3.Time & Motion Survey

1. INTRODUCTION

In Bangladesh, appropriate waste disposal measures in the urban area are urgently needed due to the rapid population growth. Dhaka Metropolitan Area (Dhaka City and the surrounding areas) has a population of over 10 million at present and its growing waste volume has become one of the most critical issues in Dhaka City.

In the Dhaka urban area, inappropriate waste disposal and uncollected wastes at the waste collection stations are giving rise to scattered garbage, offensive odour, and polluted water as well as birth of mosquitoes and flies. The present situation has deteriorated sanitary environment in the urban areas and could also have adverse impacts on the health of the residential people.

Furthermore, the collected wastes are being transported to the final disposal site without taking any necessary environmental protection measures. The wastes are almost in the category of illegally dumped wastes, which could be forecasted as reaching its capacity within two or three years and a new disposal site needs to be selected urgently.

At present, the waste generation rate in Dhaka is around 0.5 kg/day per capita and the total amount of the waste generation in the city is around 5,000 tons per day. Though this rate is not considerably high compared with that of other developing countries but in future, the generated waste will be increased significantly due to the economic and population growth of the city.

The wastes are also not segregated among municipal wastes, medical wastes, and industrial wastes; therefore, the waste collection workers are at risk of infectious disease. There is also some concern about soil and groundwater pollution with toxic substances and organic matters.

Recently, Japan International Cooperation Agency (JICA) has been conducting a study on Solid waste Management of Dhaka City. As a part of the study, a Time and Motion Survey for the existing waste management system of the DCC is very much needed. Accordingly, JAPADACCA, appointed consultant of JICA study team conducted a Time and Motion survey for the existing waste management system of Dhaka City Corporation.

2. STUDY AREA

The Time and Motion Survey covered total 7 zones such as Zone no. 1 to 5, Zone no. 8 & 9 (privatization zone) under the jurisdiction of Dhaka City Corporation (DCC).

3. OBJECTIVES

The general objective of the time and motion survey is to diagnose the present collection system and to obtain basic data to plan for its improvement.

Specific objectives of the time and motion survey are as follows:

- To know how efficiently the collection equipment is used
- To know how collection workers spend their time
- To check whether the collection route is appropriate or not
- To check whether the collection time schedule is appropriate or not
- To know the crew's behavior

4. SCOPE OF WORK

Time and motion survey covered from departure to arrival of vehicle at the designated garage. 36 samples were taken considering various types of collection vehicles, working hour and collection area.

The samples were taken considering various types of collection vehicles, working hour and collection area are shown in the table 4.1.

Table 4.1: Sample Specification for Time and Motion Survey

		Open truck				Container carrier	
Capacity		>5t	5t	3t	1.5t	5t	3t
Old Dhaka(Zone 2) Night collection			1		1	1*	2
Old Dhaka(Zone 3) Night collection				1	1		
South area (Zone 4)	Day	1 **	2	2 ***	1		1
	Night					1	
Privatization area (Zone 9) Day collection			2	1			

* Same Container carrier served for zone 1 and 5 too.
** Same Open truck (> 5ton) served for zone 8 too.
*** Special trip

5. METHODOLOGY OF SURVEY

General

The survey was carried out based on the following procedures and methods.
(1) Preparation work
(2) Survey method
(3) Analysis of result
(4) Reporting

Preparation Work

All the necessary information and documents, equipment and tools were collected before starting the survey. Recruitment of personnel, coordination and preparation of data collection format are also very important for time and motion survey.

■ The following information and documents were collected for time and motion survey

(a) Map of the collection area
(b) Information book about vehicles and drivers of DCC
(c) Information about company served for zone 9.
(d) Location of DCC garage, dumping site etc.

■ The following equipment and tools were used for time and motion survey

(a) Digital watch
(b) Measure
(c) Counter
(d) Passenger car

■ Assignment of the survey team members

Data collection work in the field was assigned specifically to each member of the group as following.

(a) Leader	Map Study, counting of basket(for open truck)
(b) Member 1	Time and distance survey
(c) Member 2	Dustbin and crew behavior survey

■ Coordination prior to the time and motion survey

The survey team informed the coordinator of Solid waste management cell of Dhaka City Corporation and Transport manager about the survey for necessary cooperation. The collection helpers were informed of the objectives and general procedures of the time and motion study to avoid unnecessary conflict.

■ Three types of data collection format were designed for three types of vehicle (Open truck, Open truck > 5 ton and container carrier). Example of all data collection format are enclosed as APPENDIX- A.

Survey Method

Following the sample collection vehicle, collection route, running distance, time of each stop and start, and number of dustbin at each stop were recorded. Road condition and crew behaviour was noted too.

Analysis of Result

Result of time and motion survey includes date of survey, names of surveyors, basic information (collection zone, collection time), determination of time (travelling time, loading time, unloading time and other time), distance, number of dustbins, survey route, road and area condition, crew behaviour etc.

All the analysis of time and motion survey is enclosed in APPENDIX-B and result of survey is mentioned in chapter 7.

Reporting

The consultant has submitted the work plan and draft survey report in time.
And this survey report covers the followings:

- General including location map
- Survey method and time schedule
- Raw data collected
- Analysis of result
- Photographs showing the survey activities

6. SURVEY SCHEDULE

The field level survey for dry season was carried out from 7th February, 2004 to 1st March, 2004. Survey schedule including summary of samples collected are presented as Table-1. Total 18 nos. samples were collected covering the 7 zones. The field survey schedule is shown in table 6.1.1

Table 6.1.1: Survey Schedule for Time and Motion Survey (Dry Season)

Date of Survey	Sample No.	Zone No.	Type of Vehicle	Capacity of Vehicle (Ton)	Vehicle No.	Shift	Remarks
Feb 07, Sat	01	04	Open Truck	5	ঙ 11 - 0724	Day	Survey started
Feb 08, Sun	02	04	Open Truck	5	ম 07 - 0245	Day	
	03	04	Open Truck	3	11 - 1013	Day	Special trip
	04	04	Open Truck	3	অ 11 - 0842	Day	Special trip
Feb 09, Mon	05	04	Container	3	অ 11 - 0042	Day	
Feb 10, Tue	06	04	Open Truck	1.5	ন 8495	Day	
	07	04	Container	5	ঙ 11-0728	Night	
Feb 11, Wed	08	04, 08	Open Truck	>5	On Test - 4	Day	
Feb 12, Thu							Hartal
Feb 13, Fri							Weekly holiday
Feb 14, Sat							Hartal
Feb 15, Sun	09	02	Open Truck	5	ঙ 11-0854	Night	
Feb 16, Mon							Hartal
Feb 17, Tue	10	02	Open Truck	1.5	অ 11 - 0770	Night	
Feb 18, Wed	11	03	Open Truck	3	ঙ 6050	Night	
Feb 19, Thu	12	02	Container	3	অ 11 - 0172	Night	
Feb 20, Fri	13	02	Container	3	অ 11 - 0176	Night	Weekly holiday
Feb 21, Sat	14	1,2,5	Container	5	ঙ 11-0740	Night	National holiday
Feb 22, Sun							Waiting for schedule
Feb 23, Mon	15	09	Open Truck	5	ন 6972	Day	
Feb 24, Tue	16	09	Open Truck	3	ঙ 4755	Day	
Feb 25, Wed							Sickness of surveyor
Feb 26, Thu	17	09	Open Truck	5	ঙ 6551	Day	
Feb 27, Fri							Weekly holiday
Feb 28, Sat							Hartal
Feb 29, Sun							Waiting for schedule
Mar 01, Mon	18	03	Open Truck	1.5	অ 11 - 0753		Survey finished

The field level survey for rainy season was carried out from 26th July, 2004 to 11th August, 2004. Survey schedule including summary of samples collected are presented as Table-1. Total 18 nos. samples were collected covering the 7 zones. The field survey schedule is shown in table 6.1.2

Table 6.1.2: Survey Schedule for Time and Motion Survey (Rainy Season)

Date of Survey	Sample No.	Zone No.	Type of Vehicle	Capacity of Vehicle (Ton)	Vehicle No.	Shift	Remarks
Aug 05, Thu	01	04	Open Truck	5	ঙ 11 - 0724	Day	
Jul 31, Sat	02	04	Open Truck	5	ঙ 11 - 0855	Day	
Jul 26, Mon	03	04	Open Truck	3	11 - 1013	Day	Special trip
Jul 31, Sat	04	04	Open Truck	3	অ 11 - 0291	Day	Special trip
Aug 08, Sun	05	04	Container	3	অ 11 - 0042	Day	
Aug 07, Sat	06	04	Open Truck	1.5	ন 8495	Day	
Jul 28, Wed	07	04	Container	5	ঙ 11-0748	Night	
Jul 29, Thu	08	04, 08	Open Truck	>5	On Test - 4	Day	
Aug 01, Sun	09	02	Open Truck	5	ঙ 11-0854	Night	
Aug 03, Tue	10	02	Open Truck	1.5	অ 11 - 0628	Night	
Aug 06, Fri	11	03	Open Truck	3	ড 6050	Night	Weekly holiday
Jul 26, Mon	12	02	Container	3	অ 11 - 0172	Night	Survey Started
Jul 28, Wed	13	02	Container	3	অ 11 - 0176	Night	
Jul 31, Sat	14	1,2,5	Container	5	ঙ 11-0730	Night	
Aug 10, Tue	15	09	Open Truck	5	ন 6972	Day	Private
Aug 09, Mon	16	09	Open Truck	3	ট 4755	Day	Private
Aug 11, Wed	17	09	Open Truck	5	ট 6551	Day	Private Survey finished
Aug 03, Tue	18	03	Open Truck	1.5	অ 11 - 0753	Day	

7. RESULT OF SURVEY

7.1 PROGRESS OF WORK

DRY SEASON

Total 18 samples for dry season were taken considering various types of collection vehicles, working hour and collection area. The field survey was carried out from 7th February, 2004 to 1st March, 2004. The field survey for dry season has been completed already.

The weights of garbage were not measured because of unavailability of weighbridge in the study period. Therefor, complete analysis was not made. But net weights of garbage for open trucks were calculated from numbers of baskets and average garbage weight of the basket.

RAINY SEASON

Total 18 samples for rainy season were taken considering various types of collection vehicles, working hour and collection area as like as dry season. The field survey was carried out from 26th July, 2004 to 11th August, 2004. The field survey for rainy season has been completed already.

The weights of garbage were measured by weighbridge for sample no. 2,3,4,7,12,13 and 14. And the weights of garbage for rest of the sample were calculated from sample those weights were measured by weighbridge.

7.2 TYPE OF VEHICLE & CREW

Total 36 samples were collected depending on vehicle types, zones and shift. Out of 36 samples, 1 is of open truck (> 5t), 5 are of open truck (5t), 4 are of open truck (3t), 3 are of open truck (1.5t), 2 are of container carrier (5t) and 3 are of container carrier (3t). Crew number is the total number of people (total of driver and collectors/helpers) work in a particular vehicle and especially it depends on type of vehicle. Type of collection vehicle and crew number are shown in Table 7.2.1 and 7.2.2.

Table 7.2.1: Number of Crew Worked for different types of Vehicles (Dry Season)

Sample no.	Vehicle No.	Type of vehicle	Zone	Shift	No. of trip	No. of Crew*
1	উ 11 - 0724	Open truck (5t)	4	Day	3	5
2	ম 07 - 0245	Open truck (5t)	4	Day	1	5
9	উ 11-0854	Open truck (5t)	2	Night	2	5
11	ড 6050	Open truck (3t)	3	Night	2	4
3	11 - 1013	Open truck (3t)	4	Day	2	5
4	অ 11 - 0842	Open truck (3t)	4	Day	1	3
6	ন 8495	Open truck (1.5t)	4	Day	2	3
10	অ 11 - 0770	Open truck (1.5t)	2	Night	2	3
18	অ 11 - 0753	Open truck (1.5t)	3	Day	2	4
15	ন 6972	Open truck (5t)	9	Day	2	5
17	উ 6551	Open truck (5t)	9	Day	2	4
16	উ 4755	Open truck (3t)	9	Day	2	4
5	অ 11 - 0042	Container (3t)	4	Day	6	2
7	উ 11-0728	Container (5t)	4	Night	4	3
14	উ 11-0740	Container (5t)	1,2,5	Night	5	2
12	অ 11 - 0172	Container (3t)	2	Night	3	3
13	অ 11 - 0176	Container (3t)	2	Night	4	2
8	On Test - 4	Open truck (>5t)	4 & 8	Day	2	3

* The number of crew includes the driver

Table 7.2.1: Number of Crew Worked for different types of Vehicles (Rainy Season)

Sample no.	Vehicle No.	Type of vehicle	Zone	Shift	No. of trip	No. of Crew*
1	ঙ 11 - 0724	Open truck (5t)	4	Day	2	5
2	ঙ 11 - 0855	Open truck (5t)	4	Day	1	5
9	ঙ 11-0854	Open truck (5t)	2	Night	2	5
11	ঙ 6050	Open truck (3t)	3	Night	1	4
3	11 - 1013	Open truck (3t)	4	Day	1	5
4	অ 11 - 0291	Open truck (3t)	4	Day	1	3
6	ন 8495	Open truck (1.5t)	4	Day	2	3
10	অ 11 - 0628	Open truck (1.5t)	2	Night	2	3
18	অ 11 - 0753	Open truck (1.5t)	3	Day	1	4
15	ন 6972	Open truck (5t)	9	Day	2	5
17	ট 6551	Open truck (5t)	9	Day	2	4
16	ট 4755	Open truck (3t)	9	Day	2	3
5	অ 11 - 0042	Container (3t)	4	Day	4	2
7	ঙ 11-0748	Container (5t)	4	Night	3	2
14	ঙ 11-0730	Container (5t)	1,2,5	Night	5	2
12	অ 11 - 0172	Container (3t)	2	Night	3	3
13	অ 11 - 0176	Container (3t)	2	Night	4	2
8	On Test - 4	Open truck (>5t)	4 & 8	Day	2	3

* The number of crew includes the driver

7.3 TYPE OF VEHICLE & EFFICIENCY

All the survey log sheets, Graphs, Analysis sheets, collected photographs of survey and maps are enclosed as APPENDIX- A, APPENDIX-B and APPENDIX-C , APPENDIX-D and APPENDIX-E respectvely . Efficiency of vehicle are shown in Table 7.3.1. and 7.3.2.

