover a period of 8 days and generated waste shall be measured every day.

The JICA Study Team will direct the location of survey area and the Consultant shall select exact sites/location in order to obtain the representative samples from the area/holdings.

The Consultant shall brief the purpose of the survey to each sample holding in order to get the representative data and necessary cooperation from the respective holding.

The following table gives the desired interview items and particulars.

Table-2.1: Interview items for each sampling area

| | Sampling area | Interview items |
|----|--|---|
| 1. | Residential area: | Number of families and inhabitants (including employee), Floor area of house, monthly expenditure. |
| | a. Upper level | |
| | b. Middle level | |
| | c. Lower middle level | |
| | d. Low level | |
| | e. Slum | |
| 2. | Commercial establishment: | Number of employees, floor area. Type of activity (to be classified into restaurant, hotel/guest house, food shop, cloth shop, electric shop and other shop) |
| | a. Restaurant | |
| | b. Shops, hotel/guest houses, etc. | |
| 3. | Public facilities: (school, DCC office, zone office, etc.) | Number of employees, floor area. Type of activity (to be classified as school, public office and other public facility) |
| 4. | Market: | Number of stalls by type of activity, number of employees, floor area, land area of market |
| 5. | Street waste: | Name of sweeper (cleaner), street length and width to be swept. (Street location shall be indicated on a map. Zone and ward number shall be recorded) |

2.3 Waste Composition Analysis

1. Dhaka waste contains both organic and inorganic components and as such it is important that representative samples are obtained in order to analyse the physically segregated ingredients and to conduct laboratory tests for selected items. JICA Study Team recommended for determination of moisture contents of the selected items. Other parameter and contents will be determined by JICA Study Team.
2. The following are the components for physical composition and laboratory analysis.

Table-2.2 : Physical Composition Items

| Sl. No. | Item | Sl. No. | Item |
|---------|-----------------------------|---------|----------------------------------|
| *1 | Recyclable paper | 11 | Rubber |
| 2 | Other paper | 12 | Leather |
| 3 | Food waste/vegetable matter | *13 | Steel CAN |
| 4 | Textile | *14 | Aluminum CAN |
| 5 | Grass and yard waste | *15 | Metal/Alloy |
| 6 | Wood | 16 | Glass, broken bottles, others |
| 7 | Plastic sheet | *17 | Glass bottles |
| *8 | Polyethylene bottle | 18 | Stone and ceramics |
| *9 | Other plastic bottle | 19 | Miscellaneous inert (sand, dust) |
| *10 | Other plastics | 20 | Unclassified |

* *Recyclable Items*

Table-2.3: Lab. Analysis Items

| Sl. No. | Item |
|---------|-----------------------------|
| 1 | Recyclable paper |
| 2 | Other papers |
| 3 | Food waste/Vegetable Matter |
| 4 | Textile |
| 5 | Grass and yard waste |
| 6 | Wood |
| 7 | Plastic sheet |
| 8 | Polyethylene bottles |
| 9 | Other plastic bottles |
| 10 | Rubber |
| 11 | Leather |
| 12 | Others/Composite |

2.4 Source of Samples

a. Source of sample is shown in Table 2.4

- b. 30 samples collected for waste generation volume survey will be samples for physical composition (wet base) and specific weight analysis. And 10 samples of them shall be further analyzed on moisture contents of each component. Then proximate composition of sample shall be estimated.
- c. Total 30 samples (3 samples from each zone) shall be taken from collection vehicles at landfill sites for physical analysis (wet base) and specific weight. And 10 samples of them shall be further analyzed on moisture contents of each component. Then proximate composition of sample shall be estimated.

(4) Total number of analysis excluding estimation of proximate composition will be 360 as shown in Table 2.4.1

Table- 2.4 : Sample preparation for waste composition

| Sampling Area | Number of Samples | Sample Preparation |
|--|-------------------|---|
| A. Sample from generation survey | | |
| (1). Residential area | | Collected waste in the same day from each level (50 households from each level) forms one (1) sample by mixing. Sampling shall be conducted for three days. |
| a. Upper level | 3 (1) | |
| b. Middle level | 3 (1) | |
| c) Lower middle level | 3 (1) | |
| d. Low level | 3 (1) | |
| e. Slum | 3 (1) | |
| (2) Commercial establishment | | |
| a. Restaurant | 3 (1) | Collected waste in the same day from restaurants from one sample. |
| b. Shops, hotel/guest houses, etc | 3 (1) | Collected waste in the same day from shops with the same activity forms will be one sample |
| (3). Public facilities (school, DCC office, zone office, etc.) | 3 (1) | Collected waste in the same day from school/offices with same activity forms one sample. |
| (4). Market | 3 (1) | Collected waste from one market forms one sample |
| (5). Street waste | 3 (1) | Collected waste in the same day forms one samples |
| Sub-Total | 30 (10) | |
| B. Sample from collection vehicle at | 30 (10) | One collection vehicle provides one |
| Landfill site | | Sample. One vehicle from a zone shall be taken for three (3) days. |
| Grand total | 60 (20) | |

Note 01): Figure () is number of samples used for the analysis of moisture contents and estimation of proximate composition.
 Note 02): A Sample volume shall be more than 200 kg if the sample is taken from collection vehicle and/or container.

Table-2.4.1: Number of required analysis

| Analysis | Number of Analysis | Remarks |
|--------------------------|--|---------------------------------------|
| (1) Physical composition | 60 analysis | 1 analysis per 1 sample |
| (2) Specific weight | 60 analysis | Same as above |
| (2) Moisture content | 20 sample x 12 components = 240 analysis | 12 analysis (components) per 1 sample |
| Total | 360 analysis | |

Note: Estimation of proximate composition is excluded.

2.5 Survey on Incoming Waste at Landfill Site

This survey shall be conducted at Matuail, Gabtoli Beri Bund and Uttara Beri Bund site. The survey shall be conducted daily 24 hours for 7 days, because the wastes are transported to the dump site almost round the clock. The loaded weight of each truck shall be determined at the landfill site by portable weighing machine provided by the JICA Study Team. This weighing operation shall be available only at Matuail Site, because no weighing machine will be available at Berri Bund sites. The amount carried by each truck at Berri Bund site shall be determined by noting the type and capacity of each truck.

At the Matuail site the following data shall be recorded

- i) Vehicle Regn. Number
- ii) Vehicle Type
- iii) Vehicle Capacity
- iv) Vehicle arrival time
- v) Vehicle departure time
- vi) Driver's Name
- vii) Vehicle Loaded weight
- viii) Collection Zone/Ward
- ix) Type of Waste

2.6 Survey on Collection Vehicle activity at the central garage.

Item 2.5 & Item 2.6 are interrelated studies. The refuse collection vehicles (RCVs) are usually stationed at the DCC Central Garage at Saidabad and their activity is for 24 hrs. The following data shall be recorded for all outgoing and incoming vehicles.

- (i) Vehicle Registration Number
- (ii) Vehicle Type
- (iii) Vehicle Capacity
- (iv) Vehicle Departure Time
- (v) Vehicle Arrival Time
- (vi) Number of Trips made/ shift
- (vii) Collection Zone/ Stations
- (viii) Disposal place
- (ix) Name of driver

2.7 Determination of empty weight of Collection Vehicles

The Electronic Digital weighing machine provided by JICA Study Team shall be installed temporarily at the central garage in order to determine the empty weight of all Collection Vehicles.

3.0 METHODOLOGY

3.1 General

The entire survey has been conducted through 23 surveyors, 3 supervising officers under the guidance of the survey team leader. In addition of the field staff/officer an experienced engineer is helping survey team leader for data processing/evaluation along with one computer operator. Initial mobilization took about 7 days for selection of men, materials and equipment/accessories. Prior to the field work the Team Leader met the JICA Study Team on several occasions to discuss the pros and cons of the survey.

3.2 Specific Instructions to the Survey Team

A brochure was prepared for necessary instruction to the field staff and each was given a copy of the instruction brochure. Copy of this instruction was also submitted to the JICA Study Team and CPU of DCC. A copy of the instruction is enclosed for ready reference in Annex (9). In addition to this brochure a list (Annex-8) of all the surveyor including supervising engineers was prepared showing the allocation of their areas/responsibilities. This list also included the selected commercial holdings, public facility and markets. In order to inform the public, leaflet was prepared in Bengali/English (Annex-10) and was distributed a day ahead of the sampling to the selected holdings.

3.3 Allocation of Responsibility

Selection of category by JICA Study Team and specific area selection by the Consultant in consultation with the JICA Study Team and CPU/DCC is given below:

| | | |
|--|--|---------------|
| 1. Domestic | a. Higher Income Group (Gulshan, Banani) | = 50 Samples |
| | b. Middle Income Group (Dhanmondi, Lalmatia) | = 50 Samples |
| | c. Low/Middle Income Group (Mohammadpur-Mirpur) | = 50 Samples |
| | d. Lower Income Group (Lalbag, Hazaribagh-Kotwali) | = 50 Samples |
| | e. Slum (Kamlapur) | = 50 Samples |
| | | <hr/> |
| | | = 250 Samples |
| 2. Commercial | a. Restaurants | = 10 |
| | b. Shops/ Hotel/ Guest house | = 10 |
| 3. Public Facilities (School, DCC Office, Zone Office) | | = 10 |
| 4. Market | | = 10 |
| 5. Road Sweeping | | = 10 |
| | | <hr/> |
| | | = 50 |

3.4 Accessories and Materials

The equipment and materials used in this survey are the same as used in the dry season survey. This time additional equipment like weighing machine have been made available by JICA Study Team including all installation facility at the Matuail Landfill site. The machine was installed at the Matuail Landfill site for about a week.

3.5 Demonstration Survey

During the last dry season survey, demonstration survey in respect of determination of amount and composition were displayed for the all concerned personnel. Most of the surveyors recruited at present have already worked in the last dry season survey. There are few new personnel and they have been attached with the old personnel. Besides the composition and amount survey on this occasion the consultant arranged a demonstration survey at the central garage of DCC on 12.07.2004 in order to acquaint the concerned surveyors with the new weighing machine. The actual survey began on 14.07.2004.

3.6 Schedule of the Survey

With the availability of the weighing machine and on completion of the demonstration survey the survey on transportation vehicle activity at the central garage began on 14.07.2004. At the same time the survey on empty weight of all transport vehicle was also started.

Table-3.1: Schedule of Overall Survey

| Item No. of ToR | Item | Date | | Total No. of Days | Remarks |
|-----------------|---|------------|------------|-------------------|---|
| | | Start | Finish | | |
| 2.5 | Survey on collection vehicle. | 14.07.2004 | 20.07.04 | 7 | At central garage. |
| | Determination of Empty weight of collection vehicles. | Do | Do | 7 | Using new weighing machine at central garage. |
| 2.4 | Survey on incoming waste at LF site | 26.07.2004 | 01.08.2004 | 7 | At Matuail site & Beri Bundh site |
| 2.2 | Survey of Waste Generation | 08.08.2004 | 15.08.2004 | 8 | All Sites |
| 2.3 | Composition Analysis | 09.08.2004 | 11.08.2004 | 3 | All Sites except LF site |
| | Providing samples for Lab Study | 10.08.2004 | - | 1 | At BUET Lab |
| Do | Composition Analysis | 18.08.2004 | 20.08.2004 | 3 | At Matuail LF Site and Beri Bundh Site. |
| | Providing samples for Lab Study | 18.08.2004 | - | 1 | At BUET Lab |

FINDINGS OF THE SURVEY

4.0 MOBILIZATION

The mobilization began on the 7th July 2004. This phase of the study consisted of the following preparatory arrangement:

- a) Selection of working personnel
- b) Procurement of materials. The equipments and accessories procured during the dry season survey were used for this survey also.
- c) Liaison with the concerning departments particularly with Dhaka City Corporation and JICA Study Team.
- d) Internal discussion meetings and briefing of the surveyors.
- e) Arranging a demonstration survey on 12th July of the new weighing machine provided by JICA Study Team at the central garage of DCC.
- f) Briefing the residents including distribution of leaflets to each holdings.
- g) Liaison with the contractor and supervising the structural facility for the new weighing machine installed at Matuail.

5.0 WORK BRIEF

Though Dhaka City Corporation area covers an area of 360 Sq.km, but this time a part of the area particularly on the east was submerged due to flood water. This natural calamity did not pose any problem for the survey work. The survey did not have to cover all the wards, but covered those wards which are related according to the ToR classification viz residential area upper income group, middle income group, slums, markets, offices, schools and other commercial places.

Fig.-5.2, Fig.-5.3 and Fig.-5.4 show the location of the area or spot of the selected survey areas. This time due to flood water factories manufacturing polyethylene bag were closed and as such the survey in the central garage began prior to the "amount and composition" survey. The schedule of the overall survey shown in **Table-3.1** indicates the survey of transport vehicle at the central garage was started on 14th July and all the components of the survey was over on 20th August in all respect. A Bar Chart is available in **Fig.-5.1** which shows the progress of the work at different stages of the study.

5.1 Data Collection and Processing

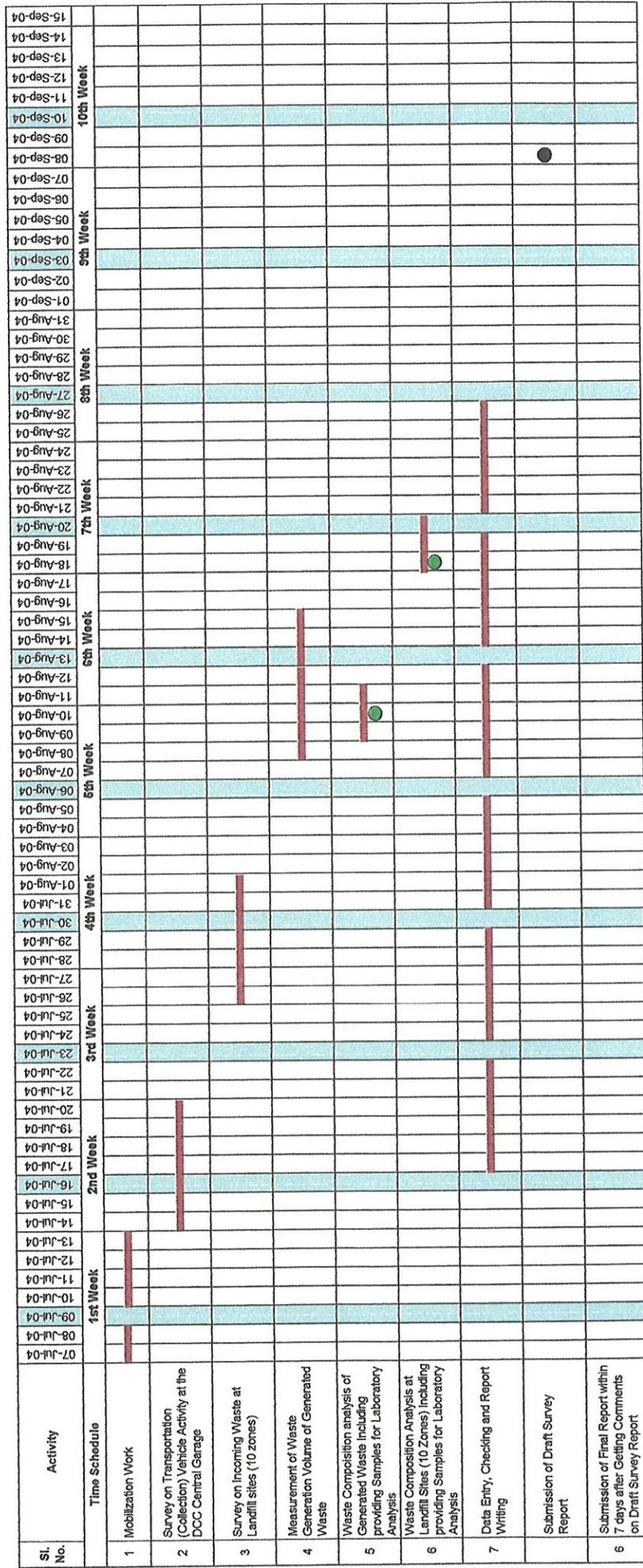
The field data was collected daily in the afternoon by the field supervisors and handed over to the data processor at BETS Head Office. The entry of the data was made either on the same day or in the early morning of the next day.

5.2 Providing Samples for Laboratory

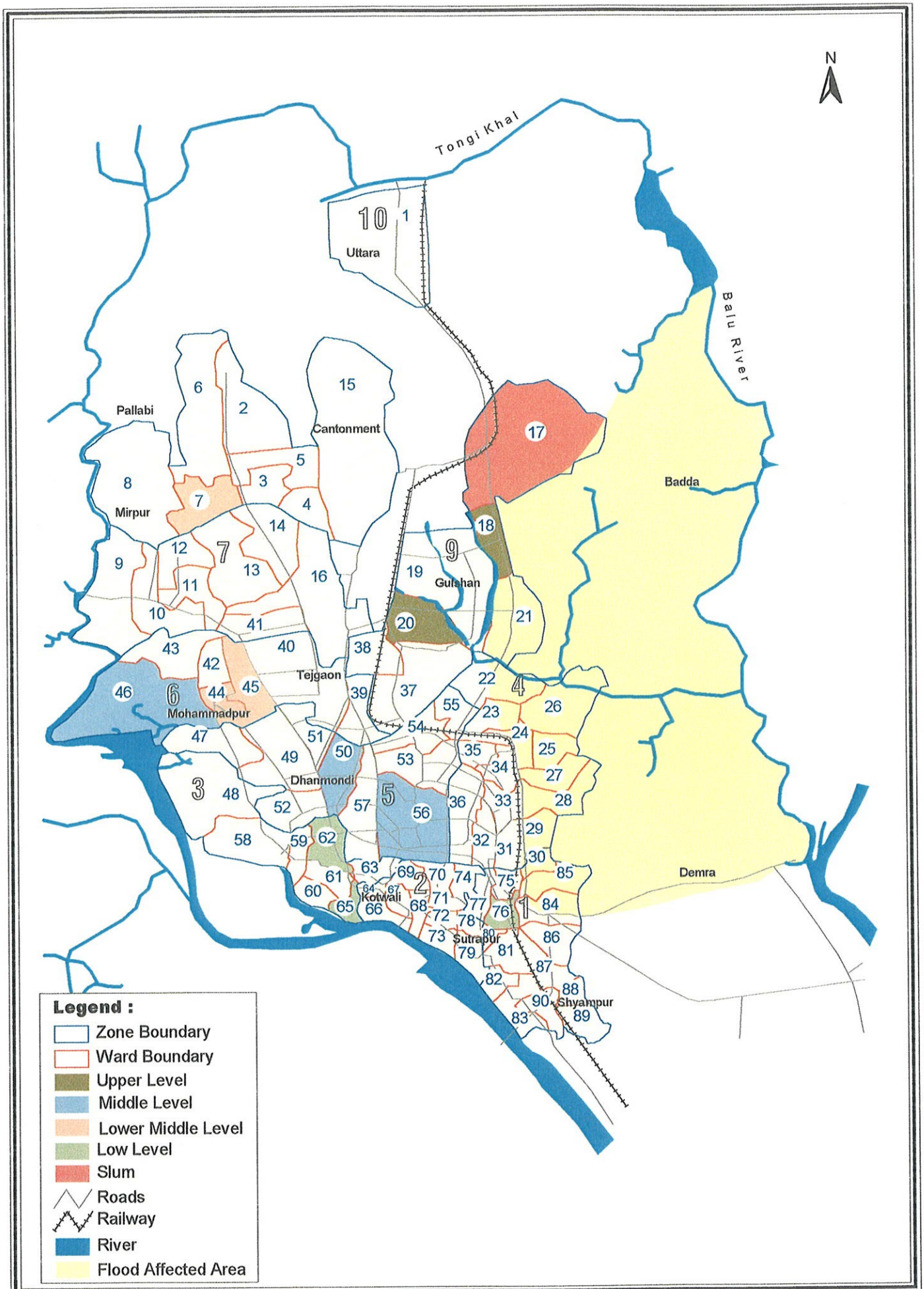
On 10th August, 2004 samples were collected for all of generated waste and on 18th August for all incoming waste at Matuail landfill Beri Bundh sites and sent to BUET laboratory for determination of moisture content of the samples.