Result shows that the highest no. of trip for open truck is 3 and lowest is 1, but normally the number of trip for open truck is 2. Normal working hour of container carrier is less than that of open truck but the normal travelling distance of container carrier is higher than that of open truck. Normal working hour and travelling distance of open truck serving for privatization zone are higher than those of open truck of Dhaka City Corporation. But overall collection efficiency of open truck serving for privatization zone is almost same as that of open truck of DCC because the distance of collection route from garage and distance of dumping site from collection route in case of open truck serving for privatization zone are higher than those in case of open truck of Dhaka City Corporation.

Table 7.3.1: Summery of Results (Dry Season)

Sample no.	Vehicle No.	Type of vehicle	Zone	Shift	No. of trip	Total time consumed hr:min:sec	Total distance traveled km	*Overall collection efficiency Ton/hr
1	ঊ 11 - 0724	Open truck (5t)	4	Day	3	11:17:54	45.1	1.111
2	ম 07 - 0245	Open truck (5t)	4	Day	1	2:57:02	17.1	0.750
9	ঊ 11-0854	Open truck (5t)	2	Night	2	5:57:43	29.6	0.870
11	ড 6050	Open truck (3t)	3	Night	2	4:45:00	37	0.556
3	11 - 1013	Open truck (3t)	4	Day	2	8:23:12	33.8	0.480
4	অ 11 - 0842	Open truck (3t)	4	Day	1	2:12:40	22.9	0.541
6	ন 8495	Open truck (1.5t)	4	Day	2	4:17:45	28.5	0.500
10	অ 11 - 0770	Open truck (1.5t)	2	Night	2	6:56:00	34.5	0.397
18	অ 11 - 0753	Open truck (1.5t)	3	Day	2	7:02:17	45.2	0.526
15	ন 6972	Open truck (5t)	9	Day	2	10:05:49	73.3	0.625
17	ট 6551	Open truck (5t)	9	Day	2	9:33:06	66	0.882
16	ট 4755	Open truck (3t)	9	Day	2	10:37:05	75.3	0.645
5	অ 11 - 0042	Container (3t)	4	Day	6	6:27:57	84.8	1.714
7	ঊ 11-0728	Container (5t)	4	Night	4	3:02:16	69.2	3.333
14	ঊ 11-0740	Container (5t)	1,2,5	Night	5	4:15:56	86.8	3.333
12	অ 11 - 0172	Container (3t)	2	Night	3	2:29:51	40	3.158
13	অ 11 - 0176	Container (3t)	2	Night	4	3:10:21	56.4	1.622
8	On Test - 4	Open truck (>5t)	4 & 8	Day	2	6:12:09	53.7	***

* Average weight of one basket garbage 10.1 kg kg (calculated from total number of basket & weight of garbage measured by weighbridge of sample no.2 & 4 of rainy season) is used for calculation.

* Weights of garbage for container carrier are calculated from average weight of one container (3 ton and 5 ton) garbage. These average weights are calculated from weight of garbage for container carrier served in the rainy season. As an example a 3 ton container carrier served in the rainy season, if total weight carried by the carrier is X ton and no. of trip is A then, garbage carried by one trip is X/A ton. This value X/A ton/trip is used for total garbage weight calculation for dry season (for a vehicle of same capacity and served in the same zone and shift).

*** Weight was not measured

Table 7.3.2: Summery of Results (Rainy Season)

Sample no.	Vehicle No.	Type of vehicle	Zone	Shift	No. of trip	Total time consumed hr:min:sec	Total distance traveled km	*Overall collection efficiency Ton/hr
1	ঊ 11 - 0724	Open truck (5t)	4	Day	2	6:28:20	26.8	1.111
2	ঊ 11 - 0855	Open truck (5t)	4	Day	1	5:33:59	22.6	0.377
9	ঊ 11-0854	Open truck (5t)	2	Night	2	7:44:17	27.4	0.472
11	ড 6050	Open truck (3t)	3	Night	1	2:55:37	19.4	0.625
3	11 - 1013	Open truck (3t)	4	Day	1	8:20:04	31.2	0.131
4	অ 11 - 0291	Open truck (3t)	4	Day	1	3:29:10	22.2	0.476
6	ন 8495	Open truck (1.5t)	4	Day	2	6:06:08	28.5	0.577
10	অ 11 - 0628	Open truck (1.5t)	2	Night	2	7:57:36	34.2	0.465
18	অ 11 - 0753	Open truck (1.5t)	3	Day	1	2:59:15	21.1	0.517
15	ন 6972	Open truck (5t)	9	Day	2	12:16:46	74.1	0.612
17	ট 6551	Open truck (5t)	9	Day	2	12:30:55	69.7	0.769
16	ট 4755	Open truck (3t)	9	Day	2	12:56:55	70.3	0.594
5	অ 11 - 0042	Container (3t)	4	Day	4	6:33:10	62.8	1.132
7	ঊ 11-0748	Container (5t)	4	Night	3	3:07:15	62.6	2.400
14	ঊ 11-0730	Container (5t)	1,2,5	Night	5	3:56:30	68.0	3.529
12	অ 11 - 0172	Container (3t)	2	Night	3	2:27:45	38.9	3.158
13	অ 11 - 0176	Container (3t)	2	Night	4	3:40:24	52.0	1.364
8	On Test - 4	Open truck (>5t)	4 & 8	Day	2	5:36:19	53.9	***

*The weights of garbage were measured by weighbridge for sample no. 2,3,4,7,12,13 and 14.
*Average weight of one basket garbage 10.1 kg (calculated from total number of basket & weight of garbage measured by weighbridge of sample no.2 & 4 of rainy season) is used for calculation for sample no.1,6,.8,9,10,11,15,16 and 17.
*The weight of garbage for sample no.5 was calculated from sample no. 12 and 13(average weight of one container garbage).
*** Weight was not measured.

4. Water Quality Survey

Dry Season

Rainy Season

WATER QUALITY ANALYSIS SURVEY AT LANDFILL SITES

Dry Season

1. Analysis of Leachates

Figure 1 represents the BOD_5, TOC, COD_{cr} and DO and Figure 2 illustrates the turbidity, TSS, alkalinity and chloride of leachates in Matuail and Beri Bandh dumpsites. As mentioned early that the age of Matuail dumpsite is older that that of Beri Bandh dumpsite, BOD_5, TOC and COD_{cr} of the leachate in Matuail are much higher than that in Beri Bandh. In both cases the leachate is stored in confined places, which indicates the increase of the above parameters with time.

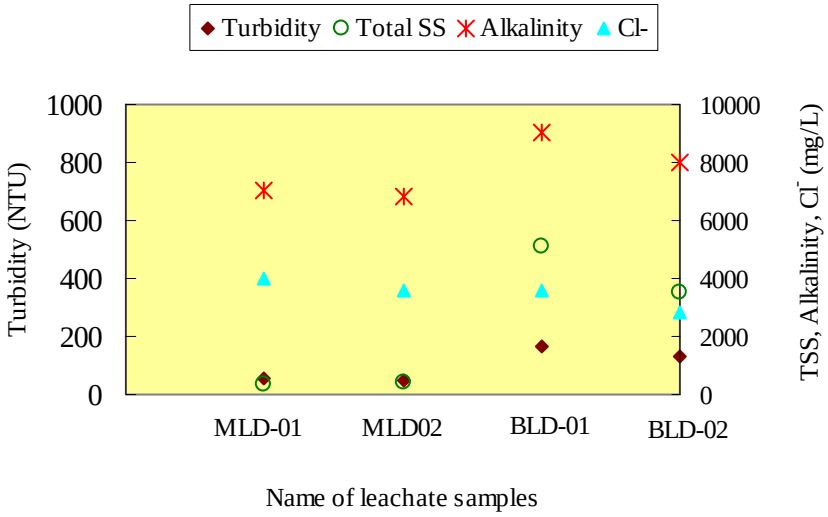

Figure 2. Turbidity, TSS, Alkalinity and Chloride of leachates in two dumpsites.

The Bangladesh standards for industrial effluent (discharged to irrigable land and inland surface water), inland surface water (irrigation purpose) and drinking water are shown in Table 3 of Appendices A, which is also shown in Appendices C 1. In Appendices C 1, the value of each parameter is compared with the respective considerable standards. In Bangladesh, there is no standard for leachate. In this report, the values for industrial effluent will be compared with the quality of leachate, while inland surface water standards will be considered as for surface water and the standards for drinking water will be considered as for groundwater. Both of dumpsites are surrounded by paddy fields. So during sampling, the

season of Dhaka as well as Bangladesh was winter and not rainy. But during rainy season, the leachate can be flushed out from the confined storage place to surrounding water bodies, which can pollute the surface water.

The BOD_5, TOC and COD_{cr} of leachates are more than 10-15 times than Bangladesh Standards for Industrial Effluent. However, DO for the leachates are also much less than the standards, which indicate the presence of too much organic compounds as well as microorganisms. In all leachates samples, the number of bacteria is also too numerical to count (TNTC).

Heavy rainfall during the monsoon is very conducive to generation of leachates at the dumping sites. Leachates have the potential of slowly moving downwards and eventually reaching the aquifer used by the city for its water supply, thus contaminating this precious resource. Surface water samples collected from locations around the dumping sites had been found to be contaminated from the leachates flowing into them. In addition, the leachates have a very high concentration of a number of toxic metals, including lead and chromium. Figure 3 presents the percentage amount of metals in different leachate samples.

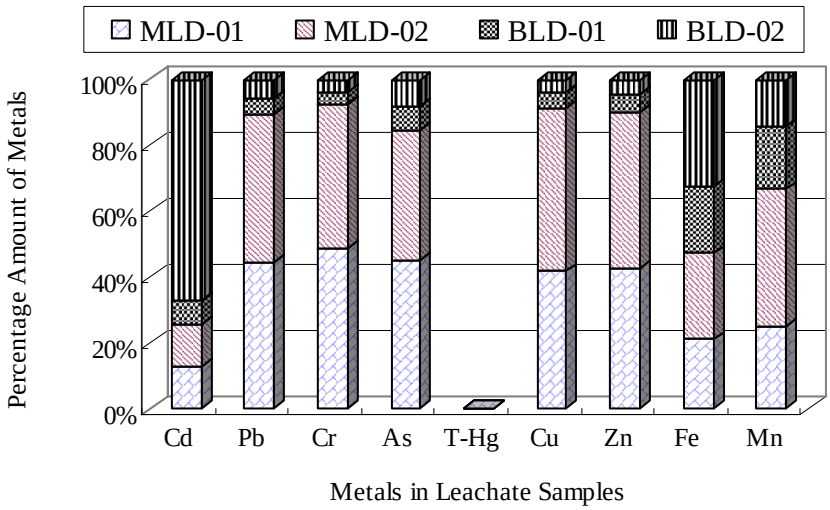

Figure 3. Percentage amount of metals inside leachate samples at the dumpsites.

The summation of concentrations for each metal of all samples was considered 100% and from that percentage, the respective percentage of each metal for different samples was calculated, which is shown in above figure. Different kinds of wastes are coming to the

dumpsites, e.g. from hospital, industry, and so on, which also contain the source of these metals. The concentration of lead and iron is too high from the standard levels.

2. Analysis of Surface Water

Figure 4 depicts the BOD_5, TOC, COD_{cr} and DO of surface waster samples at the upstream and downstream of landfill sites and also Shitolakhsama River water close to Matuail dumpsite, which represent lower values than the standard (irrigable land).

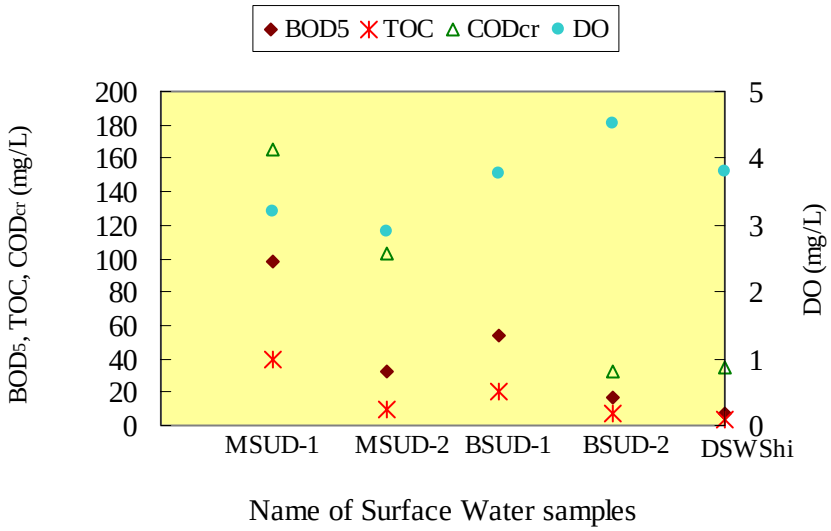

Figure 4. BOD_5, TOC, COD_{cr} and DO of surface waster samples at the upstream and downstream of landfill site and also river water close to Matuail dumpsite.

However, if these data is also considered in terms of inland surface water of industrial effluent, the surface water quality is better; even the sample from the upstream and downstream points are very close to the landfill site (5-10 meter). Before this survey on water quality, it was thought that leachate was discharged to the surrounding water bodies or open lands. Based on this concept, it was suggested in the guideline of survey to investigate the effect of water quality in the upstream and downstream of leachate discharge point. However, the leachate is stored confined places. So the upstream and downstream of sampling points mean the two different sampling points adjacent to the landfill site. The SS of samples at the upstream and downstream of landfill site of Matuail is higher than comparable standards. The levels of DO in the samples are less than the comparable value and at the same time number of bacteria is higher. However the bacterial number at the downstream point of Beri Bandh is too less than

others. Basically this pond is just another side of the landfill site, which is separated by the road.

Figure 5 shows the Turbidity, Total SS, Alkalinity and Chloride of surface waster samples at the upstream and downstream of landfill site and also river water close to Matuail dumpsite. The higher value of SS indicates the higher value of turbidity but less COD compared to the comparable standards, which indicates that surface water qualities adjacent to the landfill sites are not so bad as people think.

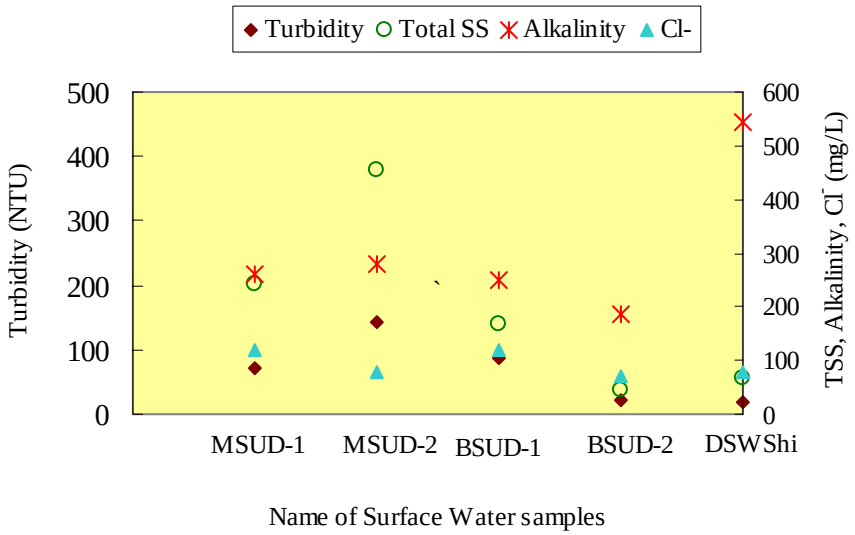

Figure 5. Turbidity, Total SS, Alkalinity and Chloride of surface waster samples at the upstream and downstream of landfill site and also river water close to Matuail dumpsite.

Figure 6 illustrates the percentage amount of metals in surface water close to the dumpsites and also the river water. There is no standard of metals for surface water. But copper, zinc and iron concentrations of river water are more or close the values of surface water adjacent to dumpsite. As it is mentioned that few jute factories are dumping their wastes directly to Shitolakhsama River without any treatment, the higher percentage of these three parameters are mostly due to the wastes from jute factories. However, more precaution should be taken to reduce the pollution of surface of waters. At the upstream point of Shitolakhsama River, a few jute factories are dumping their concentrated or diluted liquid wastes directly without or with insufficient treatment of wastes. Here the amounts of metals are also less than or very close to the comparable standards.

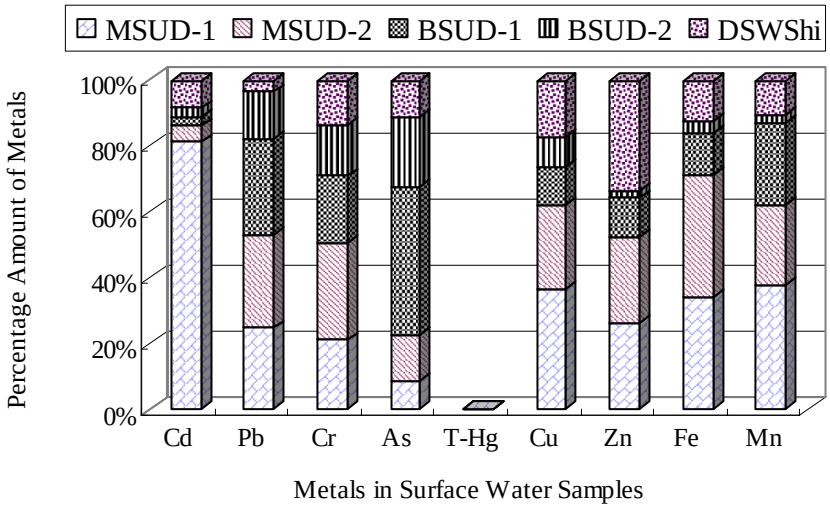

Figure 6. Percentage amount of metals inside surface water samples adjacent to dumpsites and Shitolakhsama River water.

3. Analysis of Groundwater

Figure 7 and Figure 8 give the graphical presentation of the BOD_5, TOC, COD_{cr} and DO and turbidity, TSS, alkalinity and chloride of groundwaters in Matuail and Beri Bandh dumpsites and also deep well water near the central car washing place at Sayedabadh, Dhaka respectively. The water qualities in most the cases are close and more than the drinking water standards of Bangladesh. BOD_5, SS, COD_{cr}, total phosphorus, iron and manganese of the groundwater near Matuail dumpsite are higher than standard. On the other hand, total phosphorus and SS are higher than standard in all cases. Phosphorus is used as nutrient for the microorganisms. There are many factories close to Matuail dumpsite and Beri Bandh is also close to bus stand and few mechanical workshops. The shallow tubewell water quality near Matuail dumpsite is becoming worse, which is a long-term process.

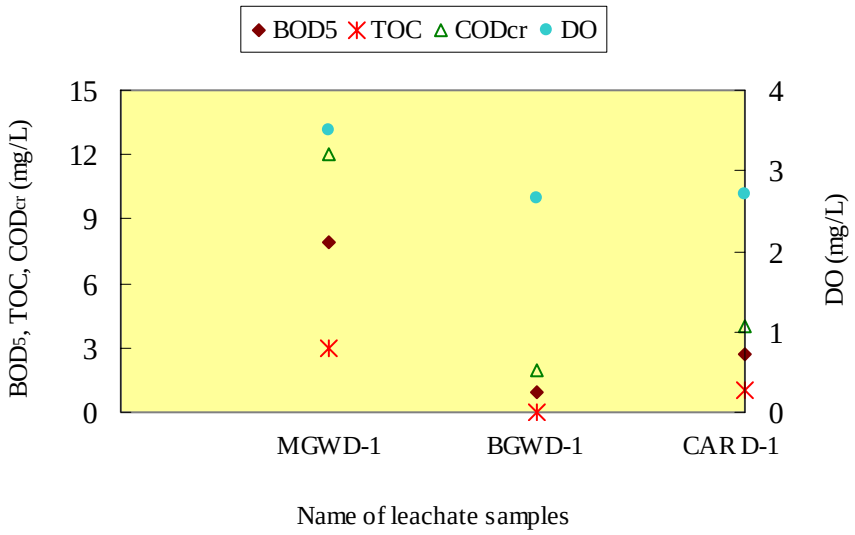

Figure 7. BOD_5, TOC, COD_{cr} and DO of groundwater samples at the landfill sites and also the deep well water near the car washing place (central garage at Dhaka).

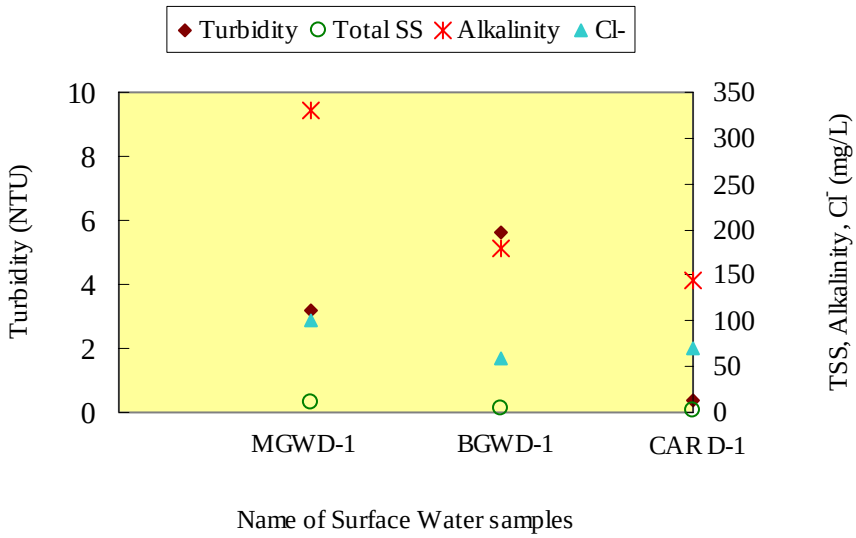

Figure 8. Turbidity, Total SS, Alkalinity and Chloride of groundwater samples at the landfill sites and also the deep well water near the car washing place (central garage at Dhaka).

Water chemistry, engineering and microbiology say that once the BOD_5, and COD_{cr}, higher, and DO is less than standard and where total phosphorus (T-P) is also high, the number of microorganisms must be higher. Here the SS is also higher, but ultimately not a single bacterium was found among the ground water samples. However, the groundwater near the dumpsite is still safe from the contamination of metals, which is shown in Figure 9.

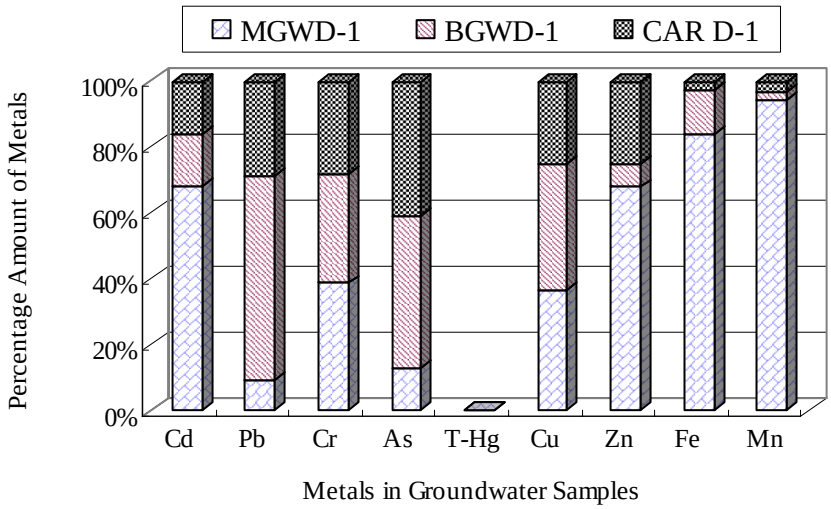

Figure 9. Percentage amount of metals inside groundwater samples adjacent to dumpsites and deep well water near the central car washing place at Sayedabadh.

It means that metals are adsorbed or absorbed by the different agents and they can also be captured depending on surface charge of the media. But higher concentrations than standard of iron and manganese in the groundwater near Matuail dumpsite are alarming.