Project Name: Solid Waste Amount and Composition Survey (Rainy Season)

Bar Chart of Work Plan



- Friday:
- Working day
- Providing Samples to Laboratory
- Submission of Draft Report



**Figure- 5.2 : Survey of Residential Area
Solid Waste Amount and Composition Survey**

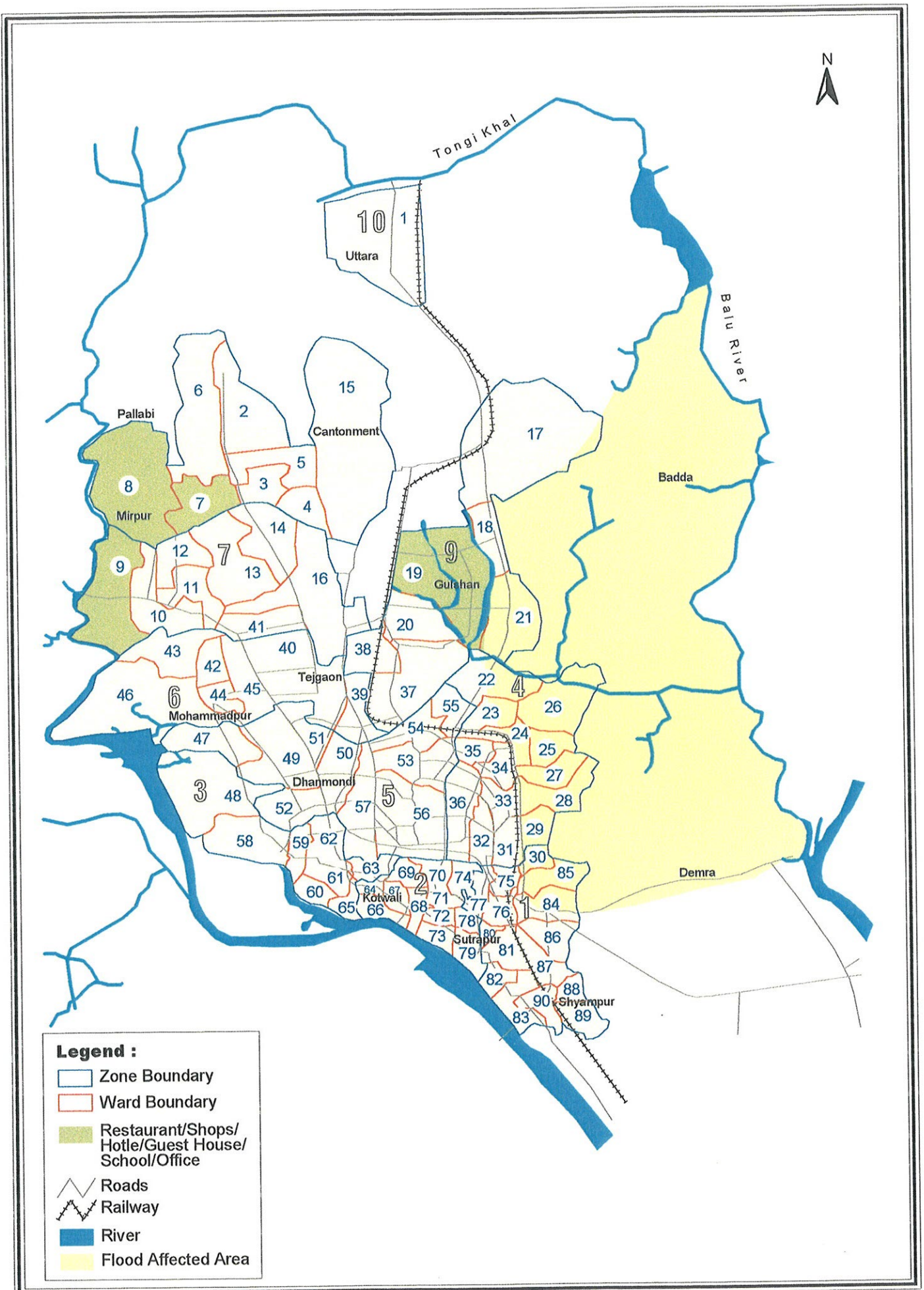
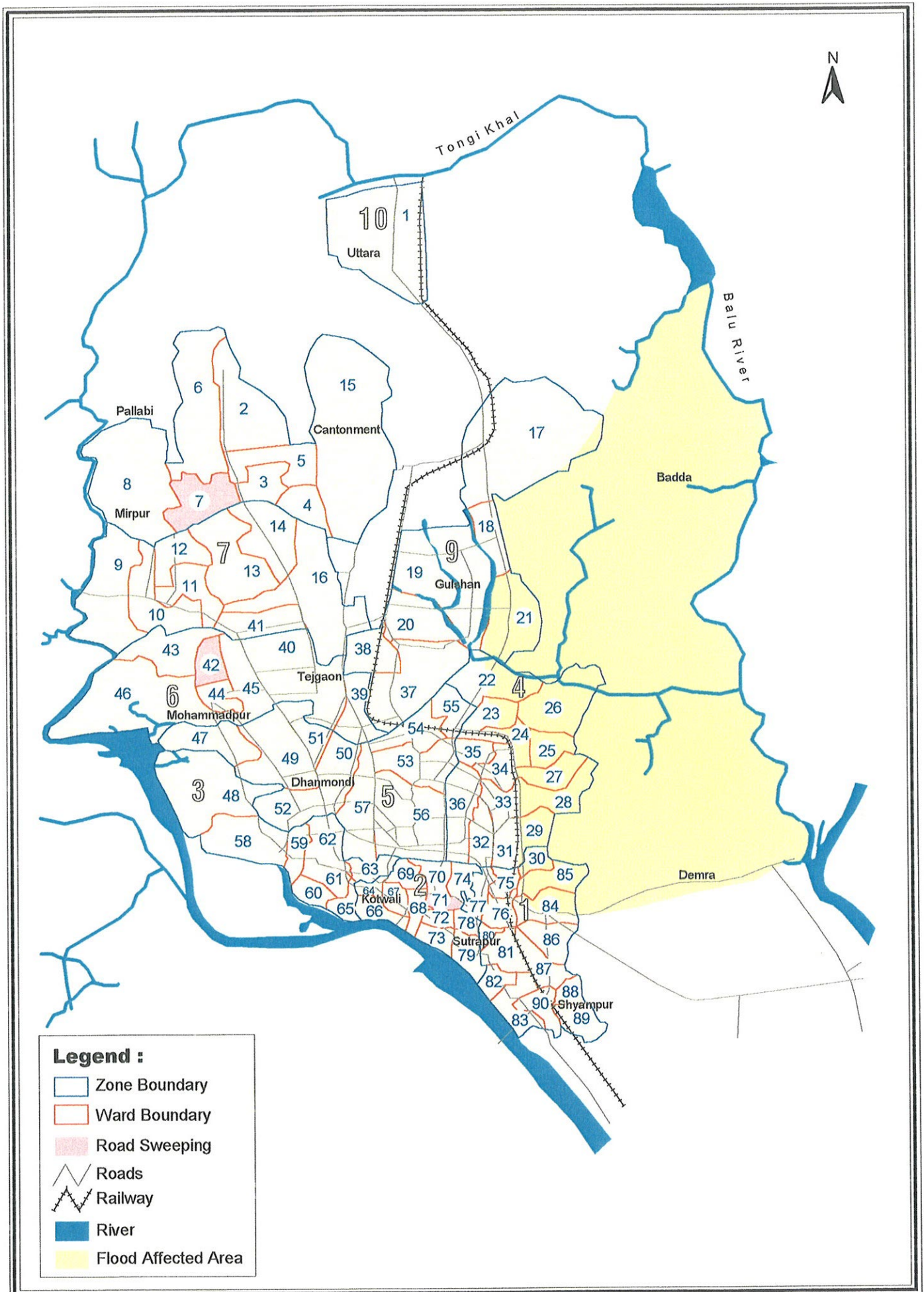


Figure- 5.3 : Survey Area Showing Commercial Solid Waste Amount and Composition Survey



**Figure- 5.4 : Survey of Road Sweeping Location
Solid Waste Amount and Composition Survey**

Fig. 5.5

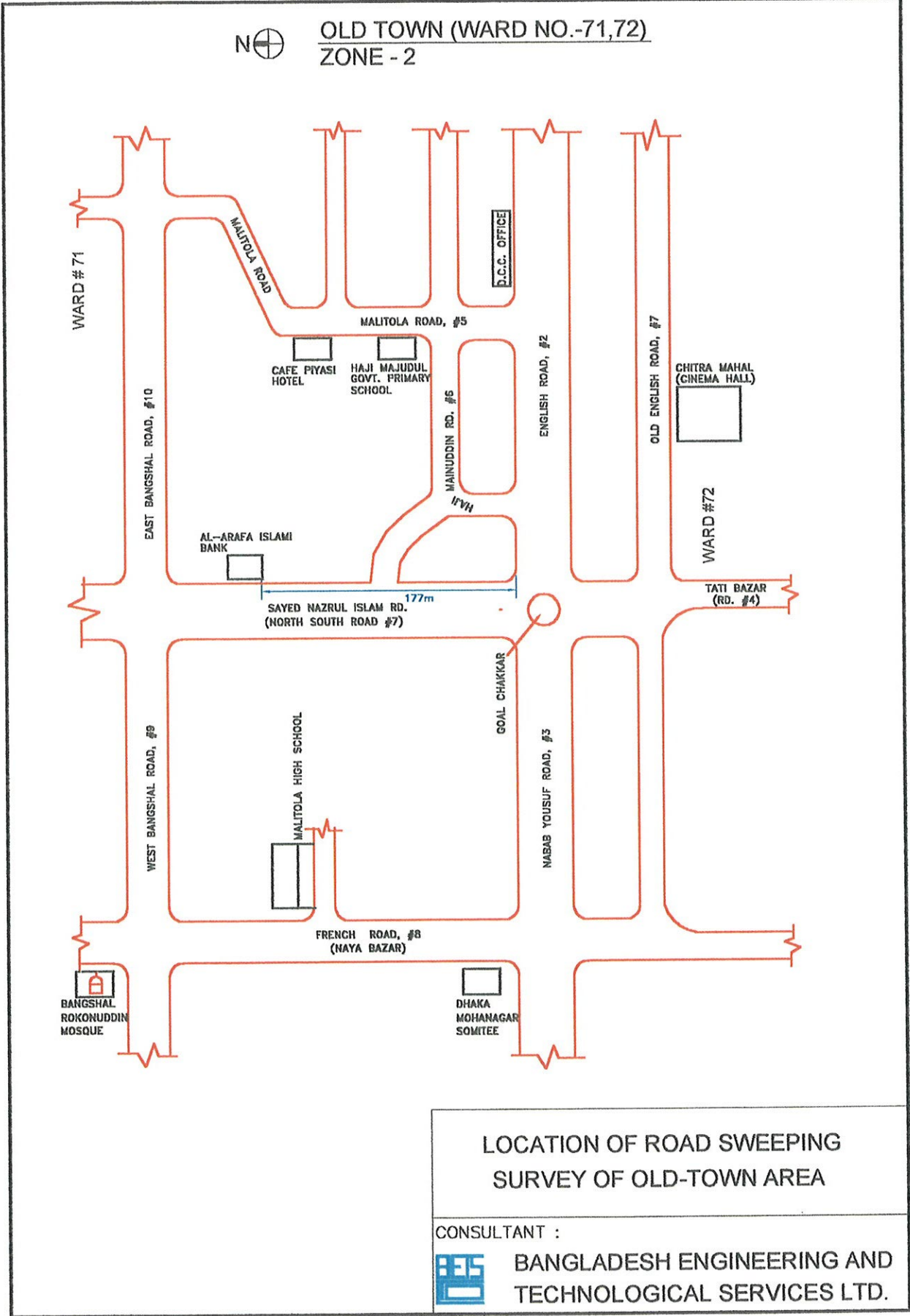
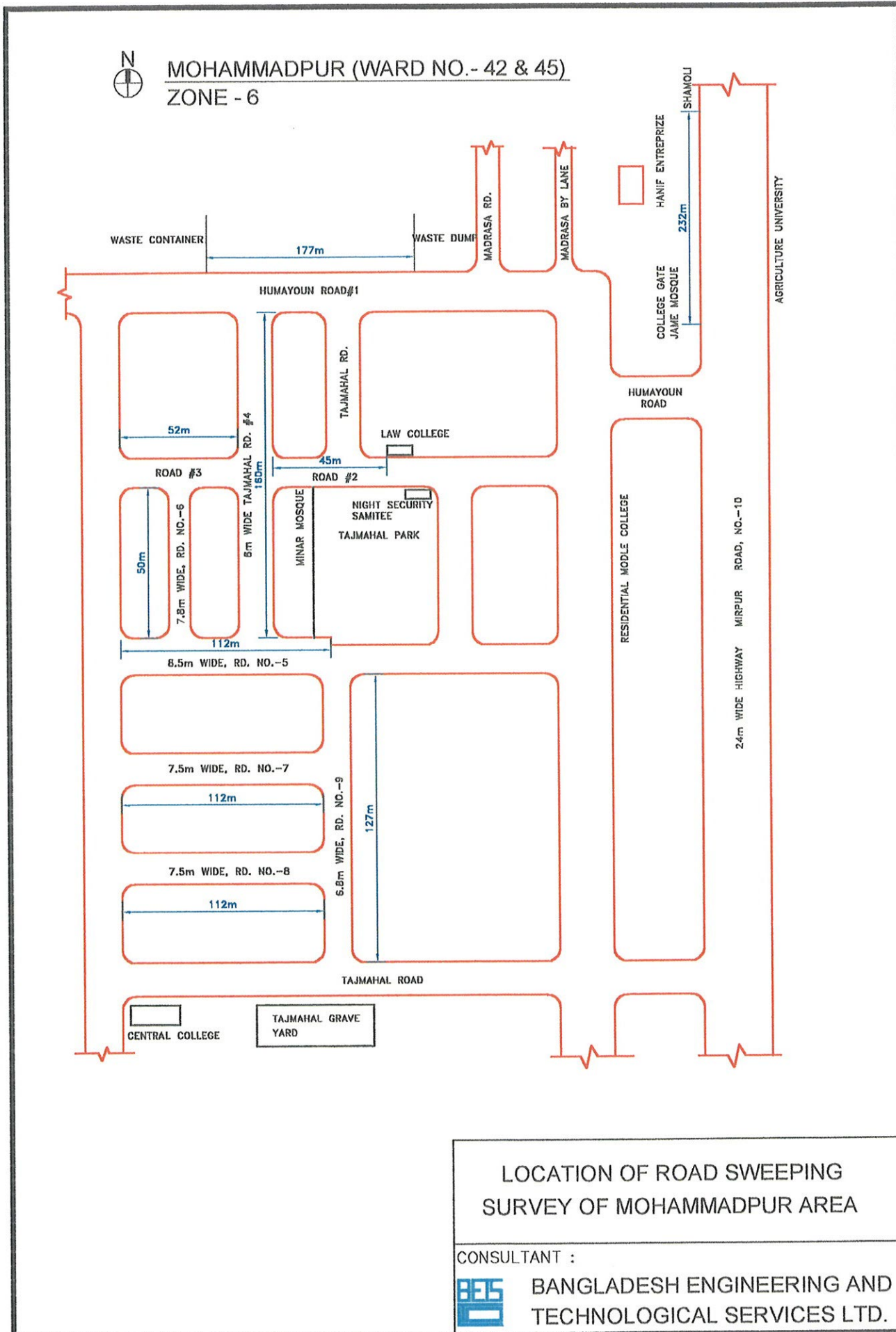


Fig. 5.6



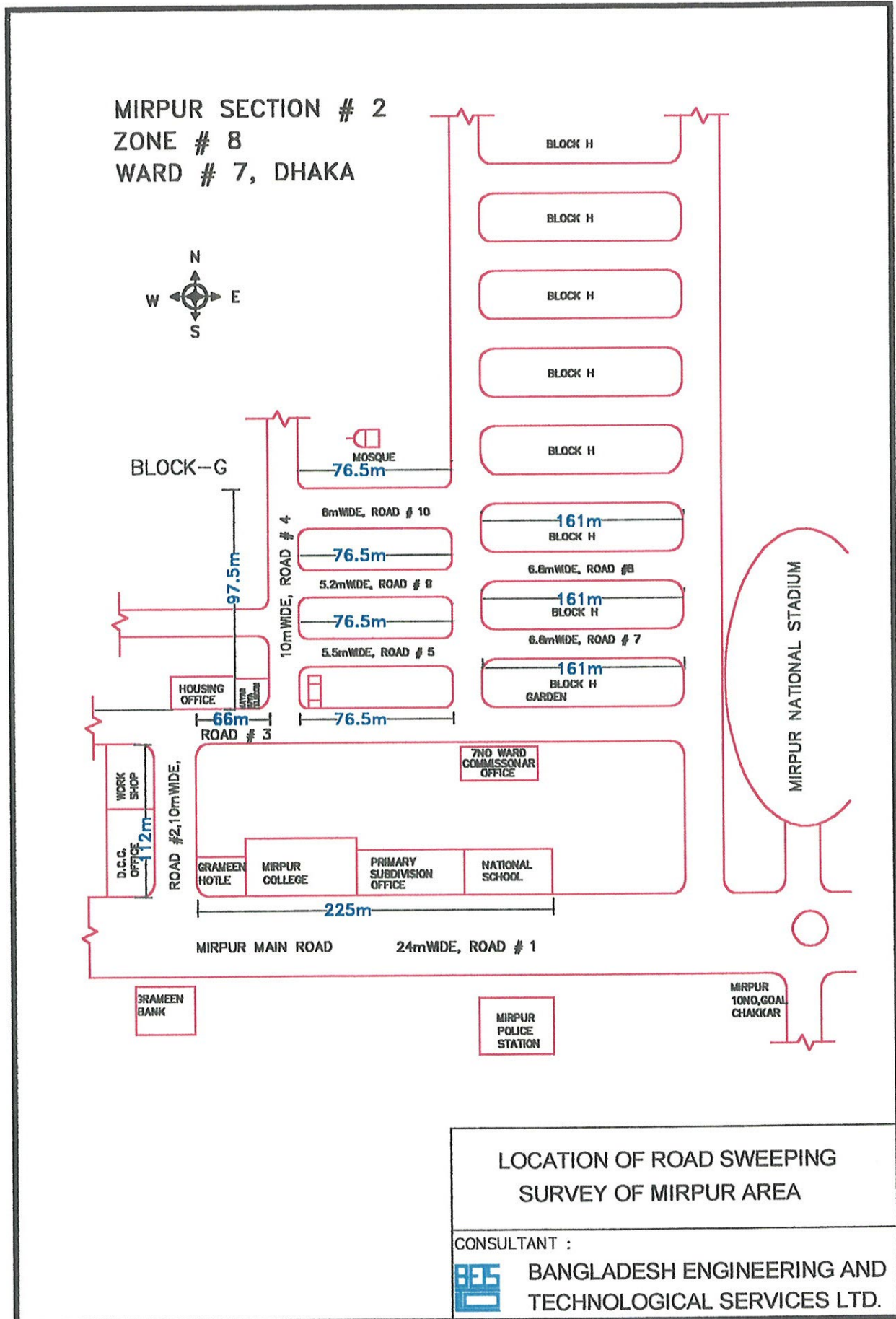
LOCATION OF ROAD SWEEPING SURVEY OF MOHAMMADPUR AREA

CONSULTANT :



BANGLADESH ENGINEERING AND TECHNOLOGICAL SERVICES LTD.