Rainy Season

4. Analysis of Leachates

Figure-6 represents the BOD_5 and COD_{Cr} and **Figure-7** illustrates the NH_4-N, NO_3-N, T-N and DO of leachates in Matuail and Beri Bandh landfill sites. Sample ML2 was taken from the stagnant leachate of Matuail site, which contains much high BOD and COD. NH_4-N and T-N for both the samples of Matuail site are much higher than that of Beri Bandh site, which indicates the increase of the above parameters with time.

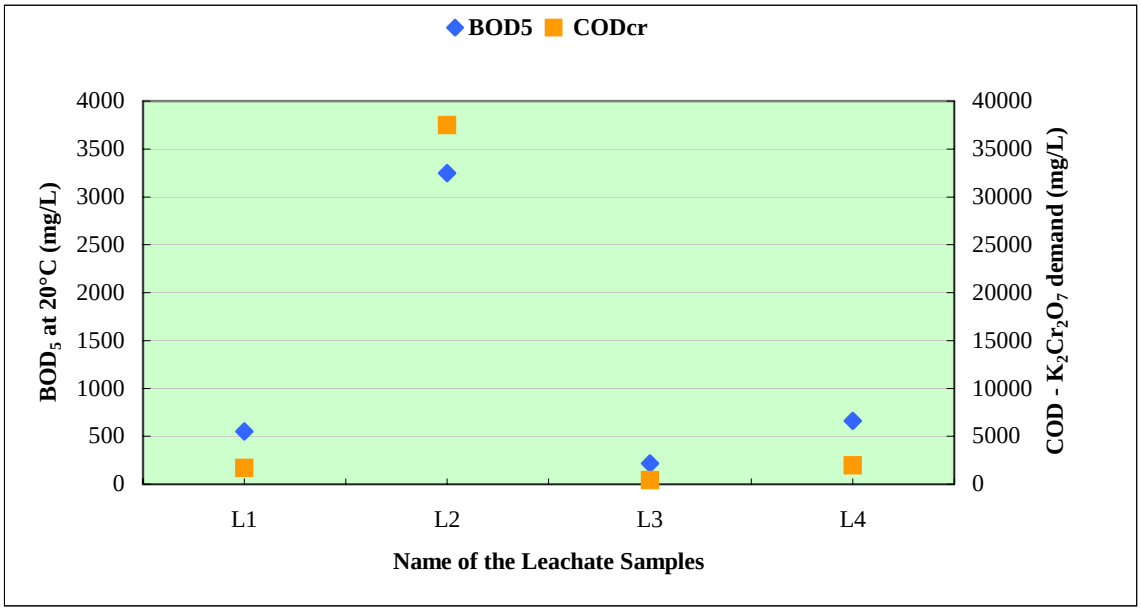

Figure-6: BOD_5 and CODcr of leachates in two landfill sites

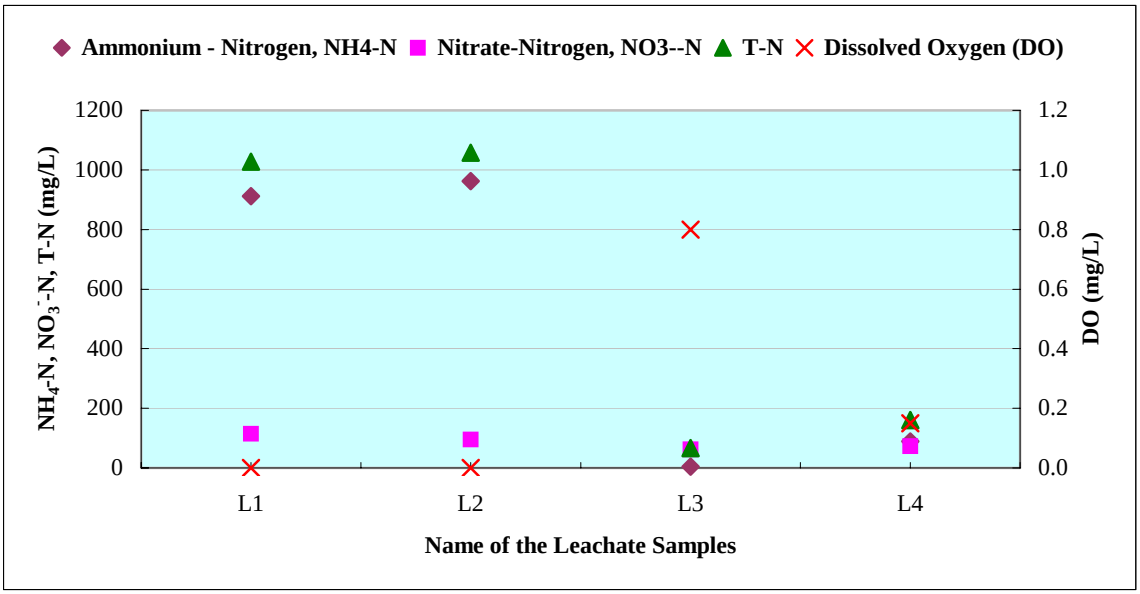

Figure-7: NH_4-N, NO_3^--N, T-N and DO of leachates in two landfill sites

Some parameters of leachate during dry season analysis have been presented in the **Figure-8** and **Figure-9** for the ready reference of the results with the rainy season sampling. Where it shows that normally concentration of all the parameters is higher than that of rainy season concentration.

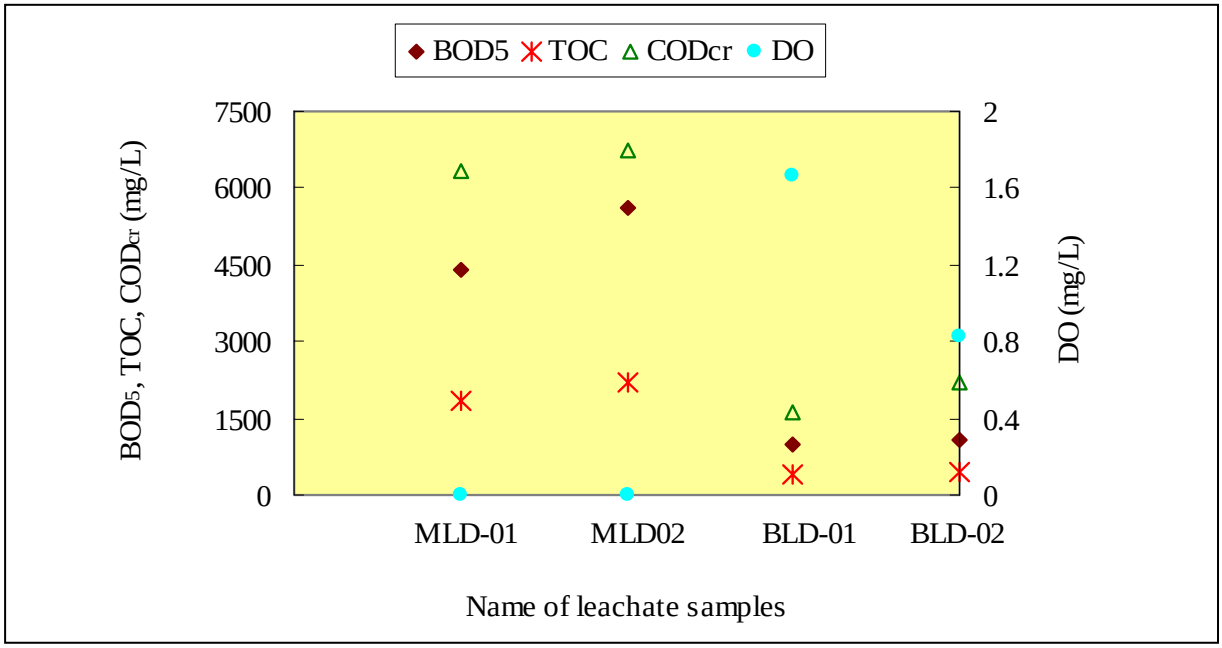

Figure-8: BOD5, TOC, CODcr and DO of leachates in two dumpsites (Dry Season)

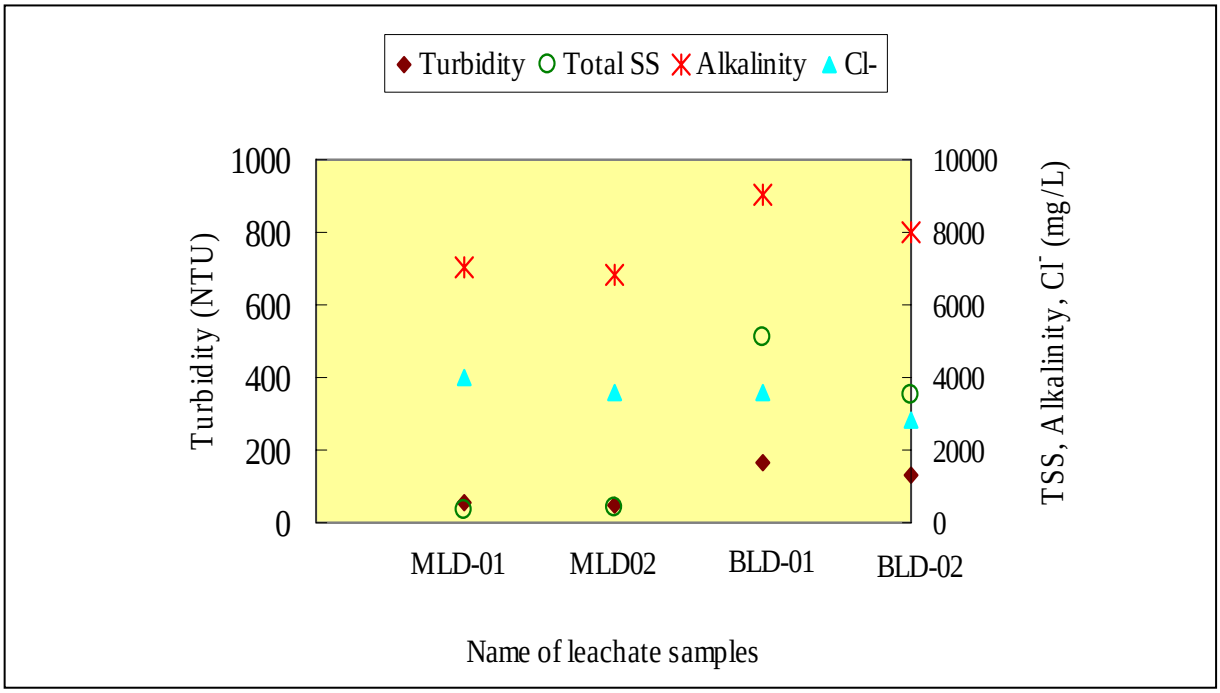

Figure-9: Turbidity, TSS, Alkalinity and Chloride of leachates in two dumpsites (Dry Season)

DO concentration is very low in the leachate. It has been observed in general that concentration of different parameters is lesser in the Rainy season sampling than that of dry season sampling, these may perhaps be due to dilution of the sample with rainwater.

The Bangladesh standards for industrial effluent (discharged to irrigable land and inland surface water), inland surface water (irrigation purpose) and drinking water are shown in Appendix-A. In **Table-3**, the value of each parameter is compared with the respective considerable standards of Bangladesh. Leachate quality will be compared with the effluent standards in Bangladesh to decide whether treatment will be required or not before discharge. In this report, the values for industrial effluent discharge to inland surface water will be compared with the quality of leachate, while inland surface water standards will be considered as for surface water and the standards for drinking water will be considered as for groundwater.

Table-3: Leachate parameters compared with the respective standards

Sl. No.	Water Quality Parameters	Unit	Concentration Present in the Sample				Bangladesh standard for Industrial effluent discharge to Inland Surface Water
			L1	L2	L3	L4	
1	PH	--	6.8	6.4	6.24	6.77	6-9
2	Electric Conductivity (EC)	µS/cm	14.69	16.85	0.28	0.18	1200
3	Turbidity	NTU	132.0	136.0	100.0	120.0	Not Fixed
4	Color (Filtered)	Pt. Co. Unit	240.0	5440.0	292	710	Not Fixed
5	Total Alkalinity as $CaCO_3$	mg/L	7660.0	11300.0	132.0	871.0	Not Fixed
6	Fecal Coliform (FC)	#/100 ml	***TNTC****	***TNTC****	***TNTC****	***TNTC****	Not Fixed
7	BOD_5 at 20°C	mg/L	550	3250.0	216.0	660.0	50
8	Total Organic Carbon	mg/L	--	--	--	--	Not Fixed
9	COD ($K_2Cr_2O_7$ Demand)	mg/L	1700.0	37500.0	430.0	1966.0	200
10	Suspended Solids (SS)	mg/L	376.0	2642.0	270.0	562.0	150
11	Dissolved Oxygen (DO)	mg/L	<0.002	<0.002	0.80	0.15	4.5-8.0
12	Ammonium-Nitrogen, NH_4-N	mg/L	912.5	962.5	4.25	88.5	50
13	Nitrate-Nitrogen, NO_3-N	mg/L	115.0	95.0	62.5	72.5	10
14	T-N	mg/L	1027.5	1057.5	66.75	161.0	100
15	Chloride, Cl	mg/L	1400.0	1520.0	24.0	104.0	600
16	Cadmium, Cd	mg/L	0.05	0.09	0.067	0.071	0.5
17	Lead, Pb	mg/L	0.035	0.376	0.013	0.027	0.10
18	Chromium, Cr	mg/L	0.519	2.999	0.018	0.029	0.50
19	Arsenic, As	mg/L	<0.002	<0.002	9.53	5.78	0.2
20	Mercury, Hg	mg/L	<0.001	<0.001	<0.001	<0.001	0.01
21	Copper, Cu	mg/L	0.13	0.65	0.033	0.071	0.50
22	Zinc, Zn	mg/L	0.31	2.5	0.17	0.40	5
23	Iron, Fe	mg/L	4.67	37.25	2.32	0.4	2
24	Manganese, Mn	mg/L	0.27	14.4	0.19	0.55	5

*TNTC** = Too numerous to count

The BOD_5, and COD_{Cr} concentration of leachate are much more higher than Bangladesh Standards for Industrial Effluent discharge to inland surface water considering sampling locations and age of the leachate. DO for the leachates are also much lesser than the standards, which indicate the presence of too much organic compounds as well as microorganisms. In all leachates samples, the number of bacteria is also too numerical to count (TNTC).

Leachate has the potential of slowly moving downwards and eventually reaching the aquifer used by the city for its water supply, thus at risk of contaminating this precious resource. Surface water samples collected from locations around the landfill sites have been found to be contaminated from the leachates flowing into them. In addition, the leachates have a very high concentration of a number of toxic metals, including lead and chromium (Matuail site). **Figure-10** presents the percentage amount of metals in different leachate samples.

The summation of concentrations for each metal of all samples was considered 100% and from that percentage, the respective percentage of each metal for different samples was calculated, which is shown in figure below. Different kinds of wastes are coming to the landfill sites, e.g. from hospital, industry, and so on, which also contain the source of these metals.

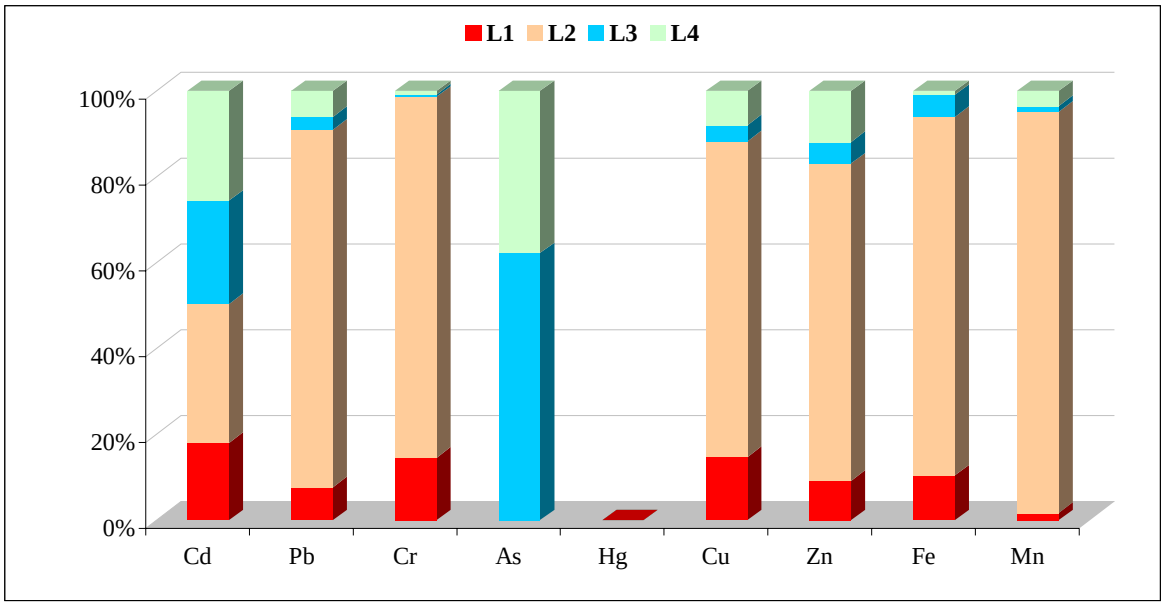

Figure-10: Percentage amount of metals in leachate of two landfill sites

5. Analysis of Surface Water

Figure-11 depicts the BOD_5, COD_{cr} and Turbidity and **Figure-12** shows the DO, SS, Cl^-, NH_4-N, T-N, etc. of surface waster samples at the landfill sites and also Shitalakshya River water close to Matuail landfill site, which show values are within the standard (inland surface water), which indicates that quality of surface water qualities adjacent to the landfill sites are not so bad as normally infer. In **Table-4**, the value of each parameter is compared with the respective considerable standards of Bangladesh inland surface water.

Considering the inland surface water of industrial effluent, the surface water quality is better; even the sample from the upstream and downstream points are very close to the landfill site (5-10 meter). The SS of samples at the upstream and downstream of landfill site of Matuail is higher than comparable standards. The levels of DO in the samples are less than the comparable value except S_1 and at the same time number of Fecal Coliform is too high.

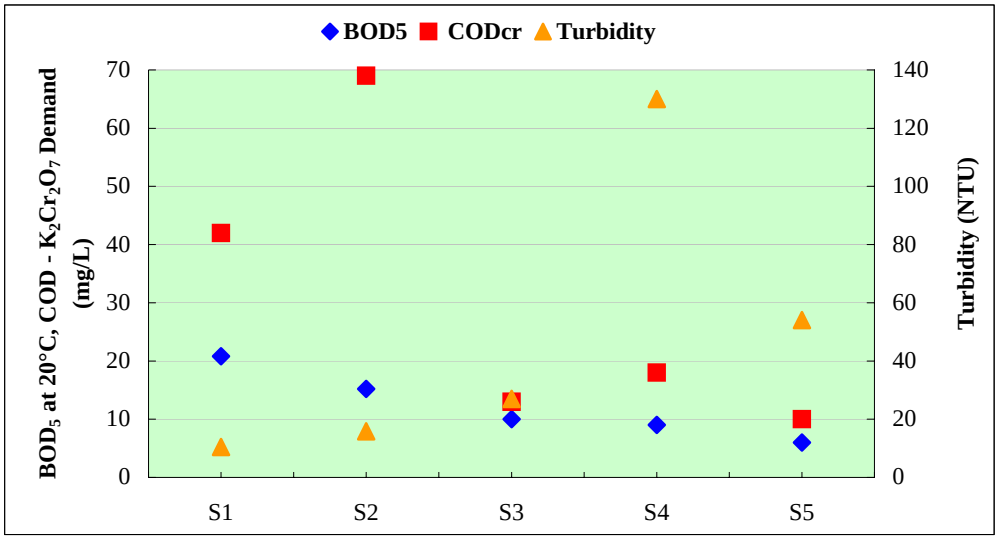

Figure-11: BOD_5 and CODcr of surface water samples near two landfill sites

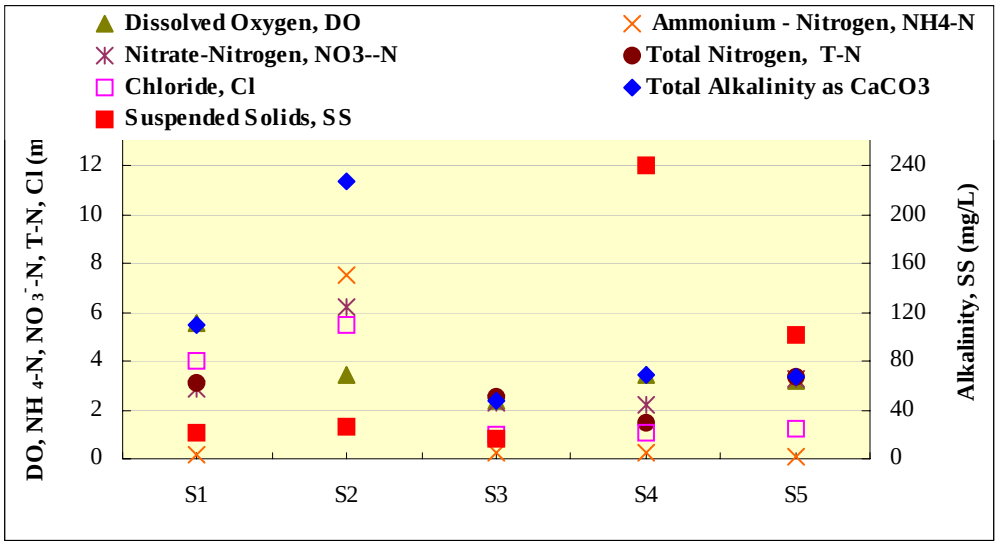

Figure-12: DO, NH_4-N, NO_3^--N, T-N, Cl, Alkalinity, SS of surface water samples near two landfill sites

Some parameters (BOD5, COD, DO, Cl, turbidity, etc.) of surface water during dry season analysis have been presented in the Figure-13 and Figure-14 for the ready reference of the results with the rainy season sampling. Where it shows that normally concentration of most of the parameters is higher than that of rainy season concentration, particularly near Matuail site samples, which indicate the influence of the landfill site is evitable with age of the same.

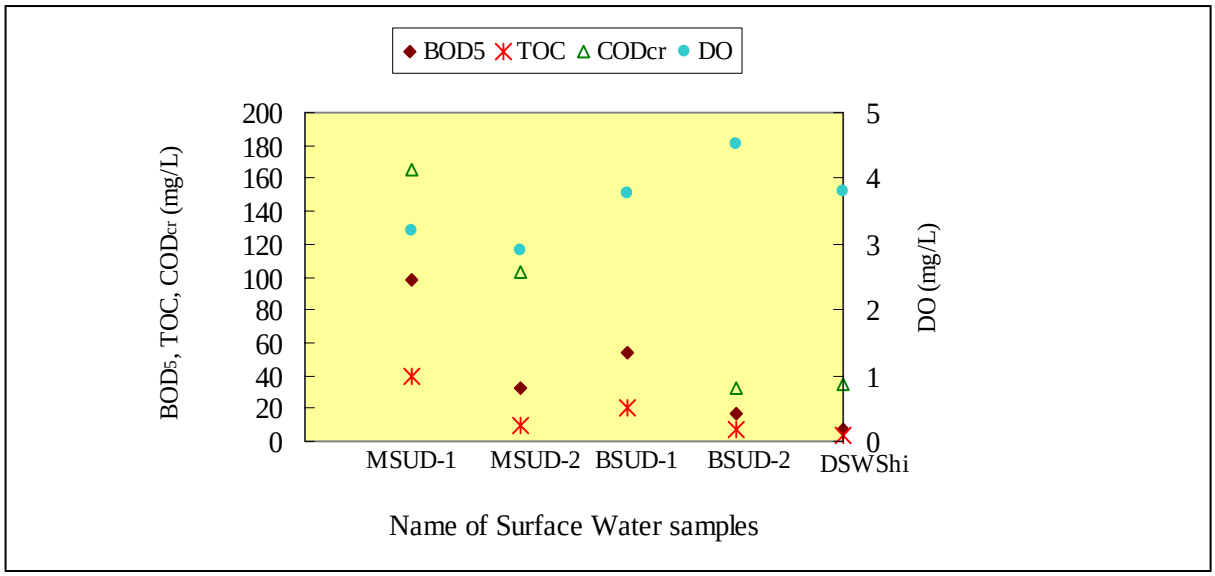

Figure 13. BOD_5, TOC, COD_{cr} and DO of surface waster samples at the upstream and downstream of landfill site and also river water close to Matuail dumpsite (Dry Season).

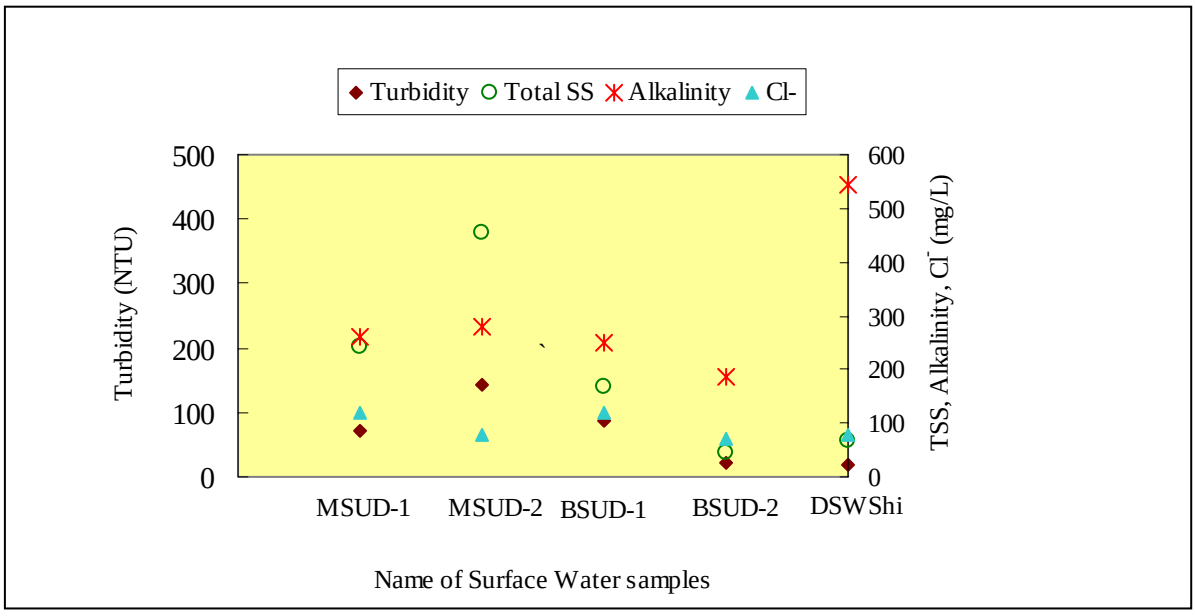

Figure 14. Turbidity, Total SS, Alkalinity and Chloride of surface waster samples at the upstream and downstream of landfill site and also river water close to Matuail dumpsite (Dry Season).