Fig. 5.7



The following samples have been analysed:

- i) Physical composition Analysis at site;
20 (samples)x10 (areas of generated waste)x 3 (days)= 600
20 (samples)x10 Zone incoming waste x 3 (days) = 600
- ii) Lab Analysis at Bangladesh University of Engineering & Technology
12 (samples)x 10(areas of generated waste)x 1(day) = 120
12 (samples)x10 Zone incoming waste x1 day = 120

It may be mentioned here that BUET has 8 ovens of different capacities to conduct the moisture content test and as such it was possible to accommodate all 120 samples in one day and finish the test within 24 hrs.

5.3 Testing Procedure: Moisture content of solid waste

i) Scope

This method describes the procedures for determining the moisture content of solid waste by microwave oven.

ii) Apparatus and Materials

The laboratory contains all necessary equipment for proper performance for solid waste testing. The laboratory environment has not adverse conditions such as dust, moisture, or vibration that could affect test results. The equipments are properly maintained and calibrated on a regular basis.

- Digital Balance - 0.01 g accuracy.
- Containers - suitable for use in microwave oven.
- Microwave oven equipped with timing device and heat intensity control. Specification of the equipments are described in Table-2B.1.

iii) Test Procedure

- A representative sample was taken from 0.5 kg of the material to be tested. The sample was placed in the container for which the weight is known and weighed and recorded as the "wet sample and tare.
- The sample was dried in the microwave oven for 24 hours at a temperature between 750C to 800C
- After weight loss ceases, the sample was removed from the oven, allowed to cool, weighed and recorded "dry sample and tare."

iv) Results and Calculations

The moisture content of the sample is determined using the following formula;

Weight of wet sample and tare (gm) - W_{WET+C}

Weight of dry sample and tare (gm) - W_{DRY+C}

Weight of tare (gm)- W_C

Weight of water (gm)- $W_w = (W_{WET+C}-W_C)-(W_{DRY+C}-W_C)$

Weight of dry sample (gm)- $W_{DRY} = W_{DRY+C}-W_C$

Moisture Content – MC (%) = $\frac{W_w}{W_{DRY}} \times 100$

Table-5.1 : Oven Specification

| Characteristics | Type-1 | Type-2 | Type-3 |
|-----------------|---|---|---|
| Number | 1 | 6 | 1 |
| Phase | 1 | 1 | 1 |
| Cycle | 50/80 Hz | 50/60 Hz | 50 Hz |
| Capacity | 225 Liter | 110 Liter | 100 Liter |
| Volt | 220~240 V | 220 V | 240 V |
| Watt | - | 1.6 KW | 2.0 KW |
| Tem. Range | 20 ⁰ C~300 ⁰ C ~ (Ambient temp to ~ 300 ⁰ C) | 20 ⁰ C~300 ⁰ C ~ (Ambient temp to ~ 300 ⁰ C) | 20 ⁰ C~300 ⁰ C ~ (Ambient temp to ~ 300 ⁰ C) |
| Manufacturer | ELE International, England | Blue Mountain, USA | ELE International, England. |

6.0 DATA PRESENTATION

The Consultant has used different proformas for processing of the data which are as follows:

- Proforma “A” is used for entry of raw data during the general survey for determination of the amount for 8 day. The raw data after analysis, the summary has been placed in Table-7.4 through 7.8 as per category wise viz. Residential Area, Commercial establishment etc. This raw data is available in Annex-1. Vol.-I
- Proforma “B” is used during the composition survey both for the generated waste and as well as for the incoming waste. The raw data is available in Annex-2, Vol.-I.
- Proforma “C” is used to show the item wise contribution of all 20 items from different category of generation sources viz generated waste and incoming waste during the composition survey. This data is available in Annex-3, Vol.-I.
- Proforma “D” is used for recording of all raw data of incoming waste at the landfill sites. The raw data available in Annex-4, Vol.-II including zone wise incoming waste.
- Proforma “E” is used for determination of empty weight of collection vehicles. Available in Annex-5. Vol.-II
- Proforma “F” is used for recording raw data of incoming and outgoing vehicles at the central garage. Annex-6, Vol.-II.
- Proforma “G” used for tabulating all Lab Results. Annex-7. Vol.-II.

All raw data including primary summary has been placed in Annex-I through VII volume I and II and the rest of the report viz, text, global summary, laboratory summary etc. have been placed in the Main Report.

7.0 DATA ANALYSIS

7.1 Waste Volume Survey

The raw data (Proforma "A") as available has been summarized in Table-7.4 through 7.8 which shows the average contribution in Kg per capita per day and respective density separately for all residential areas. Similar summary is available for commercial, public facilities, road sweeping and markets. The raw data is available in Annex-1 and global summary is available in the main report in tabular form.

7.1.1 Residential Waste (Table-7.4)

The average per capita generation is highest in residential upper category which is 0.4735 kg/c/day and lowest, residential slum 0.1907. In the residential category the average generation is 0.326 kg/c/day and the average density 150 kg/cu.m.

7.1.2 Commercial Waste (Table-7.5)

The average generation 0.1565 kg/c/day and average density-316 kg/cu.m. Highest in the restaurants-410 kg/cu.m.

7.1.3 Public Facility (Table-7.6)

In the generated waste category, the contribution and density is lowest- 0.0127 kg/c/day and 106 kg/cu.m respectively.

7.1.4 Market (Table-7.7)

Out of all 10 markets the highest generation is 40 ton/day at Kawran Bazar with highest density-523 kg/cu.m, because this market is the largest whole sale vegetable market in the city. Super market dealing with fashionable items cloths, jewellery, etc. have usually low generation (Malibag- 54 kg/day). Average density of all markets-357 kg/cu.m.

7.1.5 Road Sweeping (Table 7.8)

The road sweeping component was chosen after a demonstration survey conducted during the last "Dry Season" survey. This particular item had to be conducted early in the morning, because most of the road sweeping is done in the early morning. There are some roads that are cleaned during the night time only in the old town. It may be seem that unit generation is highest in the old town (592 kg/km) and low in the New town (270 kg/km) though the density does not vary much-average- 550 kg/cu.m.

7.2 Composition Analysis (Table-7.2 and 7.3)

The Composition Survey consisted both for the generated waste and incoming waste. The raw data is available in Annex-2 Vol.-I. In each case there are twenty items. Contributing each item has been shown separately category wise viz. residential, commercial, public facility, market and road sweeping in Annex-3, Vol.-I.

7.3 Incoming Waste at Landfill Site (Table-7.9)

The incoming waste at LF site, Matuail has been determined through weighing machine and at Gabtoli and Uttara Beribundh site estimated value has been considered. The site at Beribundh, Uttara is managed by private organization and the garbage source is Uttara and Gulshan residential areas. The raw data as recorded at Matuail, Gabtoli and Uttara ara available in Annex-4. The summary is available in the main Report. A brochure of the weighing machine in

Japanese language is available in Annex-8. An English language translation is also available in the Annex.

Table-7.9 shows the summary of incoming waste at all landfill sites. The daily average waste transported is 1600 tons and the volume is 2670 cu.m. and on the basis the average on truck density is 600 kg/cu.m. The individual summary of all three respective sites viz, Matuail, Gabtoli and Uttara are provided in Table-7.11, Table-7.12 and Table-7.13. The individual summary has been globalized in Table-7.10. From Table-7.9 it may be seen that on an average 524 trips have been made by the different capacity of collection vehicle per day.

7.4 Determination of empty weight of collection vehicles (Table-7.14)

This survey was conducted at the central garage simultaneously along with the incoming and outgoing vehicle survey. The raw data is available in Annex-5, Vol.-II along with a summary available in the Main Report.

The weight of empty weight of collection vehicles was started at the central garage on 14.07.2004 and finished on 20.07.2004. In total 221 collection vehicles were weighed at central garage and 35 collection vehicle were weighed at Matuail.

7.5 Collection Vehicle Activity (Table-7.15)

The survey was conducted for 7 days continuous and the raw data is available in Annex-6 Vol.-II. A summary of the survey is available in the main report.

It is seen from Table-7.15 on an average 232 collection vehicle have left the garage for collection of waste. But there are some more vehicles which do not come to the central garage and these are usually stationed at Mirpur. These collection vehicles usually work for Gabtoli site. At Uttara site mostly private vehicles are used. These particulars are available in Table-7.14 also.

7.6 Laboratory Analysis Data (Table-7.16 & 7.17)

This data has been placed in Proforma "G", Annex-7, Vol.-VII

Samples for generated waste and incoming waste were provided to BUET Lab on 10th August and 18th August respectively. Though it was targeted to provide 240 sample, but some of the items were not available and as a result total 181 samples (generated 92+incoming 89) could be collected. The majority of the non-available items are as follows:

| Sl. No. | Items | Generated (No. of cases) | Incoming (No. of cases) | Remarks |
|---------------|-----------------------|--------------------------|-------------------------|---------|
| 1. | Recyclable paper | - | 8 | |
| 2. | Textile | 2 | - | |
| 3. | Other paper | - | 4 | |
| 4. | Grass & yard waste | 2 | 1 | |
| 5. | Wood | 4 | 2 | |
| 6. | Polyethylene bottles | 3 | 7 | |
| 7. | Other plastic bottles | 5 | 10 | |
| 8. | Rubber | 4 | 2 | |
| 9. | Leather | 5 | 1 | |
| Total: | | 25 | 35 | |

It is interesting to note that in the incoming waste "other plastic bottles" were not at all available from any of 10 zones.

8.0 OBSERVATION AND COMMENTS

8.1 Generated Waste

A global summary is available in Table-7.1 and in addition to that the following summary is presented below:

- a. Per capita waste generation is highest in Residential Upper - 0.4735 kg/c/day
- b. Per capita waste generation is lowest in Residential Slum- 0.1907 kg/c/day
- c. Per capita waste generation in Residential Area Av.- 0.326 kg/c/day
- d. Average waste density is highest in Restaurant- 410 kg/cu.m
- e. Average waste density is lowest in Public Facilities- 106 kg/cu.m
- f. Average waste density in Residential Area– 150 kg/cu.m

Amongst all 10 markets Kawran Bazar generates highest quantity of waste - it is average 40 ton/day. In some occasion during the summer season the long chassis collection vehicle make 3 trips which means 60 tons. Out of all generated waste the density is highest in Kawran Bazar (523 kg/cu.m).

8.2 Composite Waste

8.2.1 Generated Waste

| | | | <u>Dry</u> | <u>Wet</u> |
|----|-----------------------|------------------------------------|------------|------------|
| a. | Residential Middle | - Highest Food Waste & Veg. Matter | 80% | 80% |
| | Residential Average | - Highest Food Waste & Veg. Matter | 62% | 68% |
| b. | Commercial Restaurant | - Highest Food Waste & Veg. Matter | 97% | 96% |
| | Commercial Average | - Highest Food Waste & Veg. Matter | 93% | 92% |
| c. | Public Facility | - Grass & Yard Waste | 25% | 16.4% |
| | | - Other Paper | 23% | 20% |
| d. | Market | - Highest Food Waste & Veg. Matter | 53% | 67% |
| e. | Road Sweeping | - Highest Misc. Inert (sand, dust) | 73% | 60% |

8.2.2 Incoming Waste

| | | | |
|---|---|-----|-----|
| Food Waste is highest in Zone-X (Uttara Land fill site) | - | 73% | 70% |
| Food Waste is lowest in Zone-I | - | 35% | 44% |
| Food Waste, average of all 10 Zones | - | 57% | 60% |

8.3 Incoming Waste at Landfill Sites

- a. Total incoming waste at each landfill site has been shown separately in Table- 7.11, 7.12 and 7.13.

| | Weight (Ton) | Volume (cu.m) |
|-------------------------|--------------|---------------|
| i) Matuail average/day | 938 | 1515 |
| ii) Beri Bundh, Gabtoli | 530 | 988 |
| iii) Beri Bundh, Uttara | 133 | 172 |
| Total Av./Day: 1600 | | 2675 |

This gives 598 kg/cu.m on truck density which corroborates with the previous study under World Bank and UNDP financing.

- b. Incoming waste by zone (Table-7.18)

| | <u>Av./Day</u> | <u>Weight (Ton)</u> | <u>Volume (m³)</u> |
|-------------|----------------|---------------------|-------------------------------|
| Zone – I | 113 | 177 | |
| Zone – II | 191 | 305 | |
| Zone – III | 92.85 | 135 | |
| Zone – IV | 134 | 211 | |
| Zone – V | 255 | 442 | |
| Zone – VI | 191 | 340 | |
| Zone – VII | 206 | 386 | |
| Zone – VIII | 126 | 238 | |
| Zone – IX | 100 | 133 | |
| Zone –X | 155 | 203 | |

- c. Average waste amount by type of vehicles

| Sl. No. | Type of Vehicle | Waste Amount in Ton/Day |
|------------------|---------------------|-------------------------|
| 1 | 1.5 Ton (OT) | 20 |
| 2 | 2 Ton (OT/CT) | 189 |
| 3 | 3 Ton (OT/CT) | 226 |
| 4 | 5 Ton (OT/CT) | 365 |
| 5 | 3 Ton (DCC) | 394 |
| 6 | 5 Ton (DCC) | 327 |
| 7 | 20 Ton (Special OT) | 86 |
| Total/Day | | 1607 (Ton) |

8.4 Collection Vehicle Activity

- a. Total waste amount (Sp. Vol.) collected in a day – 2676 cu.m
- b. Waste amount (Sp. Vol.) disposed at:
- | | | | |
|-------------------------|---|------|----------|
| i) Matuail | - | 1515 | cu.m/day |
| ii) Beri Bundh, Gabtoli | - | 988 | cu.m/day |
| iii) Beri Bundh, Uttara | - | 173 | cu.m/day |
| Total: 2676 | | | cu.m/day |

c. Average number of trip by type of vehicle

| Sl. No. | Type of Vehicle | Trip/Day |
|------------------------|---------------------|----------|
| 1 | 1.5 Ton (OT) | 10 |
| 2 | 2 Ton (OT/CT) | 76 |
| 3 | 3 Ton (OT/CT) | 79 |
| 4 | 5 Ton (OT/CT) | 87 |
| 5 | 3 Ton (DCC) | 173 |
| 6 | 5 Ton (DCC) | 95 |
| 7 | 20 Ton (Special OT) | 4 |
| Total Trip/Day: | | 524 |

8.5 A Comparative Scenario of “Dry Season” and “Wet Season” Survey.

| Sl. No. | Items | Dry Season | Wet Season |
|---------|--|------------|------------|
| I. | Highest per capita waste generation, Residential Upper (kg/c/day) | 0.5825 | 0.4755 |
| II. | a. Lowest per capita waste generation, Lower Middle (kg/c/day) | 0.2550 | - |
| | b. Lowest per capita waste generation, Residential Slum (kg/c/day) | - | 0.1907 |
| III. | Per capita waste generation, Res. Area, Average (kg/c/day) | 0.3571 | 0.326 |
| IV. | Average highest density (Restaurant) (kg/cu.m) | 623 | 410 |
| V. | Average lowest waste density (Public Facility) (kg/cu.m) | 93 | 106 |
| VI. | Average waste density, Res. Area (kg/cu.m) | 133 | 150 |
| VII. | Average amount of waste from market/day (ton) | 4625 | 9200 |
| VIII. | Volume of waste from market/day (cu.m) | 9.9 | 20 |
| IX. | Av. density of market waste kg/cu.m | 967 | 980 |
| X. | Av. highest moisture content, food waste | 62.5% | 75% |
| XI. | (A) Generated Waste: | | |
| | a. Residential Middle-Highest Food Waste & Veg. Matter | 80% | 80% |
| | Residential Average- Highest Food Waste & Veg. Matter | 62% | 68% |
| | b. Commercial Restaurant Highest Food Waste & Veg. Matter | 97% | 96% |
| | Commercial Average Highest Food Waste & Veg. Matter | 93% | 92% |
| | c. Public Facility: | | |
| | Highest Grass & Yard Waste | 25% | 16.4% |
| | Highest Other Paper | 23% | 20% |
| | d. Market Highest Food Waste & Veg. Matter | 53% | 67% |
| | e. Road Sweeping Highest Misc. Inert (sand, dust) | 73% | 60% |
| | (B) Incoming Waste: | | |
| | Food Waste is highest in Zone-X (Uttara Land fill site) | 73% | 70% |

| Sl. No. | Items | Dry Season | Wet Season |
|---------|--|------------|------------|
| | Food Waste is lowest in Zone-I | 35% | 44% |
| | Food Waste is average of all 10 Zones | 57% | 60% |
| XII. | Total number of collection vehicle operated from central garage | 210 | 234 |
| XIII. | Average number of trips made by collection vehicle per day | | 524 |
| XIV. | Average number of trips made per vehicle per day | | 1.38 |
| xv. | Average per day transportation of waste to different landfill sites (tons) | 1368 | 1600 |

9. DISCUSSION

9.1 Disposal Efficiency

During 1991 the Implementation Support Consultant (ISC) of Urban Management and Municipal Services Programmes, funded by World Bank conducted waste generation survey at Landfill site, Jatrabari. A comparative summary of that study and the present study is given below:

Table-9.1: Comparative Waste Generation Survey

| Period | No. of CV used | Generated Waste (Ton) | Remarks |
|-------------|----------------|-----------------------|--|
| May-1991 | 80 | 712 | Measured on truck density by 600 kg/cu.m |
| April-2004 | 210 | 1200 | - |
| August-2004 | 379* | 1600 | Measured on truck density 600 kg/cu.m |

* Including private contractor's vehicles.