Table-4: Surface water parameters compared with the respective Standards

Sl. No.	Water Quality Parameters		Concentration Present in the Sample					Bangladesh Standard for Inland Surface water
			S1	S2	S3	S4	S5	
1	pH	--	8.66	7.73	7.36	7.6	7.24	6.5-8.5
2	Electric Conductivity (EC)	µS/cm	327	692	121	145.8	139.7	2250
3	Turbidity	NTU	10.5	15.8	27.0	130.0	54.0	Not Fixed
4	Color (Filtered)	Pt. Co. Unit	36	104	49	75	62	Not Fixed
5	Total Alkalinity as $CaCO_3$	mg/L	110	228.0	48.0	69.0	67.0	Not Fixed
6	Fecal Coliform (FC)	#/100 ml	***TNTC****	***TNTC****	***TNTC****	***TNTC****	***TNTC****	100 or less
7	BOD_5 at 20°C	mg/L	20.8	15.2	10.0	9	6	10 or less
8	Total Organic Carbon	mg/L	--	--	--	--	--	Not Fixed
9	COD ($K_2Cr_2O_7$ Demand)	mg/L	42.0	69.0	13.0	18.0	10.0	Not Fixed
10	Suspended Solids (SS)	mg/L	21.0	27.0	17.0	240.0	101.0	Not Fixed
11	Dissolved Oxygen (DO)	mg/L	5.54	3.43	2.35	3.4	3.2	5 or more
12	Ammonium - Nitrogen, NH_4-N	mg/L	0.20	7.5	0.25	0.25	0.05	Not Fixed
13	Nitrate-Nitrogen, NO_3-N	mg/L	2.9	6.2	2.3	2.2	3.3	Not Fixed
14	T-N	mg/L	3.1	13.7	2.55	1.45	3.35	Not Fixed
15	Chloride, Cl	mg/L	4.0	5.5	1.0	1.1	1.2	Not Fixed
16	Cadmium, Cd	mg/L	0.063	0.067	0.064	0.45	0.07	Not Fixed
17	Lead, Pb	mg/L	<0.001	<0.001	<0.001	0.625	<0.001	Not Fixed
18	Chromium, Cr	mg/L	<1.0	1.07	<1.0	<1.0	<1.0	Not Fixed
19	Arsenic, As	mg/L	3.29	1.91	0.92	<0.02	1.66	Not Fixed
20	Mercury, Hg	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	Not Fixed
21	Copper, Cu	mg/L	0.09	0.02	0.006	0.025	0.016	Not Fixed
22	Zinc, Zn	mg/L	0.14	0.02	0.05	0.079	0.01	Not Fixed
23	Iron, Fe	mg/L	0.46	0.57	0.84	4.80	1.65	Not Fixed
24	Manganese, Mn	mg/L	0.001	0.014	0.002	0.015	0.009	Not Fixed

*TNTC**= Too Numerous to count

Figure-15 illustrates the percentage of metals in surface water close to the dumpsites and also the river water. It shows that Cadmium, Chromium and Arsenic concentrations are higher than the compared standard values. The smaller values of the metal may be due to the floodwater and excessive rain during the survey period. The amounts of metals are also less than or close to the comparable standards.

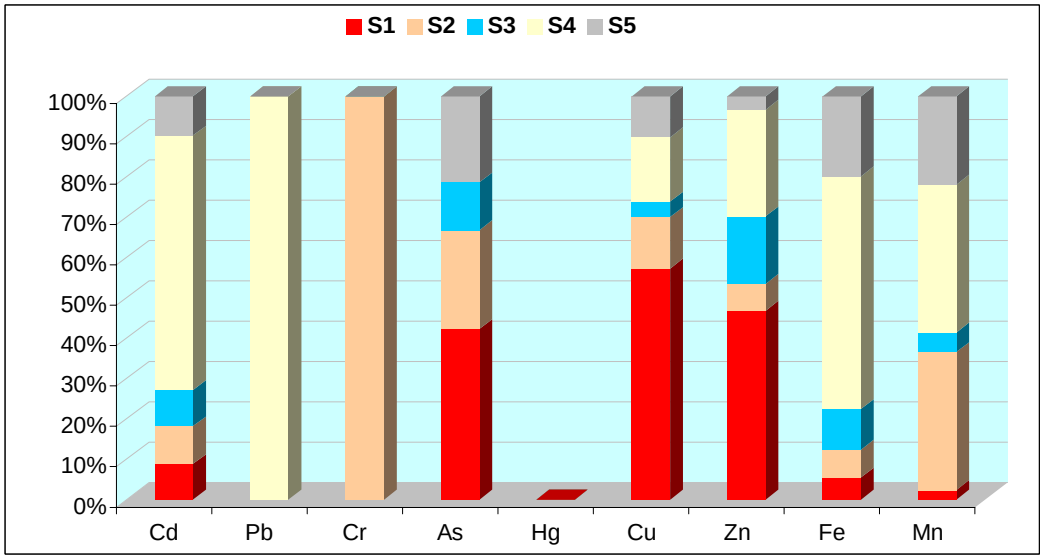

Figure-15: Percentage amount of metals in surface water samples near two landfill sites

6. Analysis of Groundwater

Figure-16 and **Figure-17** give the graphical presentation of the DO, Cl^-, TOC, turbidity, alkalinity and COD_{Cr} of groundwaters in Matuail and Beri Bandh landfill sites and also deep well water near the central car washing place at Sayedabadh, Dhaka. The water qualities in most of the cases are very close to the drinking water standards of Bangladesh. Turbidity of G_1 and G_3 are higher than that of Standard value, which might be the reason of intrusion of flood water in the tube wells as these were within the flood water during samplings. Presence of Fecal Coliform in the ground water might be due to the same reason. In **Table-5**, the value of each parameter is compared with the respective considerable standards of Bangladesh drinking water.

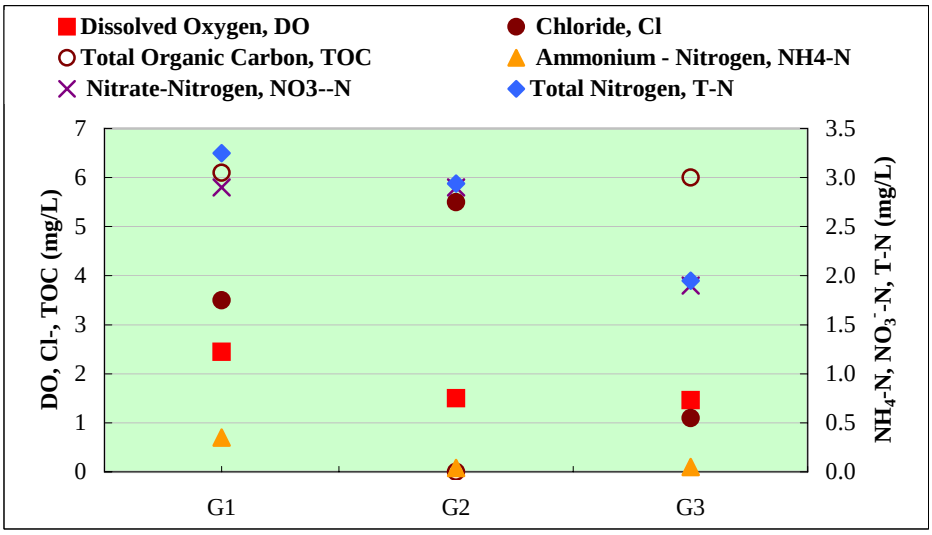

Figure-16: DO, NH4-N, NO_3^--N, T-N, Cl, TOC of ground water samples near two landfill sites

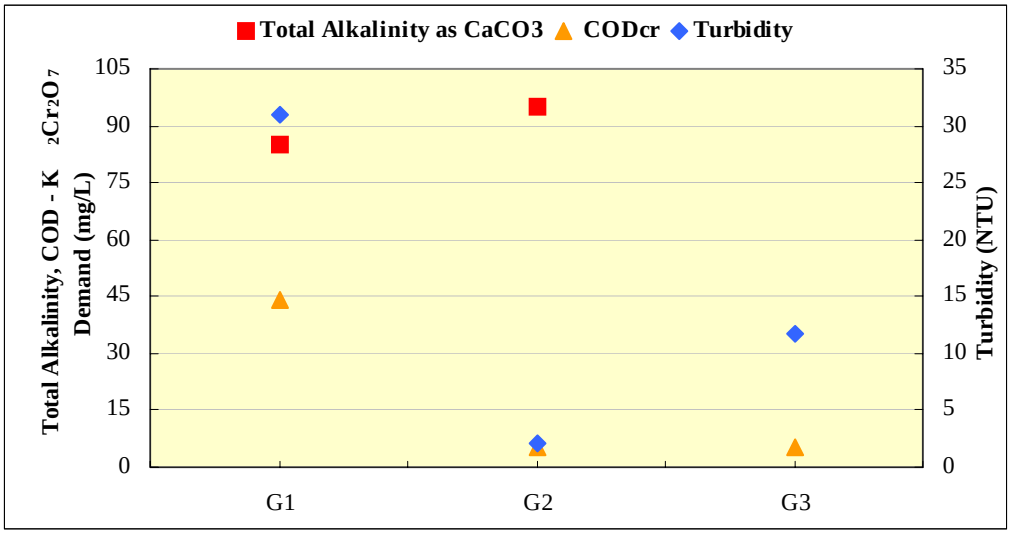

Figure-17: ALkalinity, COD and turbidity of ground water samples near two landfill sites

Table-5: Ground water parameters compared with the respective Standards

Sl. No.	Water Quality Parameters		Concentration Present in the Sample			Bangladesh Drinking water standard
			G1	G2	G3	
1	PH	--	7.1	6.46	6.7	6.5-8.5
2	Electric Conductivity (EC)	µS/cm	310.0	709.0	333.0	Not Fixed
3	Turbidity	NTU	31.0	2.1	11.8	10
4	Color (Filtered)	Pt. Co. Unit	3.3	5	22	15
5	Total Alkalinity as $CaCO_3$	mg/L	85.0	95.0	107.0	200-500
6	Fecal Coliform (FC)	#/100 ml	**TNTC***	25	3	Zero
7	BOD_5 at 20°C	mg/L	Nil	Nil	Nil	0.2
8	Total Organic Carbon	mg/L	6.1	0.0	6.0	Not Fixed
9	COD ($K_2Cr_2O_7$ Demand)	mg/L	44.0	5.0	5.0	4
10	Suspended Solids (SS)	mg/L	Nil	Nil	Nil	10
11	Dissolved Oxygen (DO)	mg/L	2.45	1.50	1.46	6
12	Ammonium - Nitrogen, NH_4-N	mg/L	0.35	0.04	0.05	Not Fixed
13	Nitrate-Nitrogen, NO_3-N	mg/L	2.9	2.9	1.9	10
14	T-N	mg/L	3.25	2.94	1.95	1
15	Chloride, Cl	mg/L	3.5	5.5	1.1	150-600 (1000 for costal area)
16	Cadmium, Cd	mg/L	0.048	0.061	0.081	0.005
17	Lead, Pb	mg/L	<0.001	<0.001	<0.001	0.05
18	Chromium, Cr	mg/L	<0.001	<0.001	<0.001	0.05
19	Arsenic, As	mg/L	0.67	<0.002	<0.002	0.05
20	Mercury, Hg	mg/L	<0.001	<0.001	<0.001	.001
21	Copper, Cu	mg/L	0.016	0.012	0.008	1.0
22	Zinc, Zn	mg/L	0.18	0.35	0.018	5
23	Iron, Fe	mg/L	1.7	0.25	0.63	0.3-1.0
24	Manganese, Mn	mg/L	0.013	0.20	0.048	0.1

*TNTC**= Too numerous to count

Figure-18 and Figure- 19 show some parameters concentration of ground water during dry season sampling, which represent relatively better quality of ground water than rainy season.

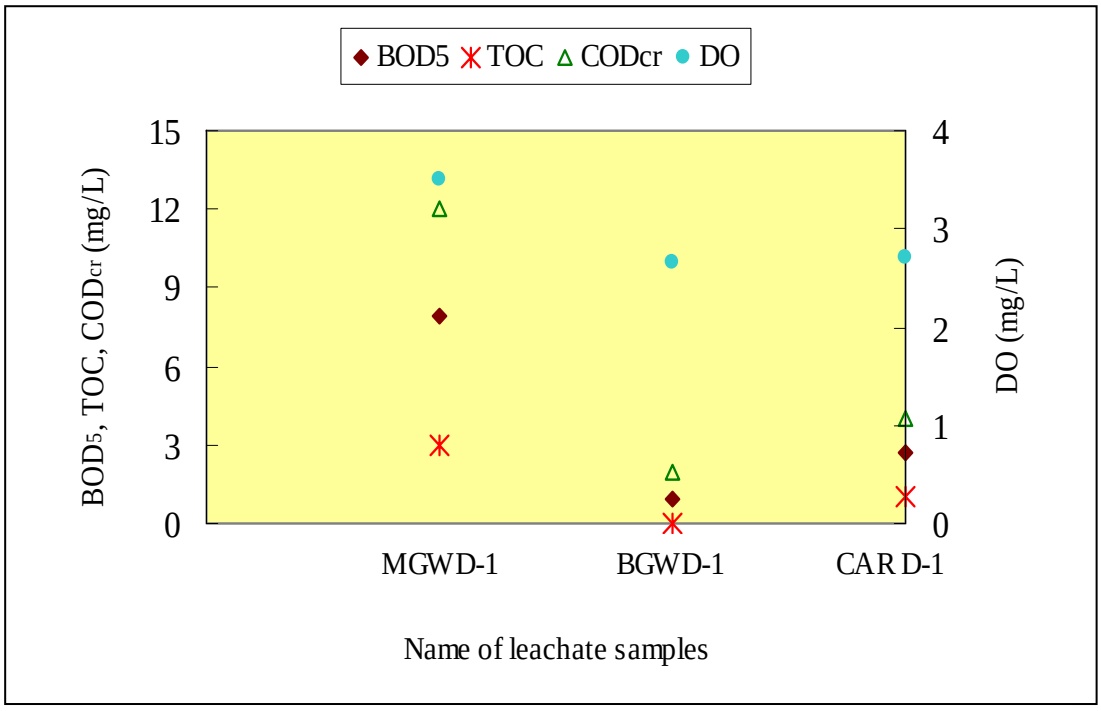

Figure 18. BOD_5, TOC, COD_{cr} and DO of groundwater samples at the landfill sites and also the deep well water near the car washing place of DCC central garage at Dhaka (Dry Season) .

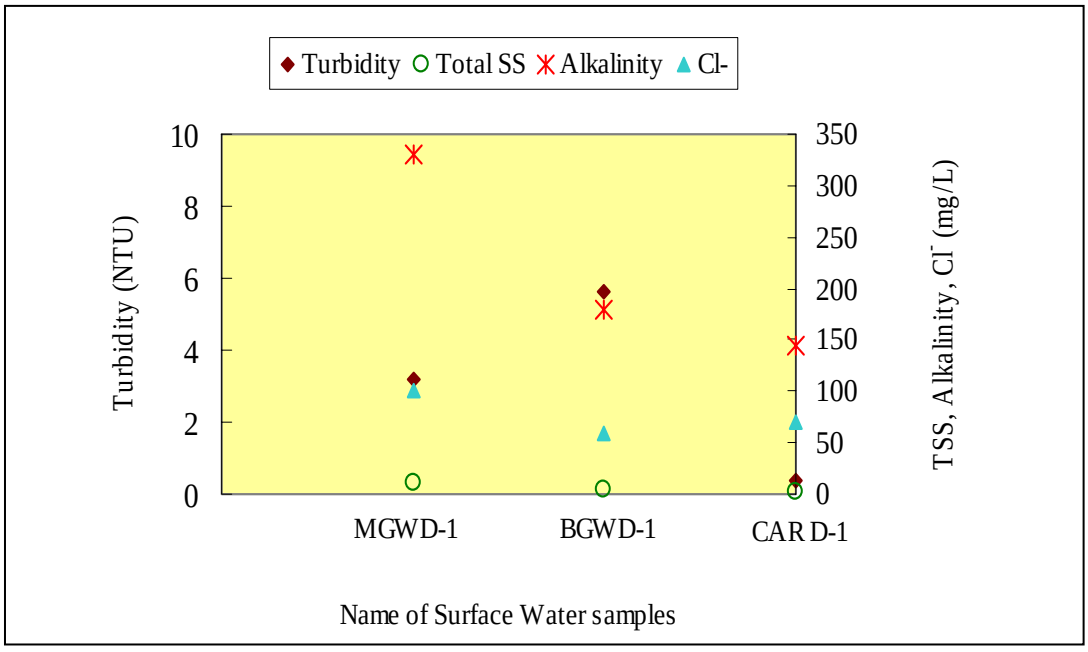

Figure 19. Turbidity, Total SS, Alkalinity and Chloride of groundwater samples at the landfill sites and also the deep well water near the car washing place of DCC central garage at Dhaka (Dry Season).

The groundwater near the landfill sites is seen to be safe from the contamination of metals except Cadmium, which is shown in **Figure-20**. It means that metals are adsorbed or absorbed by the different agents and they can also be captured depending on surface charge of the media. But higher concentrations than standard of iron, Arsenic and manganese in the groundwater near Matuail dumpsite are alarming.

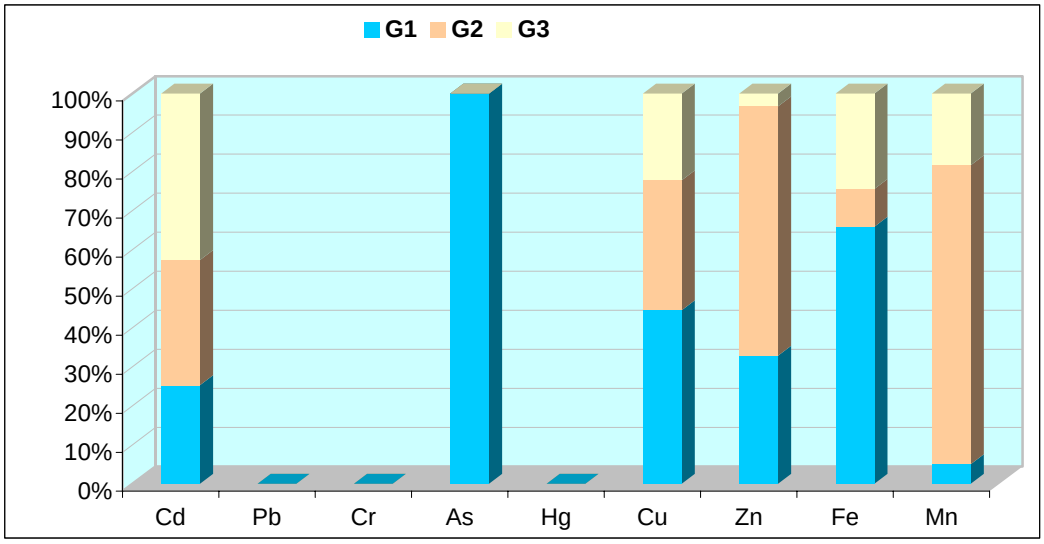

Figure-20: Percentage amount of metals in ground water samples near two landfill sites

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ENVIRONMENTAL ENGINEERING LABORATORY

PHYSICAL / CHEMICAL / BACTERIOLOGICAL ANALYSIS OF WATER AND LEACHATE SAMPLES

BRTC No. : 4520/03-04/CE Date: 22/2/2004

Sent By : Mr. Md. Naziruzzaman, PEng, GM-WSE Dept., BETS, House-10, Road-135, Gulshan-1, Dhaka

Your Ref. : BETS/D&O/P-624C/2004-02(07) Date: 16/2/2004

Source : Surface water, Groundwater and Leachate Date of Testing : 18th February – 6th March, 2004

TEST RESULTS

Serial No.	Parameter	Unit	Concentration Present					
			Sample ID # MSUD-1	Sample ID # MSUD-2	Sample ID # MGWD-1	Sample ID # DSW Shi	Sample ID # ML D-01	Sample ID # ML D-02
1	pH	-	7.18	7.07	6.73	7.32	7.26	7.22
2	Electrical Conductivity	µS/cm	683	450	834	496	17000	17040
3	Turbidity	NTU	70	144	3.2	17.6	54.5	46
4	Color (Filtered)	Pt.-Co Unit	180	370	Nil	200	6800	7700
5	Total Alkalinity as $CaCO_3$	mg/L	260	280	330	544	7060	6840
6	Total Suspended Solids (TSS)	mg/L	244	454	11	67	367	439
7	Ammonium, NH_4	mg/L	1.45	1.69	0.12	8.84	1328	1438
8	Nitrate-Nitrogen, NO_3-N	mg/L	1	5	1	8	70	80
9	Total Phosphorus as P	mg/L	0.3	0.375	0.304	0.724	14	32
10	Chloride, Cl	mg/L	120	80	100	80	4000	3600
11	Arsenic, As	µg/L	3	4	Below 2	3	67	59
12	Iron, Fe	mg/L	2.41	2.60	1.36	0.87	32.89	40.71

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Countersigned by:
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Test Performed by:
Dr. Md. Abdul Jalil 6/3/04
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ENVIRONMENTAL ENGINEERING LABORATORY

PHYSICAL / CHEMICAL / BACTERIOLOGICAL ANALYSIS OF WATER AND LEACHATE SAMPLES

BRTC No. : 4520/03-04/CE Date: 22/2/2004
Sent By : Mr. Md. Naziruzzaman, PEng, GM-WSE Dept., BETS, House-10, Road-135, Gulshan-1, Dhaka
Your Ref. : BETS/D&O/P-624C/2004-02(07) Date: 16/2/2004
Source : Surface water, Groundwater and Leachate Date of Testing : 18th February – 6th March, 2004

TEST RESULTS

Serial No.	Parameter	Unit	Concentration Present					
			Sample ID # MSUD-1	Sample ID # MSUD-2	Sample ID # MGWD-1	Sample ID # DSW Shi	Sample ID # ML D-01	Sample ID # ML D-02
13	Manganese, Mn	mg/L	0.24	0.15	0.95	0.07	0.79	1.32
14	Biochemical Oxygen Demand, BOD_5	mg/L	97.8	32.3	7.9	7.5	4400	5600
15	Total Organic Carbon (TOC)	mg/L	40	10	3	3	1840	2210
16	Chemical Oxygen Demand, COD	mg/L	165	103	12	35	6330	6750
17	Dissolved Oxygen, DO	mg/L	3.2	2.9	3.5	3.8	Nil	Nil
18	Cadmium, Cd	mg/L	0.012	0.001	0.002	0.001	0.024	0.023
19	Lead, Pb	µg/L	5	6	Below 1	1	933	935
20	Chromium, Cr	µg/L	12	16	9	8	1420	1280
21	Mercury, Hg	µg/L	Nil	Nil	Nil	Nil	Nil	Nil
22	Copper, Cu	mg/L	0.047	0.032	0.019	0.022	3.971	4.725
23	Zinc, Zn	mg/L	0.125	0.126	0.165	0.162	3.121	3.472
24	Fecal Coliform	No. per 100 mL	10000	3000	Nil	TNTC	TNTC	TNTC

Countersigned by: Syed Noor-Ud-Deen Ahmed
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Test Performed by: 06/3/04

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BRTC No. : 4520/03-04/CE Date: 22/2/2004

Sent By : Mr. Md. Naziruzzaman, PEng, GM-WSE Dept., BETS, House-10, Road-135, Gulshan-1, Dhaka

Your Ref. : BETS/D&O/P-624C/2004-02(07) Date: 16/2/2004

Source : Surface water, Groundwater and Leachate Date of Testing : 22nd February – 6th March, 2004

TEST RESULTS

Serial No.	Parameter	Unit	Concentration Present					
			Sample ID # BSUD-1	Sample ID # BSUD-2	Sample ID # BGWD-1	Sample ID # CAR D-1	Sample ID # BL D-01	Sample ID # BL D-02
1	pH	-	8.15	7.83	6.74	6.64	7.82	7.76
2	Electrical Conductivity	µS/cm	853	457	325	280	17100	16050
3	Turbidity	NTU	88	23	5.6	0.35	167	131
4	Color (Filtered)	Pt.-Co Unit	283	31	21	4	5100	3650
5	Total Alkalinity as $CaCO_3$	mg/L	250	186	180	144	9030	8000
6	Total Suspended Solids (TSS)	mg/L	169	43	4	2	5137	3539
7	Ammonium, NH_4	mg/L	2.03	0.94	0.63	0.52	1322	1309
8	Nitrate-Nitrogen, NO_3-N	mg/L	5	2	0.6	1.2	160	160
9	Total Phosphorus as P	mg/L	0.604	0.196	0.285	0.457	33.2	34.4
10	Chloride, Cl	mg/L	120	70	60	70	3600	2800
11	Arsenic, As	µg/L	14	7	5	5	11	12
12	Iron, Fe	mg/L	0.87	0.26	0.22	0.04	31.50	50.78

Continued to next page.