The study made by Dhaka Metropolitan Development Planning (DMDP), October, 1992 report indicates a population of 3.4 million (1991 census) with a composite per capita generation of 0.47 kg/c/day. According to the present population of 8.6 million people within DCC area the generation is estimated at 4000 tons per day. With this generation rate the present disposal efficiency is 40%.

9.2 Disposal Sites

Dhaka City Corporation has no sanitary landfill sites. The present practice is crude dumping and the main disposal site is located at Matuail. **Fig.-6.8** point-1 shows the location of the present site which covers an area of approximately 24 Ha. (**Fig.-6.9**). Additional area at present is used for dumping of the waste. In **Fig.-6.9** it may be seen that an additional facility has been added in order to weigh the loaded trucks for determination of the quantity of the waste transported by the truck.

The second disposal site at Gabtoli is taking place in Turag River (**Fig.-6.8** point-2). It is located on the flood protection embankment of Bangladesh Water Development Board (BWDB). The third disposal site (**Fig.-6.8** point-3) is located at Tongi Khal of the flood protection embankment of BWDB. The dumping area is planned for development of the campus land belonging to International University of Business, Agriculture and Technology.

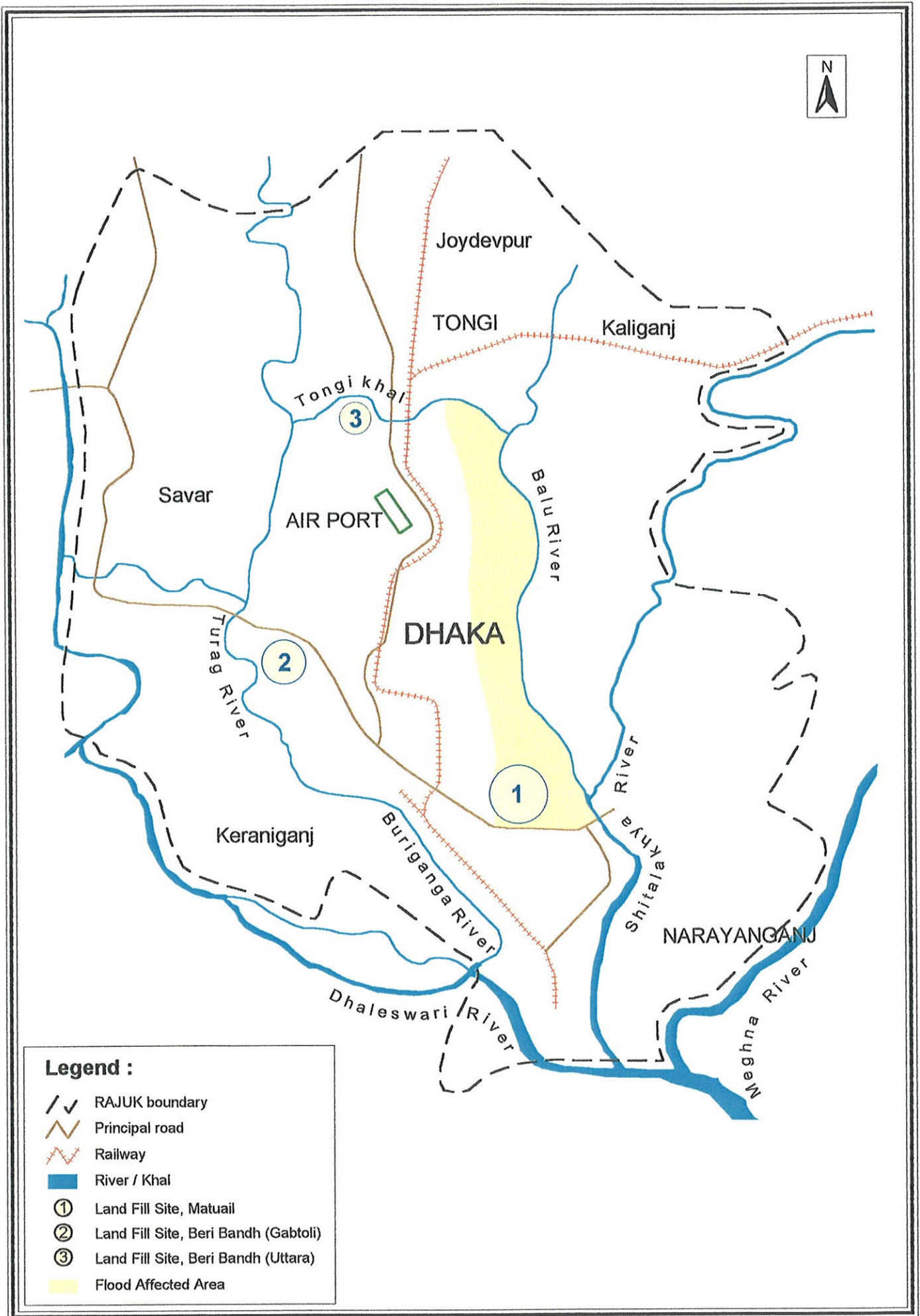
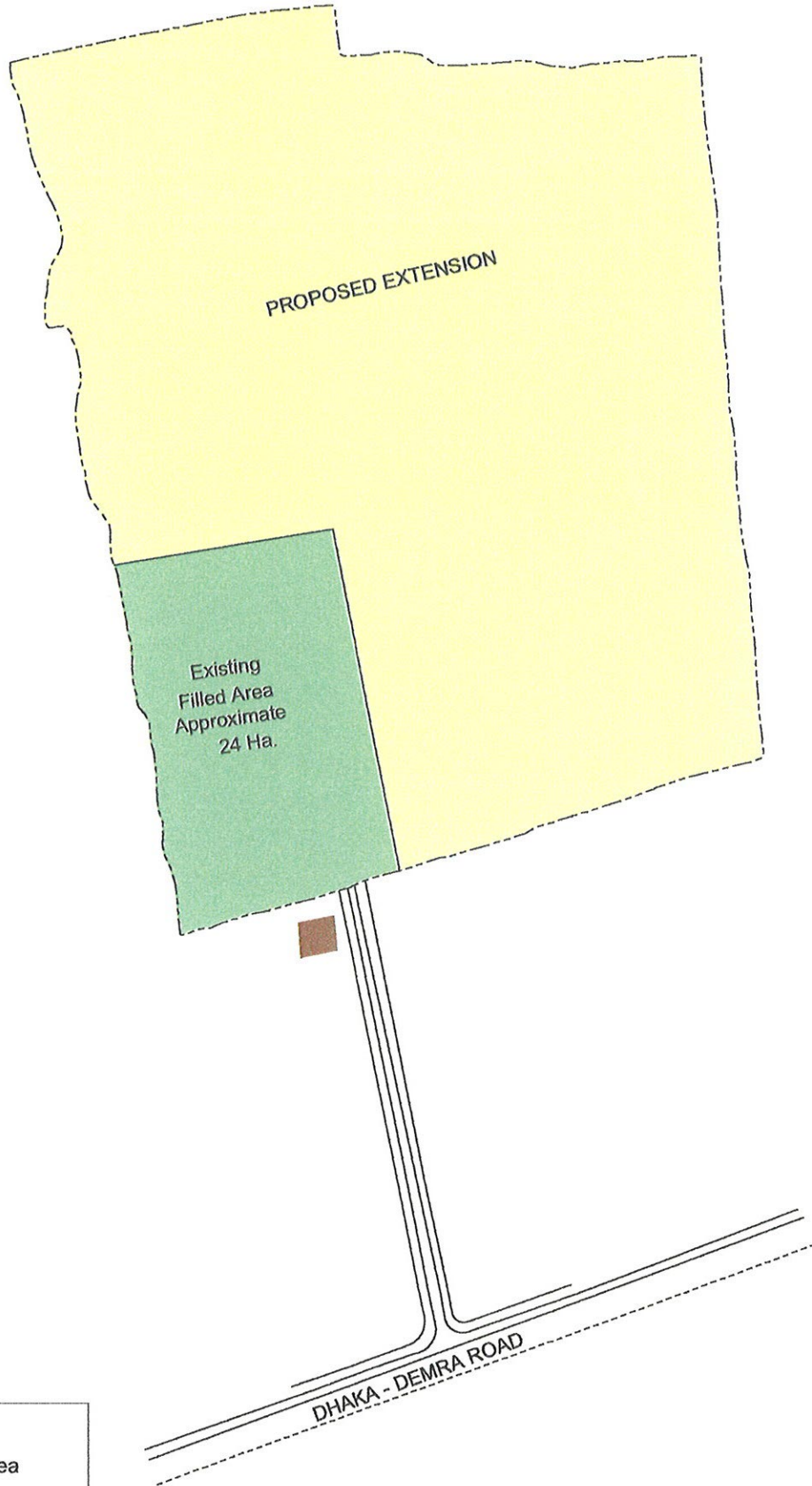


Figure- 9.1 : Map of Greater Dhaka Showing Location of Existing Land Fill Sites

Map Showing the Existing L.F. Site, Matuail



Legend :




-  Filled up Area
-  Present Filling Area
-  Weighing Facility

Figure- 9.2 : Location Map of Matuail Landfill Site

Table-7.1 through 7.18 (Summary)

Table-7.1: Global Summary of Generated Waste

| Sl. No. | Sampling Source | Contributing Population (Nos.) | Floor/Lot Area (m ²) | Total lots/shops (Nos.) | Length (km) | Quantity of Waste (Kg) | | Total waste (Kg) | Composite (Kg/C) | | | Composite (Kg/Km) | | | Volume of Waste (m ³) | | Total volume (m ³) | Density (Kg/m ³) |
|---------|--------------------------|--------------------------------|----------------------------------|-------------------------|-------------|------------------------|-----------|------------------|------------------|-----------|--------|----------------------|----------|----------|-----------------------------------|-----------|--------------------------------|------------------------------|
| | | | | | | Organic | Inorganic | | Organic | Inorganic | Total | (Kg/m ²) | (Kg/Lot) | (Kg/Km) | Organic | Inorganic | | |
| 1 | Residential | 318 | 5758 | - | - | 79.816 | 26.254 | 106.07 | 0.2510 | 0.0826 | 0.3336 | 0.0184 | - | - | 0.3432 | 0.4094 | 0.7526 | 140.94 |
| 2 | Commercial Establishment | 1246 | 1520 | - | - | 156.35 | 12.19 | 168.54 | 0.0763 | 0.0064 | 0.0827 | 0.1109 | - | - | 0.2943 | 0.1476 | 0.4419 | 381.40 |
| 3 | Public Facilities | 4457 | 10414 | - | - | 22.38 | 34.38 | 56.76 | 0.0017 | 0.0017 | 0.0034 | 0.0055 | - | - | 0.0593 | 0.1415 | 0.2008 | 282.67 |
| 4 | Market | - | 3434 | 542 | - | - | - | 9264.25 | - | - | - | 2.6982 | 17.0927 | - | - | - | 20.3000 | 456.37 |
| 5 | Road Sweeping | - | 1140000 | - | 1.14 | - | - | 505.61 | - | - | - | 0.0004 | - | 443.5175 | - | - | 1.4192 | 356.26 |

1. Average quantity of Waste in Residential Area, Commercial & Public Facilities = 110.46 kg/day
2. Average quantity of Waste in Residential Area, Commercial & Public Facilities = 0.0449 kg/sq.m/day
3. Average volume of Waste in Residential Area, Commercial & Public Facilities = 0.4651 cu.m/day
4. Average density of in Residential Area, Commercial & Public Facilities = 237.50 kg/cu.m
5. Average quantity of waste from Market = 9264.25 kg/day
6. Average quantity of waste from Market = 2.70 kg/sq.m/day
7. Average quantity of waste from Market = 17.09 kg/lot/day
8. Average Volume of Market Waste = 20.30 cu.m/day
9. Average density of Market Waste = 456.37 kg/cu.m

10. Average quantity of Waste from Road Sweeping = 505.61 kg/day
11. Average quantity of waste from Road Sweeping = .0004 kg/sq.m/day
12. Average quantity of waste from Road Sweeping = 443.52 kg/km/day
13. Average volume of Waste from Road Sweeping = 1.42 cu.m/day
14. Average density of Road Sweeping Waste = 356.26 kg/cu.m

Table-7.2: Summary of Composition Survey (Generated Waste)

| Sl. No. | Item | Total Quantity of Waste for 3 days (Kg) | | | | | | | | | | | | | | Total Quantity for 3 days (Kg) [% of total waste] | | | | | | | | | | | | | | | | | | | | |
|---------|----------------------------------|---|--------|--------------|--------|--------|------------|--------------------------|-----------------|--------|---------------|-------------------|--------|---------------|--------|---|------------|--------------------------|-----------------|--------|-------------------|-------|--------|--------------|---------------|------|------------|--------------------------|-----------------|--------|---------------|--|--|--|--|--|
| | | Level of Collection | | | | | | | | | | | | | | Level of Collection | | | | | | | | | | | | | | | | | | | | |
| | | Residential | | | | | | | Commercial | | | Public Facilities | | Road Sweeping | | Residential | | | Commercial | | Public Facilities | | Market | | Road Sweeping | | | | | | | | | | | |
| | | Upper | Middle | Lower Middle | Lower | Slum | Restaurant | Shops/Hotels/Guest House | Schools/Offices | Market | Road Sweeping | Upper | Middle | Lower Middle | Lower | Slum | Restaurant | Shops/Hotels/Guest House | Schools/Offices | Market | Road Sweeping | Upper | Middle | Lower Middle | Lower | Slum | Restaurant | Shops/Hotels/Guest House | Schools/Offices | Market | Road Sweeping | | | | | |
| 1 | *Recyclable paper | 30.00 | 16.00 | 9.20 | 8.70 | 0.00 | 5.00 | 13.50 | 16.20 | 7.00 | 0.40 | 6.35 | 4.32 | 2.93 | 3.21 | 0.00 | 0.69 | 4.13 | 11.16 | 1.17 | 0.02 | | | | | | | | | | | | | | | |
| 2 | Other paper | 30.15 | 20.50 | 11.70 | 12.75 | 2.20 | 13.10 | 11.77 | 29.00 | 11.10 | 21.45 | 6.39 | 5.53 | 3.73 | 4.70 | 1.71 | 1.81 | 3.60 | 19.98 | 1.85 | 1.29 | | | | | | | | | | | | | | | |
| 3 | Food waste/veg matter | 300.50 | 266.00 | 250.49 | 186.95 | 76.85 | 695.50 | 290.60 | 28.00 | 404.15 | 178.75 | 63.65 | 71.79 | 79.91 | 68.92 | 59.57 | 95.97 | 88.98 | 19.29 | 67.36 | 10.79 | | | | | | | | | | | | | | | |
| 4 | Textile | 13.40 | 5.20 | 5.86 | 5.30 | 2.45 | 0.00 | 0.40 | 0.00 | 22.00 | 96.45 | 2.84 | 1.40 | 1.87 | 1.95 | 1.90 | 0.00 | 0.12 | 0.00 | 3.67 | 5.82 | | | | | | | | | | | | | | | |
| 5 | Grass & yard waste | 37.10 | 11.80 | 6.70 | 20.00 | 17.00 | 0.00 | 0.00 | 23.80 | 84.95 | 261.75 | 7.86 | 3.18 | 2.14 | 7.37 | 13.18 | 0.00 | 0.00 | 16.40 | 14.16 | 15.80 | | | | | | | | | | | | | | | |
| 6 | Wood | 1.85 | 3.00 | 1.50 | 7.55 | 2.95 | 0.00 | 0.14 | 0.00 | 1.70 | 0.50 | 0.39 | 0.81 | 0.48 | 2.78 | 2.29 | 0.00 | 0.04 | 0.00 | 0.28 | 0.03 | | | | | | | | | | | | | | | |
| 7 | *Plastic sheet | 7.20 | 9.50 | 4.30 | 1.45 | 1.60 | 5.95 | 3.00 | 7.30 | 2.40 | 21.10 | 1.52 | 2.56 | 1.37 | 0.53 | 1.24 | 0.82 | 0.92 | 5.03 | 0.40 | 1.27 | | | | | | | | | | | | | | | |
| 8 | *Polyethylene bottle | 4.25 | 4.00 | 1.05 | 0.50 | 0.70 | 2.00 | 1.10 | 5.00 | 4.65 | 1.00 | 0.90 | 1.08 | 0.33 | 0.18 | 0.54 | 0.28 | 0.34 | 3.44 | 0.78 | 0.06 | | | | | | | | | | | | | | | |
| 9 | *Other plastic bottle | 2.35 | 5.50 | 0.90 | 0.15 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.50 | 1.48 | 0.29 | 0.06 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 | | | | | | | | | | | | | | | |
| 10 | *Other plastics | 14.80 | 9.50 | 1.40 | 7.55 | 0.30 | 0.00 | 0.41 | 3.50 | 1.50 | 2.00 | 3.13 | 2.56 | 0.45 | 2.78 | 0.23 | 0.00 | 0.13 | 2.41 | 0.25 | 0.12 | | | | | | | | | | | | | | | |
| 11 | *Rubber | 0.00 | 4.50 | 1.00 | 0.40 | 0.70 | 0.00 | 0.00 | 0.00 | 0.90 | 3.50 | 0.00 | 1.21 | 0.32 | 0.15 | 0.54 | 0.00 | 0.00 | 0.00 | 0.15 | 0.21 | | | | | | | | | | | | | | | |
| 12 | Leather | 0.00 | 0.50 | 0.20 | 0.75 | 0.40 | 0.00 | 0.00 | 0.00 | 4.70 | 1.35 | 0.00 | 0.13 | 0.06 | 0.28 | 0.31 | 0.00 | 0.00 | 0.00 | 0.78 | 0.08 | | | | | | | | | | | | | | | |
| 13 | *Steel CAN | 2.85 | 3.50 | 0.94 | 0.25 | 0.00 | 3.00 | 0.10 | 1.00 | 0.00 | 0.00 | 0.60 | 0.94 | 0.30 | 0.09 | 0.00 | 0.41 | 0.03 | 0.69 | 0.00 | 0.00 | | | | | | | | | | | | | | | |
| 14 | *Aluminium CAN | 1.70 | 0.00 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 1.25 | 0.00 | 0.00 | 0.36 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.86 | 0.00 | 0.00 | | | | | | | | | | | | | | | |
| 15 | *Metal/Alloy | 0.00 | 0.00 | 0.30 | 0.80 | 1.70 | 0.00 | 0.52 | 0.00 | 0.00 | 8.00 | 0.00 | 0.00 | 0.10 | 0.29 | 1.32 | 0.00 | 0.16 | 0.00 | 0.00 | 0.48 | | | | | | | | | | | | | | | |
| 16 | *Glass, broken bottles, others | 11.65 | 0.50 | 3.40 | 2.50 | 2.90 | 0.15 | 0.56 | 0.00 | 0.00 | 4.00 | 2.47 | 0.13 | 1.08 | 0.92 | 2.25 | 0.02 | 0.17 | 0.00 | 0.00 | 0.24 | | | | | | | | | | | | | | | |
| 17 | *Glass bottles | 7.45 | 8.00 | 1.30 | 0.15 | 1.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.58 | 2.16 | 0.41 | 0.06 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | | | | | | | | | | | | |
| 18 | Stone & ceramics | 0.45 | 0.50 | 0.00 | 2.45 | 4.05 | 0.00 | 0.00 | 0.00 | 0.60 | 30.00 | 0.10 | 0.13 | 0.00 | 0.90 | 3.14 | 0.00 | 0.00 | 0.00 | 0.10 | 1.81 | | | | | | | | | | | | | | | |
| 19 | Miscellaneous inert (sand, dust) | 0.85 | 0.00 | 8.20 | 11.00 | 11.50 | 0.00 | 0.00 | 29.10 | 25.25 | 999.25 | 0.18 | 0.00 | 2.62 | 4.06 | 8.91 | 0.00 | 0.00 | 20.05 | 4.21 | 60.32 | | | | | | | | | | | | | | | |
| 20 | Unclassified | 5.60 | 2.00 | 4.73 | 2.05 | 2.50 | 0.00 | 4.10 | 1.00 | 29.10 | 27.00 | 1.19 | 0.54 | 1.51 | 0.76 | 1.94 | 0.00 | 1.26 | 0.69 | 4.85 | 1.63 | | | | | | | | | | | | | | | |
| | TOTAL: | 472.15 | 370.50 | 313.47 | 271.25 | 129.00 | 724.70 | 326.60 | 145.15 | 600.00 | 1656.50 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | | | | | | | | | | | | | | |

Table-7.3: Summary of Composition Survey (Incoming Waste)

| Sl. No. | Name of Component | Total Quantity of Waste for 3 days (Kg) | | | | | | | | | | Total Quantity for 3 days (Kg) [% of total waste] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|----------------------------------|---|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|---------------|---|---------------|---------------|---------------|---------------|-----------------------|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|---------------|-------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | | Level of Collection | | | | | | | | | | Level of Collection | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Matuail Landfill Site | | | | | Gabtoli Beri Bandh | | | | | Uttara Beri Bandh | | | | | Matuail Landfill Site | | | | | Gabtoli Beri Bandh | | | | | Uttara Beri Bandh | | | | | | | | | | | | |
| Zone-1 | Zone-2 | Zone-3 | Zone-4 | Zone-5 | Zone-6 | Zone-7 | Zone-8 | Zone-9 | Zone-10 | Zone-1 | Zone-2 | Zone-3 | Zone-4 | Zone-5 | Zone-6 | Zone-7 | Zone-8 | Zone-9 | Zone-10 | Zone-1 | Zone-2 | Zone-3 | Zone-4 | Zone-5 | Zone-6 | Zone-7 | Zone-8 | Zone-9 | Zone-10 | Zone-1 | Zone-2 | Zone-3 | Zone-4 | Zone-5 | Zone-6 | Zone-7 | Zone-8 | Zone-9 | Zone-10 |
| 1 | *Recyclable paper | 0.00 | 3.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 19.70 | 0.00 | 0.00 | 0.00 | 12.90 | 8.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.15 | 1.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.28 |
| 2 | Other paper | 40.50 | 16.30 | 25.60 | 46.35 | 30.00 | 20.80 | 47.00 | 16.00 | 6.75 | 2.72 | 4.27 | 7.73 | 5.00 | 3.47 | 7.83 | 4.22 | 1.00 | 2.67 | 6.75 | 2.72 | 4.27 | 7.73 | 5.00 | 3.47 | 7.83 | 4.22 | 1.00 | 2.67 | 6.75 | 2.72 | 4.27 | 7.73 | 5.00 | 3.47 | 7.83 | 4.22 | 1.00 | 2.67 |
| 3 | Food waste/veg matter | 268.50 | 350.00 | 488.00 | 405.95 | 320.00 | 330.50 | 355.00 | 419.10 | 44.75 | 58.33 | 81.33 | 67.66 | 53.33 | 55.08 | 59.17 | 59.43 | 55.30 | 69.85 | 44.75 | 58.33 | 81.33 | 67.66 | 53.33 | 55.08 | 59.17 | 59.43 | 55.30 | 69.85 | 44.75 | 58.33 | 81.33 | 67.66 | 53.33 | 55.08 | 59.17 | 59.43 | 55.30 | 69.85 |
| 4 | Textile | 59.10 | 71.20 | 31.20 | 51.15 | 48.30 | 24.70 | 67.00 | 26.10 | 9.85 | 11.87 | 5.20 | 8.53 | 8.05 | 4.12 | 11.17 | 6.28 | 8.88 | 4.35 | 9.85 | 11.87 | 5.20 | 8.53 | 8.05 | 4.12 | 11.17 | 6.28 | 8.88 | 4.35 | 9.85 | 11.87 | 5.20 | 8.53 | 8.05 | 4.12 | 11.17 | 6.28 | 8.88 | 4.35 |
| 5 | Grass & yard waste | 72.90 | 69.90 | 1.10 | 16.55 | 50.20 | 44.20 | 53.00 | 60.80 | 12.15 | 11.65 | 0.18 | 2.76 | 8.37 | 7.37 | 8.83 | 9.85 | 4.78 | 10.13 | 12.15 | 11.65 | 0.18 | 2.76 | 8.37 | 7.37 | 8.83 | 9.85 | 4.78 | 10.13 | 12.15 | 11.65 | 0.18 | 2.76 | 8.37 | 7.37 | 8.83 | 9.85 | 4.78 | 10.13 |
| 6 | Wood | 8.60 | 3.60 | 6.60 | 7.70 | 11.50 | 1.00 | 0.00 | 4.30 | 1.43 | 0.60 | 1.10 | 1.28 | 1.92 | 0.17 | 0.00 | 1.47 | 2.35 | 0.72 | 1.43 | 0.60 | 1.10 | 1.28 | 1.92 | 0.17 | 0.00 | 1.47 | 2.35 | 0.72 | 1.43 | 0.60 | 1.10 | 1.28 | 1.92 | 0.17 | 0.00 | 1.47 | 2.35 | 0.72 |
| 7 | *Plastic sheet | 11.70 | 12.60 | 6.60 | 16.45 | 12.10 | 49.90 | 24.00 | 13.50 | 1.95 | 2.10 | 1.10 | 2.74 | 2.02 | 8.32 | 4.00 | 0.00 | 3.15 | 2.25 | 1.95 | 2.10 | 1.10 | 2.74 | 2.02 | 8.32 | 4.00 | 0.00 | 3.15 | 2.25 | 1.95 | 2.10 | 1.10 | 2.74 | 2.02 | 8.32 | 4.00 | 0.00 | 3.15 | 2.25 |
| 8 | *Polyethylene bottle | 0.00 | 2.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.33 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 |
| 9 | *Other plastic bottle | 0.00 | 1.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.50 | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.25 | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.25 | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.25 |
| 10 | *Other plastics | 25.70 | 3.00 | 16.20 | 4.65 | 29.20 | 13.00 | 0.00 | 5.30 | 4.28 | 0.50 | 2.70 | 0.78 | 4.87 | 2.17 | 0.00 | 3.88 | 1.77 | 0.88 | 4.28 | 0.50 | 2.70 | 0.78 | 4.87 | 2.17 | 0.00 | 3.88 | 1.77 | 0.88 | 4.28 | 0.50 | 2.70 | 0.78 | 4.87 | 2.17 | 0.00 | 3.88 | 1.77 | 0.88 |
| 11 | *Rubber | 16.60 | 4.40 | 4.00 | 0.60 | 9.80 | 0.00 | 5.00 | 8.40 | 2.77 | 0.73 | 0.67 | 0.10 | 1.63 | 0.00 | 0.83 | 3.33 | 3.97 | 1.40 | 2.77 | 0.73 | 0.67 | 0.10 | 1.63 | 0.00 | 0.83 | 3.33 | 3.97 | 1.40 | 2.77 | 0.73 | 0.67 | 0.10 | 1.63 | 0.00 | 0.83 | 3.33 | 3.97 | 1.40 |
| 12 | Leather | 7.50 | 5.20 | 3.60 | 7.55 | 26.50 | 9.00 | 15.00 | 6.90 | 1.25 | 0.87 | 0.60 | 1.26 | 4.42 | 1.50 | 2.50 | 3.02 | 1.23 | 1.15 | 1.25 | 0.87 | 0.60 | 1.26 | 4.42 | 1.50 | 2.50 | 3.02 | 1.23 | 1.15 | 1.25 | 0.87 | 0.60 | 1.26 | 4.42 | 1.50 | 2.50 | 3.02 | 1.23 | 1.15 |
| 13 | *Steel CAN | 0.00 | 1.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.42 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 |
| 14 | *Aluminium CAN | 0.00 | 2.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.38 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 15 | *Metal/Alloy | 0.00 | 0.90 | 0.60 | 0.00 | 0.00 | 0.00 | 13.00 | 0.00 | 0.00 | 0.15 | 0.10 | 0.00 | 0.00 | 0.00 | 2.17 | 0.33 | 0.10 | 0.00 | 0.00 | 0.15 | 0.10 | 0.00 | 0.00 | 0.00 | 2.17 | 0.33 | 0.10 | 0.00 | 0.00 | 0.15 | 0.10 | 0.00 | 0.00 | 0.00 | 2.17 | 0.33 | 0.10 | 0.00 |
| 16 | *Glass, broken bottles, others | 0.00 | 2.00 | 0.55 | 1.60 | 0.00 | 0.00 | 13.00 | 0.00 | 0.00 | 0.33 | 0.09 | 0.27 | 0.00 | 0.00 | 2.17 | 1.08 | 0.17 | 0.00 | 0.00 | 0.33 | 0.09 | 0.27 | 0.00 | 0.00 | 2.17 | 1.08 | 0.17 | 0.00 | 0.00 | 0.33 | 0.09 | 0.27 | 0.00 | 0.00 | 2.17 | 1.08 | 0.17 | 0.00 |
| 17 | *Glass bottles | 3.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.50 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 18 | Stone & ceramics | 54.40 | 30.60 | 5.00 | 23.05 | 41.80 | 74.40 | 8.00 | 2.50 | 9.07 | 5.10 | 0.83 | 3.84 | 6.97 | 12.40 | 1.33 | 0.58 | 9.23 | 0.42 | 9.07 | 5.10 | 0.83 | 3.84 | 6.97 | 12.40 | 1.33 | 0.58 | 9.23 | 0.42 | 9.07 | 5.10 | 0.83 | 3.84 | 6.97 | 12.40 | 1.33 | 0.58 | 9.23 | 0.42 |
| 19 | Miscellaneous inert (sand, dust) | 12.00 | 15.00 | 8.00 | 12.55 | 7.60 | 32.50 | 0.00 | 5.90 | 2.00 | 2.50 | 1.33 | 2.09 | 1.27 | 5.42 | 0.00 | 2.33 | 3.03 | 0.98 | 2.00 | 2.50 | 1.33 | 2.09 | 1.27 | 5.42 | 0.00 | 2.33 | 3.03 | 0.98 | 2.00 | 2.50 | 1.33 | 2.09 | 1.27 | 5.42 | 0.00 | 2.33 | 3.03 | 0.98 |
| 20 | Unclassified | 19.50 | 4.00 | 2.95 | 5.85 | 13.00 | 0.00 | 0.00 | 5.50 | 3.25 | 0.67 | 0.49 | 0.98 | 2.17 | 0.00 | 0.00 | 2.03 | 3.40 | 0.92 | 3.25 | 0.67 | 0.49 | 0.98 | 2.17 | 0.00 | 0.00 | 2.03 | 3.40 | 0.92 | 3.25 | 0.67 | 0.49 | 0.98 | 2.17 | 0.00 | 0.00 | 2.03 | 3.40 | 0.92 |
| TOTAL: | | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 100.00 |

**SUMMARY (RESIDENTIAL)
SOLID WASTE AMOUNT AND COMPOSITION SURVEY**

Determination of Solid Waste Quantity

Table-7.4 :Summary Genrated waste(Residential)

| Sl. No. | Date | Category | Contributing Population (Nos.) | Floor Area (m ²) | Quantity of Waste (Kg) | | Total waste (Kg) | Kg/C | | Composite (Kg/C) | Composite (Kg/m ²) | Volume of Waste (m ³) | | Total volume (m ³) | Density (Kg/m ³) | Average Contribution (Kg/C/Day) | Average Density (Kg/m ³) |
|---------|----------|--------------------------|--------------------------------|------------------------------|------------------------|-----------|------------------|---------|-----------|------------------|--------------------------------|-----------------------------------|-----------|--------------------------------|------------------------------|---------------------------------|--------------------------------------|
| | | | | | Organic | Inorganic | | Organic | Inorganic | | | Organic | Inorganic | | | | |
| 1 | 08.08.04 | Residential-Upper | 338 | 9130 | 122.10 | 63.55 | 185.65 | 0.3612 | 0.1880 | 0.5493 | 0.0203 | 0.4924 | 0.7215 | 1.2139 | 152.94 | 0.4735 | 130.89 |
| 2 | 09.08.04 | | 338 | 9130 | 121.20 | 52.90 | 174.10 | 0.3586 | 0.1565 | 0.5151 | 0.0191 | 0.4962 | 0.5990 | 1.0952 | 158.97 | | |
| 3 | 10.08.05 | | 338 | 9130 | 106.05 | 35.85 | 141.90 | 0.3138 | 0.1061 | 0.4198 | 0.0155 | 0.4988 | 0.8106 | 1.3074 | 108.54 | | |
| 4 | 11.08.05 | | 338 | 9130 | 110.35 | 47.10 | 157.45 | 0.3265 | 0.1393 | 0.4658 | 0.0172 | 0.4759 | 0.8085 | 1.2844 | 122.59 | | |
| 5 | 12.08.05 | | 338 | 9130 | 94.55 | 49.80 | 144.35 | 0.2797 | 0.1473 | 0.4271 | 0.0158 | 0.4164 | 0.8249 | 1.2413 | 116.29 | | |
| 6 | 13.08.06 | | 338 | 9130 | 115.05 | 33.40 | 148.45 | 0.3404 | 0.0988 | 0.4392 | 0.0163 | 0.4497 | 0.7912 | 1.2409 | 119.63 | | |
| 7 | 14.08.06 | | 338 | 9130 | 120.30 | 43.50 | 163.80 | 0.3559 | 0.1287 | 0.4846 | 0.0179 | 0.5185 | 0.7376 | 1.2561 | 130.40 | | |
| 8 | 15.08.06 | | 338 | 9130 | 118.65 | 46.00 | 164.65 | 0.3510 | 0.1361 | 0.4871 | 0.0180 | 0.4036 | 0.7916 | 1.1952 | 137.76 | | |
| 9 | 08.08.04 | Residential-Middle | 333 | 7198 | 91.73 | 26.92 | 118.64 | 0.2755 | 0.0808 | 0.3563 | 0.0165 | 0.3366 | 0.3033 | 0.6399 | 185.40 | 0.3684 | 197.65 |
| 10 | 09.08.04 | | 333 | 7198 | 92.80 | 30.80 | 123.60 | 0.2787 | 0.0925 | 0.3712 | 0.0172 | 0.2354 | 0.2150 | 0.4503 | 274.46 | | |
| 11 | 10.08.05 | | 333 | 7198 | 91.64 | 36.40 | 128.04 | 0.2752 | 0.1093 | 0.3845 | 0.0178 | 0.3395 | 0.3459 | 0.6854 | 186.81 | | |
| 12 | 11.08.05 | | 333 | 7198 | 88.90 | 30.86 | 119.76 | 0.2670 | 0.0927 | 0.3596 | 0.0166 | 0.2973 | 0.3154 | 0.6127 | 195.48 | | |
| 13 | 12.08.05 | | 333 | 7198 | 91.30 | 26.30 | 117.60 | 0.2742 | 0.0790 | 0.3532 | 0.0163 | 0.3433 | 0.3281 | 0.6714 | 175.15 | | |
| 14 | 13.08.06 | | 333 | 7198 | 97.10 | 33.50 | 130.60 | 0.2916 | 0.1006 | 0.3922 | 0.0181 | 0.3308 | 0.3858 | 0.7165 | 182.27 | | |
| 15 | 14.08.06 | | 333 | 7198 | 90.90 | 36.00 | 126.90 | 0.2730 | 0.1081 | 0.3811 | 0.0176 | 0.2975 | 0.3534 | 0.6509 | 194.97 | | |
| 16 | 15.08.06 | | 333 | 7198 | 83.70 | 32.60 | 116.30 | 0.2514 | 0.0979 | 0.3492 | 0.0162 | 0.2656 | 0.3574 | 0.6229 | 186.69 | | |
| 17 | 08.08.04 | Residential-Lower Middle | 347 | 6741 | 99.70 | 23.60 | 123.30 | 0.2873 | 0.0680 | 0.3553 | 0.0183 | 0.4549 | 0.3209 | 0.7758 | 158.93 | 0.3022 | 140.52 |
| 18 | 09.08.04 | | 347 | 6741 | 88.55 | 20.40 | 108.95 | 0.2552 | 0.0588 | 0.3140 | 0.0162 | 0.3154 | 0.2878 | 0.6032 | 180.62 | | |
| 19 | 10.08.05 | | 347 | 6741 | 77.14 | 15.65 | 92.79 | 0.2223 | 0.0451 | 0.2674 | 0.0138 | 0.5303 | 0.2986 | 0.8289 | 111.94 | | |
| 20 | 11.08.05 | | 347 | 6741 | 90.60 | 19.60 | 110.20 | 0.2611 | 0.0565 | 0.3176 | 0.0163 | 0.3308 | 0.4108 | 0.7416 | 148.60 | | |
| 21 | 12.08.05 | | 347 | 6741 | 88.35 | 14.85 | 103.20 | 0.2546 | 0.0428 | 0.2974 | 0.0153 | 0.3921 | 0.3544 | 0.7465 | 138.25 | | |
| 22 | 13.08.06 | | 347 | 6741 | 74.90 | 25.30 | 100.20 | 0.2159 | 0.0729 | 0.2888 | 0.0149 | 0.3128 | 0.4649 | 0.7777 | 128.84 | | |
| 23 | 14.08.06 | | 347 | 6741 | 86.55 | 18.80 | 105.35 | 0.2494 | 0.0542 | 0.3036 | 0.0156 | 0.4496 | 0.3826 | 0.8322 | 126.59 | | |
| 24 | 15.08.06 | | 347 | 6741 | 79.30 | 15.75 | 95.05 | 0.2285 | 0.0454 | 0.2739 | 0.0141 | 0.3787 | 0.3504 | 0.7291 | 130.37 | | |

SUMMARY (RESIDENTIAL)
SOLID WASTE AMOUNT AND COMPOSITION SURVEY

Determination of Solid Waste Quantity

Table-7.4 :Summary Genrated waste(Residential)

| Sl. No. | Date | Category | Contributing Population (Nos.) | Floor Area (m ²) | Quantity of Waste (Kg) | | Total waste (Kg) | Kg/C | | Composite (Kg/C) | Composite (Kg/m ²) | Volume of Waste (m ³) | | Total volume (m ³) | Density (Kg/m ³) | Average Contribution (Kg/C/Day) | Average Density (Kg/m ³) |
|---------|----------|-------------------|--------------------------------|------------------------------|------------------------|-----------|------------------|---------|-----------|------------------|--------------------------------|-----------------------------------|-----------|--------------------------------|------------------------------|---------------------------------|--------------------------------------|
| | | | | | Organic | Inorganic | | Organic | Inorganic | | | Organic | Inorganic | | | | |
| 25 | 08.08.04 | Residential-Lower | 326 | 5099 | 66.25 | 21.30 | 87.55 | 0.2032 | 0.0653 | 0.2686 | 0.0172 | 0.4623 | 0.5171 | 0.9794 | 89.39 | 0.2952 | 110.68 |
| 26 | 09.08.04 | | 326 | 5099 | 53.60 | 22.60 | 76.20 | 0.1644 | 0.0693 | 0.2337 | 0.0149 | 0.3823 | 0.4697 | 0.8520 | 89.44 | | |
| 27 | 10.08.05 | | 326 | 5099 | 78.30 | 21.80 | 100.10 | 0.2402 | 0.0669 | 0.3071 | 0.0196 | 0.3563 | 0.4096 | 0.7659 | 130.70 | | |
| 28 | 11.08.05 | | 326 | 5099 | 79.85 | 20.55 | 100.40 | 0.2449 | 0.0630 | 0.3080 | 0.0197 | 0.3478 | 0.4433 | 0.7911 | 126.91 | | |
| 29 | 12.08.05 | | 326 | 5099 | 81.70 | 21.00 | 102.70 | 0.2506 | 0.0644 | 0.3150 | 0.0201 | 0.4022 | 0.4282 | 0.8304 | 123.68 | | |
| 30 | 13.08.06 | | 326 | 5099 | 77.80 | 19.05 | 96.85 | 0.2387 | 0.0584 | 0.2971 | 0.0190 | 0.3732 | 0.3929 | 0.7661 | 126.42 | | |
| 31 | 14.08.06 | | 326 | 5099 | 76.15 | 17.00 | 93.15 | 0.2336 | 0.0521 | 0.2857 | 0.0183 | 0.4307 | 0.5539 | 0.9846 | 94.61 | | |
| 32 | 15.08.06 | | 326 | 5099 | 93.50 | 19.45 | 112.95 | 0.2868 | 0.0597 | 0.3465 | 0.0222 | 0.4871 | 0.5955 | 1.0826 | 104.33 | | |
| 33 | 08.08.04 | Residential-Slum | 244 | 624 | 39.60 | 14.10 | 53.70 | 0.1623 | 0.0578 | 0.2201 | 0.0861 | 0.1153 | 0.1372 | 0.2525 | 212.67 | 0.1907 | 178.09 |
| 34 | 09.08.04 | | 244 | 624 | 33.65 | 11.80 | 45.45 | 0.1379 | 0.0484 | 0.1863 | 0.0728 | 0.1411 | 0.0966 | 0.2377 | 191.21 | | |
| 35 | 10.08.05 | | 244 | 624 | 24.00 | 11.55 | 35.55 | 0.0984 | 0.0473 | 0.1457 | 0.0570 | 0.1315 | 0.0889 | 0.2204 | 161.30 | | |
| 36 | 11.08.05 | | 244 | 624 | 36.20 | 12.20 | 48.40 | 0.1484 | 0.0500 | 0.1984 | 0.0776 | 0.1085 | 0.0980 | 0.2065 | 234.38 | | |
| 37 | 12.08.05 | | 244 | 624 | 28.40 | 11.55 | 39.95 | 0.1164 | 0.0473 | 0.1637 | 0.0640 | 0.1383 | 0.1072 | 0.2455 | 162.73 | | |
| 38 | 13.08.06 | | 244 | 624 | 34.20 | 15.45 | 49.65 | 0.1402 | 0.0633 | 0.2035 | 0.0796 | 0.1372 | 0.1822 | 0.3194 | 155.45 | | |
| 39 | 14.08.06 | | 244 | 624 | 31.50 | 16.35 | 47.85 | 0.1291 | 0.0670 | 0.1961 | 0.0767 | 0.1807 | 0.1574 | 0.3381 | 141.53 | | |
| 40 | 15.08.06 | | 244 | 624 | 36.50 | 15.10 | 51.60 | 0.1496 | 0.0619 | 0.2115 | 0.0827 | 0.1736 | 0.1382 | 0.3118 | 165.49 | | |

SUMMARY (COMMERCIAL)
SOLID WASTE AMOUNT AND COMPOSITION SURVEY
Determination of Solid Waste Quantity

Table-7.5:Summary Generated waste (Commercial)

| Sl. No. | Date | Category | Contributing Population (Nos.) | Floor Area (m ²) | Quantity of Waste (Kg) | | Total waste (Kg) | Kg/C | | Composite (Kg/C) | Composite (Kg/m ²) | Volume of Waste (m ³) | | Total volume (m ³) | Density (Kg/m ³) | Average Contribution (Kg/C/Day) | Average Density (Kg/m ³) |
|---------|----------|---|--------------------------------|------------------------------|------------------------|-----------|------------------|---------|-----------|------------------|--------------------------------|-----------------------------------|-----------|--------------------------------|------------------------------|---------------------------------|--------------------------------------|
| | | | | | Organic | Inorganic | | Organic | Inorganic | | | Organic | Inorganic | | | | |
| 1 | 08.08.04 | Commercial-Restaurant | 2232 | 659 | 243.00 | 10.30 | 253.30 | 0.1089 | 0.0046 | 0.1135 | 0.3844 | 0.3247 | 0.2539 | 0.5786 | 437.78 | 0.1199 | 409.94 |
| 2 | 09.08.04 | | 2032 | 659 | 244.00 | 6.70 | 250.70 | 0.1201 | 0.0033 | 0.1234 | 0.3805 | 0.3452 | 0.1807 | 0.5259 | 476.71 | | |
| 3 | 10.08.05 | | 1857 | 659 | 237.50 | 5.40 | 242.90 | 0.1279 | 0.0029 | 0.1308 | 0.3687 | 0.3255 | 0.1339 | 0.4594 | 528.73 | | |
| 4 | 11.08.05 | | 1882 | 659 | 214.00 | 12.60 | 226.60 | 0.1137 | 0.0067 | 0.1204 | 0.3439 | 0.3113 | 0.3149 | 0.6262 | 361.87 | | |
| 5 | 12.08.05 | | 1922 | 659 | 233.10 | 11.00 | 244.10 | 0.1213 | 0.0057 | 0.1270 | 0.3705 | 0.3137 | 0.2854 | 0.5991 | 407.44 | | |
| 6 | 13.08.06 | | 1922 | 659 | 206.10 | 10.40 | 216.50 | 0.1072 | 0.0054 | 0.1126 | 0.3286 | 0.3038 | 0.2658 | 0.5696 | 380.09 | | |
| 7 | 14.08.06 | | 1942 | 659 | 202.00 | 12.70 | 214.70 | 0.1040 | 0.0065 | 0.1106 | 0.3259 | 0.3592 | 0.3139 | 0.6731 | 318.97 | | |
| 8 | 15.08.06 | | 1942 | 659 | 220.70 | 13.85 | 234.55 | 0.1136 | 0.0071 | 0.1208 | 0.3560 | 0.3053 | 0.3322 | 0.6375 | 367.92 | | |
| 9 | 08.08.04 | Commercial-Shops/Hotels/ Guest House | 571 | 2381 | 91.70 | 17.53 | 109.23 | 0.1606 | 0.0307 | 0.1913 | 0.0459 | 0.1470 | 0.2762 | 0.4232 | 258.10 | 0.1932 | 215.32 |
| 10 | 09.08.04 | | 560 | 2381 | 101.50 | 17.00 | 118.50 | 0.1813 | 0.0304 | 0.2116 | 0.0498 | 0.1499 | 0.3732 | 0.5231 | 226.53 | | |
| 11 | 10.08.05 | | 549 | 2381 | 99.10 | 9.00 | 108.10 | 0.1805 | 0.0164 | 0.1969 | 0.0454 | 0.1415 | 0.2881 | 0.4296 | 251.63 | | |
| 12 | 11.08.05 | | 547 | 2381 | 90.90 | 10.00 | 100.90 | 0.1662 | 0.0183 | 0.1845 | 0.0424 | 0.1286 | 0.2867 | 0.4153 | 242.96 | | |
| 13 | 12.08.05 | | 517 | 2381 | 89.20 | 13.50 | 102.70 | 0.1725 | 0.0261 | 0.1986 | 0.0431 | 0.1908 | 0.3324 | 0.5232 | 196.29 | | |
| 14 | 13.08.06 | | 477 | 2381 | 77.30 | 18.10 | 95.40 | 0.1621 | 0.0379 | 0.2000 | 0.0401 | 0.1244 | 0.3802 | 0.5046 | 189.06 | | |
| 15 | 14.08.06 | | 454 | 2381 | 69.50 | 17.25 | 86.75 | 0.1531 | 0.0380 | 0.1911 | 0.0364 | 0.1144 | 0.4227 | 0.5371 | 161.52 | | |
| 16 | 15.08.06 | | 534 | 2381 | 82.00 | 9.65 | 91.65 | 0.1536 | 0.0181 | 0.1716 | 0.0385 | 0.1160 | 0.3505 | 0.4865 | 196.46 | | |

SUMMARY (PUBLIC FACILITIES)
SOLID WASTE AMOUNT AND COMPOSITION SURVEY
Determination of Solid Waste Quantity

Table-7.6: Summary Generated waste (Public Facilities)

| Sl. No. | Date | Category | Contributing Population (Nos.) | Floor Area (m ²) | Quantity of Waste (Kg) | | Total waste (Kg) | Kg/C | | Composite (Kg/C) | Composite (Kg/m ²) | Volume of Waste (m ³) | | Total volume (m ³) | Density (Kg/m ³) | Average Contribution (Kg/C/Day) | Average Density (Kg/m ³) |
|---------|----------|-----------------------------------|--------------------------------|------------------------------|------------------------|-----------|------------------|---------|-----------|------------------|--------------------------------|-----------------------------------|-----------|--------------------------------|------------------------------|---------------------------------|--------------------------------------|
| | | | | | Organic | Inorganic | | Organic | Inorganic | | | Organic | Inorganic | | | | |
| 1 | 08.08.04 | Public Facilities-Schools/Offices | 4457 | 10414 | 22.00 | 40.00 | 62.00 | 0.00494 | 0.0090 | 0.0139 | 0.0060 | 0.0858 | 0.2540 | 0.3398 | 182.46 | 0.0127 | 106.05 |
| 2 | 09.08.04 | | 4457 | 10414 | 28.00 | 34.00 | 62.00 | 0.00628 | 0.0076 | 0.0139 | 0.0060 | 0.1055 | 0.3649 | 0.4704 | 131.80 | | |
| 3 | 10.08.05 | | 4457 | 10414 | 14.00 | 33.00 | 47.00 | 0.00314 | 0.0074 | 0.0105 | 0.0045 | 0.1212 | 0.4659 | 0.5871 | 80.05 | | |
| 4 | 11.08.05 | | 4457 | 10414 | 10.00 | 28.00 | 38.00 | 0.00224 | 0.0063 | 0.0085 | 0.0036 | 0.0478 | 0.2994 | 0.3472 | 109.45 | | |
| 5 | 12.08.05 | | 4457 | 10414 | 22.00 | 29.00 | 51.00 | 0.00494 | 0.0065 | 0.0114 | 0.0049 | 0.0939 | 0.5740 | 0.6679 | 76.36 | | |
| 6 | 14.08.06 | | 4457 | 10414 | 27.00 | 44.00 | 71.00 | 0.00606 | 0.0099 | 0.0159 | 0.0068 | 0.1985 | 0.6183 | 0.8168 | 86.92 | | |
| 7 | 15.08.06 | | 4457 | 10414 | 31.00 | 29.00 | 60.00 | 0.00696 | 0.0065 | 0.0135 | 0.0058 | 0.1264 | 0.5443 | 0.6707 | 89.46 | | |
| 8 | 16.08.06 | | 4457 | 10414 | 25.00 | 38.00 | 63.00 | 0.00561 | 0.0085 | 0.0141 | 0.0060 | 0.1193 | 0.5660 | 0.6853 | 91.93 | | |

SOLID WASTE AMOUNT AND COMPOSITION SURVEY(RAINY SEASON)
Table-7.7: Summary of Solid Waste from 10 (ten) Markets

| Sl. No. | Name of The Markets | Type of Market | Employee (Nos) | Total Shops / Lots (Nos) | Total Lot Area (m ²) | Market Land Area (m ²) | Av. Qty. of Waste (Kg/day) | Av. Vol. of waste (m ³ /day) | Waste Generation (Kg/lot) | Waste Generation (Kg/m ²) | Density kg/m ³ | Av. Contribution (kg/Lot/Day) | Av. Contribution (kg/m ² /Day) | Av. Density of Market Waste (kg/m ²) |
|---------|---------------------------|--|----------------|--------------------------|----------------------------------|------------------------------------|----------------------------|---|---------------------------|---------------------------------------|---------------------------|-------------------------------|---|--|
| 1 | Mirpur MuktiJuddha Market | i) Fresh & Dry Meat, Chiken, Fish ii) Fresh Vegetables iii) Grossary iv) Hardware & printing v) Salon vi) Restaurants & Confectionaries vii) Gift Shop viii) Crokaries ix) Cosmetics Stationery & Books x) Studio, Photo xi) Jewellery xii) Bettle Nut xiii) Pharmacy, Medicine xiv) Readymade Garments & Garments Accessories xv) Electronics & Electrical xvi) Leather goods xvii) Clothes, Tailors etc. | 3650 | 1130 | 10200 | 15000.00 | 20000.00 | 48.38 | 17.70 | 1.96 | 418.55 | | | |
| 2 | New Market | Do | 6400 | 1900 | 6085 | 9000.00 | 7500.00 | 16.75 | 3.95 | 1.23 | 455.56 | | | |
| 3 | Gulshan - 1 | Do | 1000 | 310 | 2400 | 3900.00 | 4924.38 | 11.04 | 15.89 | 2.05 | 447.68 | | | |
| 4 | Gopibag | i) Meat & Fish ii) Vegetables iii) Grossary, rice, dry & fish iv) Chiken shop | 450 | 210 | 1800 | 2800.00 | 4781.88 | 11.65 | 22.77 | 2.66 | 410.09 | | | |
| 5 | Hatirpul | Do | 375 | 150 | 2100 | 3200.00 | 4920.25 | 11.78 | 32.80 | 2.34 | 417.96 | | 34.37 | 357.74 |
| 6 | Kaptan Bazar | Do | 3000 | 750 | 5600 | 8000.00 | 10000.00 | 22.88 | 13.33 | 1.79 | 436.41 | | | |
| 7 | Kawran Bazar | Wholesale Market for Fresh Vegetables | 400 | 170 | 1700 | 2600.00 | 40000.00 | 76.88 | 235.29 | 23.53 | 523.33 | | | |
| 8 | Raj Lakshmee Complex | i) Hardware & Painting ii) Salon iii) Restaurants & Confectionaries iv) Gift shop v) Crokaries vi) Cosmetics, Stationery & Books vii) Studio, Photo viii) Jewellery ix) Pharmacy, Medicine x) Readymade Garments & Garments Accessories xi) Electronics & Electrical xii) Leather goods xiii) Clothes, Tailors etc. | 350 | 110 | 1000 | 1500.00 | 238.38 | 1.79 | 2.17 | 0.24 | 133.24 | | | |
| 9 | Eastern Plaza | Do | 2000 | 550 | 2300 | 3800.00 | 223.13 | 1.58 | 0.41 | 0.10 | 141.67 | | | |
| 10 | Malibag super Market | Do | 385 | 135 | 1150 | 1750.00 | 54.50 | 0.28 | 0.40 | 0.05 | 192.94 | | | |

1. Average quantity of waste = 34.47 kg/lot/day

2. Average volume of waste = 3.59 kg/m²/day3. Average volume of waste = 20.30 m³/market/day4. Average density of waste = 357.74 kg/m³

SUMMARY (ROAD SWEEPING)
SOLID WASTE AMOUNT AND COMPOSITION SURVEY
 Determination of Solid Waste Quantity

Table: 7.8: Summary Generated waste (Road Sweeping)

| Sl. No. | Date | Category | Area of Road Sweeping | | | Total Weight (Kg) | Generation of Waste (kg/km) | Total Volume (m ³) | Density (Kg/m ³) | Average Contribution (Kg/km/Day) | Average Density (Kg/m ³) |
|---------|----------|-----------------------------|-----------------------|------------|-------------------------|-------------------|-----------------------------|--------------------------------|------------------------------|----------------------------------|--------------------------------------|
| | | | Length (km) | Width (km) | Area (km ²) | | | | | | |
| 1 | 08.08.04 | Road Sweeping (Old Dhaka) | 1.18 | 0.13 | 0.15 | 699.00 | 592.3729 | 2.0517 | 340.69 | | |
| 2 | 09.08.04 | Road Sweeping (Old Dhaka) | 1.18 | 0.13 | 0.15 | 671.85 | 569.3644 | 1.8678 | 359.70 | | |
| 3 | 10.08.05 | Road Sweeping (Mirpur) | 1.12 | 0.10 | 0.11 | 560.75 | 500.6696 | 1.4990 | 374.07 | | |
| 4 | 11.08.05 | Road Sweeping (Mohammadpur) | 1.13 | 0.10 | 0.11 | 459.60 | 407.8083 | 1.3367 | 343.83 | 442.83 | 350.15 |
| 5 | 12.08.06 | Road Sweeping (Mohammadpur) | 1.13 | 0.10 | 0.11 | 422.30 | 374.7116 | 1.3018 | 324.40 | | |
| 6 | 13.08.06 | Road Sweeping (Mohammadpur) | 1.13 | 0.10 | 0.11 | 304.40 | 270.0976 | 0.9481 | 270.10 | | |
| 7 | 14.08.07 | Road Sweeping (Mirpur) | 1.12 | 0.10 | 0.11 | 494.05 | 441.1161 | 1.2169 | 405.99 | | |
| 8 | 15.08.07 | Road Sweeping (Mirpur) | 1.12 | 0.10 | 0.11 | 432.90 | 386.5179 | 1.1320 | 382.42 | | |

SOLID WASTE AMOUNT AND COMPOSITION SURVEY (RAINY SEASON) Survey on Incoming Waste at Landfill Site

Table 7.9 : Incoming Waste at Landfill Site & Number of Trips Made

| Date | Landfill Site | 1.50 Ton OT | | | 2.00 Ton OT/CT | | | 3.00 Ton OT/CT | | | 5.00 Ton OT | | | 3.00 Ton DCC | | | 5.00 Ton DCC | | | 22.00 Ton Ex. OT | | | Day wise trips made | Remarks |
|--------------|---------------------|-------------|--------------------|--------------------------------|----------------|--------------------|--------------------------------|----------------|--------------------|--------------------------------|----------------|--------------------|--------------------------------|----------------|--------------------|--------------------------------|----------------|--------------------|--------------------------------|------------------|--------------------|--------------------------------|---------------------|---------|
| | | Trips (No.) | Waste Amount (Ton) | Waste Volume (m ³) | Trips (No.) | Waste Amount (Ton) | Waste Volume (m ³) | Trips (No.) | Waste Amount (Ton) | Waste Volume (m ³) | Trips (No.) | Waste Amount (Ton) | Waste Volume (m ³) | Trips (No.) | Waste Amount (Ton) | Waste Volume (m ³) | Trips (No.) | Waste Amount (Ton) | Waste Volume (m ³) | Trips (No.) | Waste Amount (Ton) | Waste Volume (m ³) | | |
| 26.07.2004 | Matuail | 6.00 | 9.68 | 14.75 | 72.00 | 253.18 | 229.16 | 59 | 163.04 | 228.48 | 139.43 | 116 | 263.76 | 431.10 | 60 | 188.58 | 429.60 | 6.00 | 160.60 | 203.23 | 345 | | | |
| | Gabtolli Beri Bandh | 0.00 | 0.00 | 0.00 | 6.00 | 11.80 | 20.06 | 23 | 66.00 | 104.51 | 179.73 | 61 | 160.20 | 320.40 | 34 | 146.00 | 350.40 | 0.00 | 0.00 | 0.00 | 150 | | | |
| | Ultra Beri Bandh | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 169.98 | 0 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 33 | | | |
| 27.07.2004 | Matuail | 7.00 | 16.20 | 17.88 | 62.00 | 152.86 | 219.57 | 63 | 188.60 | 269.57 | 118.95 | 118 | 258.36 | 394.20 | 56 | 214.34 | 483.00 | 4.00 | 96.80 | 124.30 | 338 | | | |
| | Gabtolli Beri Bandh | 0.00 | 0.00 | 0.00 | 5.00 | 10.40 | 17.68 | 26 | 77.40 | 120.18 | 237.25 | 59 | 149.10 | 298.20 | 42 | 181.50 | 435.60 | 0.00 | 0.00 | 0.00 | 166 | | | |
| | Ultra Beri Bandh | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 170.95 | 0 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 33 | | | |
| 28.07.2004 | Matuail | 12.00 | 22.18 | 28.13 | 74.00 | 180.62 | 257.38 | 59 | 175.04 | 248.43 | 89.47 | 106 | 223.36 | 351.48 | 62 | 170.38 | 406.08 | 0.00 | 0.00 | 0.00 | 338 | | | |
| | Gabtolli Beri Bandh | 0.00 | 0.00 | 0.00 | 8.00 | 16.60 | 28.22 | 18 | 54.30 | 85.98 | 187.85 | 60 | 151.08 | 302.16 | 43 | 178.50 | 428.40 | 0.00 | 0.00 | 0.00 | 157 | | | |
| | Ultra Beri Bandh | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 183.63 | 0 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 33 | | | |
| 29.07.2004 | Matuail | 11.00 | 22.74 | 28.38 | 73.00 | 181.62 | 248.37 | 56 | 165.66 | 242.49 | 127.73 | 104 | 204.62 | 339.30 | 62 | 168.24 | 393.00 | 1.00 | 17.00 | 22.00 | 336 | | | |
| | Gabtolli Beri Bandh | 0.00 | 0.00 | 0.00 | 5.00 | 8.80 | 14.96 | 17 | 43.50 | 68.88 | 222.95 | 61 | 150.60 | 301.20 | 40 | 156.75 | 376.20 | 0.00 | 0.00 | 0.00 | 155 | | | |
| | Ultra Beri Bandh | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 174.20 | 0 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 33 | | | |
| 30.07.2004 | Matuail | 9.00 | 18.46 | 23.63 | 74.00 | 174.64 | 237.32 | 60 | 167.00 | 245.10 | 145.08 | 107 | 208.22 | 362.10 | 69 | 193.60 | 449.40 | 6.00 | 150.70 | 193.51 | 355 | | | |
| | Gabtolli Beri Bandh | 0.00 | 0.00 | 0.00 | 3.00 | 6.10 | 10.37 | 19 | 53.40 | 84.56 | 163.48 | 66 | 167.10 | 334.20 | 32 | 128.50 | 308.40 | 0.00 | 0.00 | 0.00 | 143 | | | |
| | Ultra Beri Bandh | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 162.50 | 0 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 33 | | | |
| 31.07.2004 | Matuail | 10.00 | 22.96 | 27.25 | 69.00 | 148.86 | 220.66 | 64 | 181.22 | 182.16 | 79.30 | 103 | 226.78 | 371.70 | 46 | 125.86 | 291.60 | 4.00 | 101.20 | 129.95 | 317 | | | |
| | Gabtolli Beri Bandh | 0.00 | 0.00 | 0.00 | 5.00 | 9.00 | 15.30 | 16 | 43.65 | 69.11 | 189.15 | 67 | 167.49 | 334.98 | 37 | 152.25 | 365.40 | 0.00 | 0.00 | 0.00 | 152 | | | |
| | Ultra Beri Bandh | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 154.70 | 0 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 33 | | | |
| 01.04.2004 | Matuail | 16.00 | 29.81 | 39.00 | 71.00 | 165.08 | 233.58 | 55 | 159.18 | 221.83 | 91.65 | 112 | 244.86 | 387.90 | 59 | 175.78 | 412.80 | 3.00 | 79.20 | 101.70 | 339 | | | |
| | Gabtolli Beri Bandh | 0.00 | 0.00 | 0.00 | 5.00 | 10.00 | 17.00 | 17 | 50.40 | 79.80 | 197.28 | 75 | 189.39 | 378.78 | 27 | 112.25 | 269.40 | 0.00 | 0.00 | 0.00 | 151 | | | |
| | Ultra Beri Bandh | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 155.35 | 0 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 33 | | | |
| Total | | 71 | 142.03 | 179.01 | 532 | 1329.56 | 1769.63 | 552 | 1588.39 | 2251.06 | 3340.58 | 1215 | 2764.92 | 4907.70 | 669 | 2292.53 | 5399.28 | 24.00 | 605.50 | 774.69 | 3673 | | | |

SOLID WASTE AMOUNT AND COMPOSITION SURVEY (RAINY SEASON)

Survey on Incoming Waste at Landfill Site

Table 7.10 : Date wise Summary of Incoming Waste (Matuail, Gabtoli & Uttara)

| Date | Landfill Site | Waste Amount (Ton) | Waste Volume (m3) | Total Waste Amount (Ton) | Total Waste Volume (m3) | Remarks |
|--------------|--------------------|--------------------|-------------------|--------------------------|-------------------------|---------|
| 26.07.2004 | Matuail | 1046.72 | 1678.74 | 1699.72 | 2823.80 | |
| | Gabtoli Beri Bandh | 522.25 | 975.08 | | | |
| | Uttara Beri Bandh | 130.75 | 169.98 | | | |
| 27.07.2004 | Matuail | 1017.88 | 1627.46 | 1748.78 | 2907.31 | |
| | Gabtoli Beri Bandh | 599.40 | 1108.91 | | | |
| | Uttara Beri Bandh | 131.50 | 170.95 | | | |
| 28.07.2004 | Matuail | 843.34 | 1380.96 | 1529.57 | 2597.19 | |
| | Gabtoli Beri Bandh | 544.98 | 1032.61 | | | |
| | Uttara Beri Bandh | 141.25 | 183.63 | | | |
| 29.07.2004 | Matuail | 857.72 | 1401.86 | 1522.87 | 2560.24 | |
| | Gabtoli Beri Bandh | 531.15 | 984.18 | | | |
| | Uttara Beri Bandh | 134.00 | 174.20 | | | |
| 30.07.2004 | Matuail | 1010.94 | 1656.14 | 1616.79 | 2719.63 | |
| | Gabtoli Beri Bandh | 480.85 | 901.00 | | | |
| | Uttara Beri Bandh | 125.00 | 162.50 | | | |
| 31.07.2004 | Matuail | 867.80 | 1376.01 | 1504.69 | 2504.65 | |
| | Gabtoli Beri Bandh | 517.89 | 973.94 | | | |
| | Uttara Beri Bandh | 119.00 | 154.70 | | | |
| 01.08.2004 | Matuail | 927.63 | 1488.46 | 1560.92 | 2586.06 | |
| | Gabtoli Beri Bandh | 513.79 | 942.25 | | | |
| | Uttara Beri Bandh | 119.50 | 155.35 | | | |
| Total | | 11183.34 | 18698.88 | 11183.34 | 18698.88 | |

SOLID WASTE AMOUNT AND COMPOSITION SURVEY (RAINY SEASON)

Survey on Incoming Waste at Landfill Site

Table 7.11 : Date wise Summary of Incoming Waste (Matuail)

| Date | Landfill Site | Total Waste Amount (Ton) | Total Waste Volume (m3) | Remarks |
|--------------|---------------|--------------------------|-------------------------|---------|
| 26.07.2004 | Matuail | 1046.72 | 1678.74 | |
| 27.07.2004 | Matuail | 1017.88 | 1627.46 | |
| 28.07.2004 | Matuail | 843.34 | 1380.96 | |
| 29.07.2004 | Matuail | 857.72 | 1401.86 | |
| 30.07.2004 | Matuail | 1010.94 | 1656.14 | |
| 31.07.2004 | Matuail | 867.80 | 1376.01 | |
| 01.08..2004 | Matuail | 927.63 | 1488.46 | |
| Total | | 6572.03 | 10609.61 | |

SOLID WASTE AMOUNT AND COMPOSITION SURVEY (RAINY SEASON)

Survey on Incoming Waste at Landfill Site

Table 7.12 : Date wise Summary of Incoming Waste (Gabtoli)

| Date | Landfill Site | Total Waste Amount (Ton) | Total Waste Volume (m3) | Remarks |
|--------------|--------------------|--------------------------|-------------------------|---------|
| 26.07.2004 | Gabtoli Beri Bandh | 522.25 | 975.08 | |
| 27.07.2004 | Gabtoli Beri Bandh | 599.40 | 1108.91 | |
| 28.07.2004 | Gabtoli Beri Bandh | 544.98 | 1032.61 | |
| 29.07.2004 | Gabtoli Beri Bandh | 531.15 | 984.18 | |
| 30.07.2004 | Gabtoli Beri Bandh | 480.85 | 901.00 | |
| 31.07.2004 | Gabtoli Beri Bandh | 517.89 | 973.94 | |
| 01.08.2004 | Gabtoli Beri Bandh | 513.79 | 942.25 | |
| Total | | 3710.31 | 6917.97 | |

SOLID WASTE AMOUNT AND COMPOSITION SURVEY (RAINY SEASON)

Survey on Incoming Waste at Landfill Site

Table 7.13 : Date wise Summary of Incoming Waste (Uttara)

| Date | Landfill Site | Total Waste Amount (Ton) | Total Waste Volume (m ³) | Remarks |
|--------------|-------------------|--------------------------|--------------------------------------|---------|
| 26.07.2004 | Uttara Beri Bandh | 130.75 | 169.98 | |
| 27.07.2004 | Uttara Beri Bandh | 131.50 | 170.95 | |
| 28.07.2004 | Uttara Beri Bandh | 132.25 | 171.93 | |
| 29.07.2004 | Uttara Beri Bandh | 133.00 | 172.90 | |
| 30.07.2004 | Uttara Beri Bandh | 133.75 | 173.88 | |
| 31.07.2004 | Uttara Beri Bandh | 134.50 | 174.85 | |
| 01.08.2004 | Uttara Beri Bandh | 135.25 | 175.83 | |
| Total | | 931.00 | 1210.30 | |

SOLID WASTE AMOUNT AND COMPOSITION SURVEY (RAINY SEASON)

Survey of Collection Vehicle at the Central Garage & Landfill Site

Table 7.14 : Summary of Collection Vehicle Weighed (Empty) at the Central Garage & Landfill Site and Collection vehicle used at Land fill Site

| Sl: No: | Type & Capacity of Collection Vehicle (CV) | CV Weighed at Central garage & Landfill Site(Nos.) | | CV Used at Landfill Site (Nos.) | | | Remarks |
|---------|--|--|-------------|---------------------------------|------------|-------------|---------|
| | | At Garage | At Matuail | At Matuail | At Gabtoli | At Uttara | |
| 1 | 1.5 Ton Open Truck | 8 | 03 | 8 | | | |
| 2 | 2.00 Ton Open Truck | 51 | 01 | 50 | 14 | | |
| 3 | 3.00 Ton Open Truck | 64 | 09 | 61 | 26 | | |
| 4 | 5.00 Ton Open Truck | 11 | 20 | 31 | 22 | 33 | |
| 5 | 3.00 Ton Demountable Container Carrier | 57 | 02 | 55 | 32 | | |
| 6 | 5.00 Ton Demountable Container Carrier | 30 | | 27 | 20 | | |
| 7 | 22.00 Ton Open Truck (Experimental) | | | | | | |
| | Total | 221 | 35 * | 232 | 114 | 33 + | |

CV : Collection Vehicle

* : Empty weight of 35 CV's were measured at Matuail Landfill Site

+ : Private Collection Vehicle

SOLID WASTE AMOUNT AND COMPOSITION SURVEY (RAINY SEASON)

Survey on Transportation (Collection) Vehicle at the Central Garage

Table 7.15 : Summary of Collection Vehicle at the Central Garage

| Date | No. of CV Incoming/Outgoing | | | | | | No. of CV/Day | | | Remarks |
|------------|-----------------------------|----------|-----------|----------|-----------|----------|---------------|------------|--------|---------|
| | 1st Shift | | 2nd Shift | | 3rd Shift | | Total/Day | Break Down | Idling | |
| | Incoming | Outgoing | Incoming | Outgoing | Incoming | Outgoing | | | | |
| 15.07.2004 | 99 | 127 | 26 | 40 | 107 | 69 | 232 | 236 | | |
| 16.07.2004 | 87 | 123 | 30 | 42 | 94 | 68 | 211 | 233 | | |
| 17.07.2004 | 93 | 108 | 28 | 44 | 105 | 63 | 226 | 215 | | |
| 18.07.2004 | 106 | 123 | 31 | 50 | 97 | 60 | 234 | 233 | | |
| 19.07.2004 | 114 | 129 | 29 | 54 | 83 | 53 | 226 | 236 | | |
| 20.07.2004 | 133 | 125 | 25 | 34 | 108 | 76 | 266 | 235 | | |
| 21.07.2004 | 116 | 141 | 29 | 34 | 100 | 64 | 245 | 239 | | |

CV : Collection Vehicle

N. B (i) Total Number of CV Operates/day (Av.) from Central Garage

(ii) Number of Trips made/CV/day (Av.)

(iii) Average Number of Break down/Idling (Av.)

- 232

- 1.38

-

(% of Outgoing CVs)

SOLID WASTE AMOUNT AND COMPOSITION SURVEY (RAINY SEASON)

Table 7.16 : Component wise Laboratory Result of Generated Waste

Laboratory Name : Transportation Engineering Laboratory (Room # 01), Ground Floor,
Civil Engineering Building (Old), Buet, Dhaka

Component Name : **Recyclable Papers** **Sampling Date** : 10.08.2004

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|------------|--------------|-------------------|----------------------|-----------------------------|
| 1 | R - U - RP | Recyclable Papers | 5.26 | |
| 2 | R - M - RP | Do | 2.33 | |
| 3 | R - LM - RP | Do | 7.37 | |
| 4 | R - L - RP | Do | 5.00 | |
| 5 | R - S - RP | Do | | Component was not available |
| 6 | C - R - RP | Do | | Do |
| 7 | C - SHG - RP | Do | 7.27 | |
| 8 | PF - RP | Do | 4.40 | |
| 9 | MR - RP | Do | 18.18 | |
| 10 | Rd - Sw - RP | Do | 34.38 | |
| Average-RP | | | 10.52 | |

Component Name : **Other Papers**

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|------------|--------------|-----------|----------------------|---------|
| 1 | R - U - OP | Others | 29.37 | |
| 2 | R - M - OP | Do | 3.85 | |
| 3 | R - LM - OP | Do | 35.11 | |
| 4 | R - L - OP | Do | 22.22 | |
| 5 | R - S - OP | Do | 13.21 | |
| 6 | C - R - OP | Do | 67.59 | |
| 7 | C - SHG - OP | Do | 27.69 | |
| 8 | PF - OP | Do | 3.03 | |
| 9 | MR - OP | Do | 10.87 | |
| 10 | Rd - Sw - OP | Do | 37.78 | |
| Average-OP | | | 25.07 | |

Component Name : **Food Waste/ Vegetable Matter**

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|------------|--------------|-----------|----------------------|---------|
| 1 | R - U - FW | Others | 63.32 | |
| 2 | R - M - FW | Do | 79.49 | |
| 3 | R - LM - FW | Do | 76.68 | |
| 4 | R - L - FW | Do | 81.69 | |
| 5 | R - S - FW | Do | 88.17 | |
| 6 | C - R - FW | Do | 69.48 | |
| 7 | C - SHG - FW | Do | 70.38 | |
| 8 | PF - FW | Do | 56.60 | |
| 9 | MR - FW | Do | 82.35 | |
| 10 | Rd - Sw - FW | Do | 79.75 | |
| Average-FW | | | 74.79 | |

Component Name : **Textiles**

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-------------|-----------|----------------------|-----------------------------|
| 1 | R - U - T | Others | 22.46 | |
| 2 | R - M - T | Do | 44.51 | |
| 3 | R - LM - T | Do | 31.05 | |
| 4 | R - L - T | Do | 33.80 | |
| 5 | R - S - T | Do | 23.36 | |
| 6 | C - R - T | Do | | Component was not available |
| 7 | C - SHG - T | Do | 85.48 | |
| 8 | PF - T | Do | | Component was not available |
| 9 | MR - T | Do | 5.00 | |
| 10 | Rd - Sw - T | Do | 41.27 | |
| Average-T | | | 35.87 | |

Component Name : Grass & Yard Waste

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-------------|-----------|----------------------|-----------------------------|
| 1 | R - U - G | Others | 48.00 | |
| 2 | R - M - G | Do | 88.00 | |
| 3 | R - LM - G | Do | 51.11 | |
| 4 | R - L - G | Do | 86.32 | |
| 5 | R - S - G | Do | 68.18 | |
| 6 | C - R - G | Do | | Component was not available |
| 7 | C - SHG - G | Do | | Do |
| 8 | PF - G | Do | 50.00 | |
| 9 | MR - G | Do | 70.21 | |
| 10 | Rd - Sw - G | Do | 46.67 | |
| Average-G | | | 63.56 | |

Component Name : Wood

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-------------|-----------|----------------------|-----------------------------|
| 1 | R - U - W | Others | | Component was not available |
| 2 | R - M - W | Do | 7.32 | |
| 3 | R - LM - W | Do | 36.61 | |
| 4 | R - L - W | Do | 57.58 | |
| 5 | R - S - W | Do | 20.11 | |
| 6 | C - R - W | Do | | Component was not available |
| 7 | C - SHG - W | Do | 12.79 | |
| 8 | PF - W | Do | | Component was not available |
| 9 | MR - W | Do | 17.12 | |
| 10 | Rd - Sw - W | Do | | Component was not available |
| Average-W | | | 25.26 | |

Component Name : Plastic Sheet

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|------------|--------------|-----------|----------------------|---------|
| 1 | R - U - PS | Others | 4.11 | |
| 2 | R - M - PS | Do | 11.11 | |
| 3 | R - LM - PS | Do | 10.71 | |
| 4 | R - L - PS | Do | 3.57 | |
| 5 | R - S - PS | Do | 15.63 | |
| 6 | C - R - PS | Do | 57.04 | |
| 7 | C - SHG - PS | Do | 50.00 | |
| 8 | PF - PS | Do | 14.29 | |
| 9 | MR - PS | Do | 52.25 | |
| 10 | Rd - Sw - PS | Do | 32.35 | |
| Average-PS | | | 25.11 | |

Component Name : Polythylene Bottles

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|------------|--------------|-----------|----------------------|-----------------------------|
| 1 | R - U - PB | Others | | Component was not available |
| 2 | R - M - PB | Do | 3.17 | |
| 3 | R - LM - PB | Do | 4.35 | |
| 4 | R - L - PB | Do | 2.74 | |
| 5 | R - S - PB | Do | 1.67 | |
| 6 | C - R - PB | Do | | Component was not available |
| 7 | C - SHG - PB | Do | 1.79 | |
| 8 | PF - PB | Do | 1.79 | |
| 9 | MR - PB | Do | 2.17 | |
| 10 | Rd - Sw - PB | Do | | Component was not available |
| Average-PB | | | 2.53 | |

Component Name : Other Plastic Bottles

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-------------|---------------|-----------|----------------------|-----------------------------|
| 1 | R - U - OPB | Others | 18.12 | |
| 2 | R - M - OPB | Do | 3.51 | |
| 3 | R - LM - OPB | Do | 8.20 | |
| 4 | R - L - OPB | Do | 3.45 | |
| 5 | R - S - OPB | Do | | Component was not available |
| 6 | C - R - OPB | Do | | Do |
| 7 | C - SHG - OPB | Do | | Do |
| 8 | PF - OPB | Do | | Do |
| 9 | MR - OPB | Do | | Do |
| 10 | Rd - Sw - OPB | Do | 2.21 | |
| Average-OPB | | | 7.10 | |

Component Name : Rubber

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-------------|-----------|----------------------|-----------------------------|
| 1 | R - U - R | Rubber | | |
| 2 | R - M - R | Do | 2.10 | |
| 3 | R - LM - R | Do | 2.21 | |
| 4 | R - L - R | Do | 1.09 | |
| 5 | R - S - R | Do | 0.69 | |
| 6 | C - R - R | Do | | Component was not available |
| 7 | C - SHG - R | Do | | Do |
| 8 | PF - R | Do | 1.33 | |
| 9 | MR - R | Do | | Component was not available |
| 10 | Rd - Sw - R | Do | | Do |
| Average-R | | | 1.48 | |

Component Name : Leather

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-------------|-----------|----------------------|-----------------------------|
| 1 | R - U - L | Leather | | Component was not available |
| 2 | R - M - L | Do | 13.43 | |
| 3 | R - LM - L | Do | 24.00 | |
| 4 | R - L - L | Do | 4.17 | |
| 5 | R - S - L | Do | | Component was not available |
| 6 | C - R - L | Do | | Do |
| 7 | C - SHG - L | Do | | Do |
| 8 | PF - L | Do | | Do |
| 9 | MR - L | Do | 1.33 | |
| 10 | Rd - Sw - L | Do | 32.61 | |
| Average-L | | | 15.11 | |

Component Name : Others

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-------------|-----------|----------------------|-----------------------------|
| 1 | R - U - O | Others | 0.69 | |
| 2 | R - M - O | Do | 3.61 | |
| 3 | R - LM - O | Do | 11.29 | |
| 4 | R - L - O | Do | 2.08 | |
| 5 | R - S - O | Do | 1.01 | |
| 6 | C - R - O | Do | | Component was not available |
| 7 | C - SHG - O | Do | 5.41 | |
| 8 | PF - O | Do | 2.60 | |
| 9 | MR - O | Do | 11.76 | |
| 10 | Rd - Sw - O | Do | 12.28 | |
| Average-O | | | 5.64 | |

SOLID WASTE AMOUNT AND COMPOSITION SURVEY (RAINY SEASON)

Table 7.17 : Component wise Laboratory Result of Incoming Waste

Laboratory Name : Transportation Engineering Laboratory (Room # 01), Ground Floor,
Civil Engineering Building (Old), Buet, Dhaka

Component Name : Recyclable Papers **Sampling Date** : 18.08.2004

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|------------|------------|-------------------|----------------------|-----------------------------|
| 1 | Zone-1-RP | Recyclable Papers | | Component was not available |
| 2 | Zone-2-RP | Do | | Do |
| 3 | Zone-3-RP | Do | | Do |
| 4 | Zone-4-RP | Do | | Do |
| 5 | Zone-5-RP | Do | | Do |
| 6 | Zone-6-RP | Do | | Do |
| 7 | Zone-7-RP | Do | | Do |
| 8 | Zone-8-RP | Do | 12.15 | |
| 9 | Zone-9-RP | Do | | Component was not available |
| 10 | Zone-10-RP | Do | 5.81 | |
| Average-RP | | | 8.98 | |

Component Name : Other Papers

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|------------|------------|--------------|----------------------|-----------------------------|
| 1 | Zone-1-OP | Other Papers | 25.88 | |
| 2 | Zone-2-OP | Do | 47.50 | |
| 3 | Zone-3-OP | Do | 43.51 | |
| 4 | Zone-4-OP | Do | 25.37 | |
| 5 | Zone-5-OP | Do | 26.67 | |
| 6 | Zone-6-OP | Do | 25.00 | |
| 7 | Zone-7-OP | Do | | Component was not available |
| 8 | Zone-8-OP | Do | | Do |
| 9 | Zone-9-OP | Do | | Do |
| 10 | Zone-10-OP | Do | | Do |
| Average-OP | | | 32.32 | |

Component Name : Food Waste/ Vegetable Matter

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|------------|------------|------------------------------|----------------------|---------|
| 1 | Zone-1-FW | Food Waste/ Vegetable Matter | 73.47 | |
| 2 | Zone-2-FW | Do | 88.49 | |
| 3 | Zone-3-FW | Do | 83.74 | |
| 4 | Zone-4-FW | Do | 76.74 | |
| 5 | Zone-5-FW | Do | 61.39 | |
| 6 | Zone-6-FW | Do | 65.03 | |
| 7 | Zone-7-FW | Do | 86.00 | |
| 8 | Zone-8-FW | Do | 76.74 | |
| 9 | Zone-9-FW | Do | 78.54 | |
| 10 | Zone-10-FW | Do | 66.67 | |
| Average-FW | | | 75.68 | |

Component Name : Textiles

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-----------|-----------|----------------------|---------|
| 1 | Zone-1-T | Textiles | 29.56 | |
| 2 | Zone-2-T | Do | 31.00 | |
| 3 | Zone-3-T | Do | 27.78 | |
| 4 | Zone-4-T | Do | 15.76 | |
| 5 | Zone-5-T | Do | 21.26 | |
| 6 | Zone-6-T | Do | 35.34 | |
| 7 | Zone-7-T | Do | 40.00 | |
| 8 | Zone-8-T | Do | 58.23 | |
| 9 | Zone-9-T | Do | 58.20 | |
| 10 | Zone-10-T | Do | 4.55 | |
| Average-T | | | 32.17 | |

Component Name : Grass & Yard Waste

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|----------|--------------------|----------------------|-----------------------------|
| 1 | Zone-5-G | Grass & Yard Waste | 67.07 | |
| 2 | Zone-5-G | Do | 70.24 | |
| 3 | Zone-5-G | Do | | Component was not available |
| 4 | Zone-5-G | Do | 47.27 | |
| 5 | Zone-5-G | Do | 50.63 | |
| 6 | Zone-5-G | Do | 78.85 | |
| 7 | Zone-5-G | Do | 91.38 | |
| 8 | Zone-5-G | Do | 63.64 | |
| 9 | Zone-5-G | Do | 46.88 | |
| 10 | Zone-5-G | Do | 60.78 | |
| Average-G | | | 72.09 | |

Component Name : Wood

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-----------|-----------|----------------------|-----------------------------|
| 1 | Zone-1-W | Wood | 10.29 | |
| 2 | Zone-2-W | Do | | Component was not available |
| 3 | Zone-3-W | Do | 9.84 | |
| 4 | Zone-4-W | Do | 35.48 | |
| 5 | Zone-5-W | Do | 10.81 | |
| 6 | Zone-6-W | Do | 34.85 | |
| 7 | Zone-7-W | Do | | Component was not available |
| 8 | Zone-8-W | Do | 18.64 | |
| 9 | Zone-9-W | Do | 20.36 | |
| 10 | Zone-10-W | Do | 29.80 | |
| Average-W | | | 21.26 | |

Component Name : Plastic Sheet

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|------------|------------|---------------|----------------------|---------|
| 1 | Zone-1-PS | Plastic Sheet | 10.53 | |
| 2 | Zone-2-PS | Do | 53.13 | |
| 3 | Zone-3-PS | Do | 30.30 | |
| 4 | Zone-4-PS | Do | 9.09 | |
| 5 | Zone-5-PS | Do | 51.56 | |
| 6 | Zone-6-PS | Do | 5.26 | |
| 7 | Zone-7-PS | Do | 46.34 | |
| 8 | Zone-8-PS | Do | 45.45 | |
| 9 | Zone-9-PS | Do | 40.30 | |
| 10 | Zone-10-PS | Do | 37.50 | |
| Average-PS | | | 32.95 | |

Component Name : Polythylene Bottles

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|------------|------------|---------------------|----------------------|-----------------------------|
| 1 | Zone-1-PB | Polythylene Bottles | | Component was not available |
| 2 | Zone-2-PB | Do | 1.61 | |
| 3 | Zone-3-PB | Do | | Component was not available |
| 4 | Zone-4-PB | Do | | Do |
| 5 | Zone-5-PB | Do | | Do |
| 6 | Zone-6-PB | Do | | Do |
| 7 | Zone-7-PB | Do | | Do |
| 8 | Zone-8-PB | Do | 4.76 | |
| 9 | Zone-9-PB | Do | 6.82 | |
| 10 | Zone-10-PB | Do | | Component was not available |
| Average-PB | | | 4.40 | |

Component Name : Other Plastic Bottles

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-------------|-------------|----------------------------|----------------------|-----------------------------|
| 1 | Zone-1-OPB | Other Polyethylene Bottles | | Component was not available |
| 2 | Zone-2-OPB | Do | | Do |
| 3 | Zone-3-OPB | Do | | Do |
| 4 | Zone-4-OPB | Do | | Do |
| 5 | Zone-5-OPB | Do | | Do |
| 6 | Zone-6-OPB | Do | | Do |
| 7 | Zone-7-OPB | Do | | Do |
| 8 | Zone-8-OPB | Do | | Do |
| 9 | Zone-9-OPB | Do | | Do |
| 10 | Zone-10-OPB | Do | | Do |
| Average-OPB | | | 0.00 | Component was not available |

Component Name : Rubber

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-----------|-----------|----------------------|-----------------------------|
| 1 | Zone-1-R | Rubber | 14.81 | |
| 2 | Zone-2-R | Do | | Component was not available |
| 3 | Zone-3-R | Do | 1.89 | |
| 4 | Zone-4-R | Do | 6.74 | |
| 5 | Zone-5-R | Do | 4.26 | |
| 6 | Zone-6-R | Do | | Component was not available |
| 7 | Zone-7-R | Do | 2.80 | |
| 8 | Zone-8-R | Do | 1.94 | |
| 9 | Zone-9-R | Do | 10.17 | |
| 10 | Zone-10-R | Do | 4.00 | |
| Average-R | | | 5.83 | |

Component Name : Leather

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-----------|-----------|----------------------|-----------------------------|
| 1 | Zone-1-L | Leather | 4.08 | |
| 2 | Zone-2-L | Do | | Component was not available |
| 3 | Zone-3-L | Do | 52.63 | |
| 4 | Zone-4-L | Do | 18.09 | |
| 5 | Zone-5-L | Do | 12.50 | |
| 6 | Zone-6-L | Do | 11.43 | |
| 7 | Zone-7-L | Do | 25.00 | |
| 8 | Zone-8-L | Do | 29.41 | |
| 9 | Zone-9-L | Do | 28.57 | |
| 10 | Zone-10-L | Do | 13.11 | |
| Average-L | | | 21.65 | |

Component Name : Composite

| Sl. No. | Code | Item Name | Moisture Content (%) | Remarks |
|-----------|-----------|-----------|----------------------|---------|
| 1 | Zone-1-C | Composite | 19.57 | |
| 2 | Zone-2-C | Do | 71.64 | |
| 3 | Zone-3-C | Do | 33.33 | |
| 4 | Zone-4-C | Do | 58.68 | |
| 5 | Zone-5-C | Do | 5.45 | |
| 6 | Zone-6-C | Do | 58.25 | |
| 7 | Zone-7-C | Do | 69.09 | |
| 8 | Zone-8-C | Do | 45.59 | |
| 9 | Zone-9-C | Do | 45.00 | |
| 10 | Zone-10-C | Do | 52.24 | |
| Average-C | | | 45.88 | |

Table 7.18 : Zone wise Summary of Incoming Waste

| Number of Zone | Date | No. of Trips Made | Total Waste Amount (Ton) | Total Waste Volume (m ³) | Remarks |
|--------------------------|------------|-------------------|--------------------------|--------------------------------------|---------|
| Zone - 01 | 26.07.2004 | 36 | 85.80 | 134.38 | |
| | 27.07.2004 | 45 | 117.84 | 178.54 | |
| | 28.07.2004 | 43 | 120.24 | 183.46 | |
| | 29.07.2004 | 52 | 135.14 | 233.54 | |
| | 30.07.2004 | 37 | 97.42 | 164.97 | |
| | 31.07.2004 | 55 | 132.46 | 223.83 | |
| | 01.08.2004 | 42 | 106.50 | 164.87 | |
| Total (07 Days) | | 310 | 795.40 | 1283.59 | |
| Average (per Day) | | 44.29 | 113.63 | 183.37 | |
| Zone - 02 | 26.07.2004 | 79 | 172.88 | 279.93 | |
| | 27.07.2004 | 64 | 140.58 | 223.18 | |
| | 28.07.2004 | 85 | 194.44 | 295.41 | |
| | 29.07.2004 | 89 | 210.44 | 333.50 | |
| | 30.07.2004 | 105 | 247.08 | 416.65 | |
| | 31.07.2004 | 75 | 170.68 | 268.70 | |
| | 01.08.2004 | 83 | 201.37 | 322.01 | |
| Total (07 Days) | | 580 | 1337.47 | 2139.38 | |
| Average (per Day) | | 82.86 | 191.07 | 305.63 | |
| Zone - 03 | 26.07.2004 | 44 | 143.20 | 225.73 | |
| | 27.07.2004 | 25 | 88.14 | 124.03 | |
| | 28.07.2004 | 25 | 69.58 | 100.85 | |
| | 29.07.2004 | 24 | 63.06 | 90.14 | |
| | 30.07.2004 | 39 | 126.64 | 181.94 | |
| | 31.07.2004 | 24 | 72.06 | 101.10 | |
| | 01.08.2004 | 34 | 88.08 | 123.46 | |
| Total (07 Days) | | 215 | 650.76 | 947.25 | |
| Average (per Day) | | 30.71 | 92.97 | 135.32 | |
| Zone - 04 | 26.07.2004 | 46 | 118.62 | 197.96 | |
| | 27.07.2004 | 65 | 175.92 | 296.59 | |
| | 28.07.2004 | 53 | 124.98 | 214.52 | |
| | 29.07.2004 | 56 | 125.26 | 214.58 | |
| | 30.07.2004 | 57 | 131.80 | 241.39 | |
| | 31.07.2004 | 51 | 128.44 | 219.39 | |
| | 01.08.2004 | 56 | 132.60 | 229.15 | |
| Total (07 Days) | | 384 | 937.62 | 1613.58 | |
| Average (per Day) | | 54.86 | 133.95 | 230.51 | |
| Zone - 05 | 26.07.2004 | 92 | 313.34 | 520.44 | |
| | 27.07.2004 | 89 | 293.51 | 514.22 | |
| | 28.07.2004 | 95 | 257.45 | 483.20 | |
| | 29.07.2004 | 87 | 233.96 | 421.85 | |
| | 30.07.2004 | 79 | 251.04 | 438.86 | |
| | 31.07.2004 | 84 | 206.62 | 331.47 | |
| | 01.08.2004 | 79 | 228.71 | 384.56 | |
| Total (07 Days) | | 605 | 1784.63 | 3094.60 | |
| Average (per Day) | | 86.43 | 254.95 | 442.09 | |