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Test Performed by: 6/3/04

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Sent By : Mr. Md. Naziruzzaman, PEng, GM-WSE Dept., BETS, House-10, Road-135, Gulshan-1, Dhaka
Your Ref. : BETS/D&O/P-624C/2004-02(07) Date: 16/2/2004
Source : Surface water, Groundwater and Leachate Date of Testing : 22nd February – 6th March, 2004

TEST RESULTS

Serial No.	Parameter	Unit	Concentration Present					
			Sample ID # BSUD-1	Sample ID # BSUD-2	Sample ID # BGWD-1	Sample ID # CAR D-1	Sample ID # BL D-01	Sample ID # BL D-02
13	Manganese, Mn	mg/L	0.16	0.01	0.03	0.03	0.60	0.45
14	Biochemical Oxygen Demand, BOD_5	mg/L	54.3	17.1	0.9	2.7	1000	1080
15	Total Organic Carbon (TOC)	mg/L	20	7	<MDL	1	400	450
16	Chemical Oxygen Demand, COD	mg/L	210	32	2	4	1630	2200
17	Dissolved Oxygen, DO	mg/L	3.78	4.52	2.66	2.70	1.67	0.83
18	Cadmium, Cd	mg/L	Below 0.001	Below 0.001	Below 0.001	Below 0.001	0.014	0.012
19	Lead, Pb	µg/L	6	3	1	Below 1	108	115
20	Chromium, Cr	µg/L	11	9	8	7	109	116
21	Mercury, Hg	µg/L	Nil	Nil	Nil	Nil	Nil	Nil
22	Copper, Cu	mg/L	0.015	0.012	0.020	0.013	0.433	0.382
23	Zinc, Zn	mg/L	0.057	0.009	0.017	0.061	0.383	0.333
24	Fecal Coliform	No. per 100 mL	TNTC	25	Nil	Nil	TNTC	TNTC

Note: TNTC = Too Numerous To Count; MDL = Minimum Detection Limit for TOC is 1 mg/L C.

Countersigned by:

Test Performed by 06/3/04
Dr. A. B. M. Badruzzaman
Professor
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ENVIRONMENTAL ENGINEERING LABORATORY

PHYSICAL / CHEMICAL / BACTERIOLOGICAL ANALYSIS OF WATER SAMPLE

BRTC No. : No. BRTC- 0435/04-05/CE Date: 20/7/2004
Sent By : BETS Ltd., Gulshan, Dhaka, Bangladesh

Your Ref. : BETS/D&O/P-624E/2004-07 (14) Date: 20/7/2004
Location : -- Source: Leachate Depth: --
Sample Id : L1: JBML-1 L3: JBBL- 1 Date of Testing : 20/7/2004 – 10/8/2004
L2: JBML-2 L4: JBBL- 2

TEST RESULTS

Sl. No.	Water Quality Parameters	Unit	Concentration Present in the sample			
			L1	L2	L3	L4
1	pH	--	>10.0	>10.0	6.24	6.77
2	Electric Conductivity (EC)	mS/cm	14.69	16.85	0.28	0.18
3	Turbidity	NTU	132.0	136.0	100.0	120.0
4	Color (Filtered)	Pt. Co. Unit	240.0	5440.0	292	710
5	Total Alkalinity as $CaCO_3$	mg/L	7660.0	11300.0	132.0	871.0
6	Fecal Coliform (FC)	# / 100 ml	*TNTC**	*TNTC**	*TNTC**	*TNTC**
7	BOD_5 at 20°C	mg/L	550.0	3250.0	216.0	660.0
8	Total Organic Carbon	mg/L	--	--	--	--
9	COD ($K_2Cr_2O_7$ Demand)	mg/L	1700.0	37500.0	430.0	1966.0
10	Suspended Solids (SS)	mg/L	376.0	2642.0	270.0	562.0
11	Dissolved Oxygen (DO)	mg/L	<0.002	<0.002	0.80	0.15
12	Ammonium-Nitrogen, NH_4-N	mg/L	912.5	962.5	4.25	88.5
13	Nitrate-Nitrogen, NO_3-N	mg/L	115.0	95.0	62.5	72.5
14	T-N	mg/L	1027.5	1057.5	66.75	161.0
15	Chloride, Cl	mg/L	1400.0	1520.0	24.0	104.0
16	Cadmium, Cd	mg/L	0.05	0.09	0.067	0.071
17	Lead, Pb	µg/L	34.6	376.14	13.51	27.08
18	Chromium, Cr	µg/L	518.85	2999.3	18.58	29.85
19	Arsenic, As	mg/L	<0.002	<0.002	9.53	5.78
20	Mercury, Hg	mg/L	<0.001	<0.001	<0.001	<0.001
21	Copper, Cu	mg/L	0.13	0.65	0.033	0.071
22	Zinc, Zn	mg/L	0.31	2.5	0.17	0.40
23	Iron, Fe	mg/L	4.67	37.25	2.32	0.4
24	Manganese, Mn	mg/L	0.27	14.4	0.19	0.55

*TNTC**= Too numerous to count

Countersigned by:
Syed Rahmed

Syed Noor-Ud-Deen Ahmed
Associate Professor
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Test Performed by:
Mafiz Rahman 11/8/04

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PHYSICAL / CHEMICAL / BACTERIOLOGICAL ANALYSIS OF WATER SAMPLE

BRTC No. : No. BRTC- 0435/04-05/CE Date: 20/7/2004
Sent By : BETS Ltd., Gulshan, Dhaka, Bangladesh

Your Ref. : BETS/D&O/P-624E/2004-07 (14) Date: 20/7/2004
Location : -- Source: GW Depth: --
Sample Id : G1: JBMG-1 3: JBBG-1 Date of Testing : 20/7/2004 – 10/8/2004
G2: JBMG- 2

TEST RESULTS

Sl. No.	Water Quality Parameters	Unit	Concentration Present in the sample		
			G1	G2	G3
1	pH	--	7.1	6.46	6.7
2	Electric Conductivity (EC)	µS/cm	310.0	709.0	333.0
3	Turbidity	NTU	31.0	2.1	11.8
4	Color (Filtered)	Pt. Co. Unit	33	5	22
5	Total Alkalinity as $CaCO_3$	mg/L	85.0	95.0	107.0
6	Fecal Coliform (FC)	# / 100 ml	*TNTC**	25	3
7	BOD_5 at 20°C	mg/L	--	--	--
8	Total Organic Carbon	mg/L	6.1	0.0	6.0
9	COD ($K_2Cr_2O_7$ Demand)	mg/L	44.0	5.0	5.0
10	Suspended Solids (SS)	mg/L	--	--	--
11	Dissolved Oxygen (DO)	mg/L	2.45	1.50	1.46
12	Ammonium-Nitrogen, NH_4-N	mg/L	0.35	0.04	0.05
13	Nitrate-Nitrogen, NO_3-N	mg/L	2.9	2.9	1.9
14	T-N	mg/L	3.25	2.94	1.95
15	Chloride, Cl^-	mg/L	3.5	5.5	1.1
16	Cadmium, Cd	mg/L	0.048	0.061	0.081
17	Lead, Pb	mg/L	<0.001	<0.001	<0.001
18	Chromium, Cr	mg/L	<0.001	<0.001	<0.001
19	Arsenic, As	µg/L	0.67	<0.002	<0.002
20	Mercury, Hg	mg/L	<0.001	<0.001	<0.001
21	Copper, Cu	mg/L	0.016	0.012	0.008
22	Zinc, Zn	mg/L	0.18	0.35	0.018
23	Iron, Fe	mg/L	1.7	0.25	0.63
24	Manganese, Mn	mg/L	0.013	0.20	0.048

*TNTC**= Too numerous to count

Countersigned by:
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Test Performed by:
Mafiz Rahman 11/8/04
Dr. Md. Mafizur Rahman
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BRTC No. : No. BRTC- 0435/04-05/CE Date: 20/7/2004
Sent By : BETS Ltd., Gulshan, Dhaka, Bangladesh

Your Ref. : BETS/D&O/P-624E/2004-07 (14) Date: 20/7/2004
Location : -- Source: SW Depth: --
Sample Id : S1: JBMS-1, S2: JBMS-2, S3: JBMS-3, S4: JBBS-1, S5: JBBS-1
Date of Testing : 20/7/2004 – 10/8/2004

TEST RESULTS

Sl. No.	Water Quality Parameters	Unit	Concentration Present in the sample				
			S1	S2	S3	S4	S5
1	pH	--	8.66	7.73	7.36	7.6	7.24
2	Electric Conductivity (EC)	µS/cm	327	692	121	145.8	139.7
3	Turbidity	NTU	10.5	15.8	27.0	130.0	54.0
4	Color (Filtered)	Pt. Co. Unit	36	104	49	75	62
5	Total Alkalinity as $CaCO_3$	mg/L	110.0	228.0	48.0	69.0	67.0
6	Fecal Coliform (FC)	# / 100 ml	*TNTC**	*TNTC**	*TNTC**	*TNTC**	*TNTC**
7	BOD_5 at 20°C	mg/L	20.8	15.2	10.0	9	6
8	Total Organic Carbon	mg/L	--	--	--	--	--
9	COD ($K_2Cr_2O_7$ Demand)	mg/L	42.0	69.0	13.0	18.0	10.0
10	Suspended Solids (SS)	mg/L	21.0	27.0	17.0	240.0	101.0
11	Dissolved Oxygen (DO)	mg/L	5.54	3.43	2.35	3.4	3.2
12	Ammonium-Nitrogen, NH_4-N	mg/L	0.20	7.5	0.25	0.25	0.05
13	Nitrate-Nitrogen, NO_3-N	mg/L	2.9	6.2	2.3	2.2	3.3
14	T-N	mg/L	3.1	13.7	2.55	1.45	3.35
15	Chloride, Cl^-	mg/L	4.0	5.5	1.0	1.1	1.2
16	Cadmium, Cd	mg/L	0.063	0.067	0.064	0.45	0.07
17	Lead, Pb	mg/L	<0.001	<0.001	<0.001	0.625	<0.001
18	Chromium, Cr	µg/L	<1.0	1.07	<1.0	<1.0	<1.0
19	Arsenic, As	µg/L	3.29	1.91	0.92	<0.02	1.66
20	Mercury, Hg	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
21	Copper, Cu	mg/L	0.09	0.02	0.006	0.025	0.016
22	Zinc, Zn	mg/L	0.14	0.02	0.05	0.079	0.01
23	Iron, Fe	mg/L	0.46	0.57	0.84	4.80	1.65
24	Manganese, Mn	mg/L	0.001	0.014	0.002	0.015	0.009

*TNTC**= Too numerous to count

Countersigned by:
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5. IEE Report with Draft TOR for EIA

1. Introduction

Dhaka City Corporation is preparing a master plan to improve living environment and public health through expanding solid waste collection service and introducing proper treatment and disposal system. It is necessary to facilitate appropriate equipment and facilities for improvement of solid waste management and also to enforce organizational capability to manage efficiently.

Preparation of final disposal (landfill) site will be a base to improve solid waste management including solid waste collection. To construct landfill site is required to have the Environmental Clearance Certificate (ECC) issued by Department of Environment (DOE) according to the Environment Conservation Rules, 1997.

This report is the Initial Environmental Examination on “Improvement of Solid Waste Management in Dhaka City” which is required for application of ECC.

This IEE is conducted to examine

(1) Identification of the projects key impacts on the environment

(2) Evaluation of their importance and recommendation of mitigative measures

(3) Listing of issues which are still unresolved and warrant further environmental examination i.e. EIA

2. Project description

Dhaka City Corporation (DCC) is collecting municipal solid waste and disposes 1,400 ton/day of waste in 2004 at Matuail landfill site and Berry Band temporary landfill site without covering soil. Solid waste amount to be disposed is estimated to be 2,800 ton/day in 2015 because of increase of solid waste generation and improvement of collection services. It is indispensable to improve landfill operation and to prepare future landfill site to cope with future disposal demand. It is proposed to facilitate a new landfill site at Amin Bazar and to extend Matuail landfill site. Outline of the project is shown in **Table 2-1**.

Table 2-1 Outline of the Project

Item	Description
Project Name	Improvement of Solid Waste Management in Dhaka City
Background	
Objectives	To improve solid waste management in Dhaka including a. Expansion of collection service with residents participation b. Introduction of proper treatment and disposal c. Institutional and management capacity development
Location	Amin-Bazar Savar police station, Dhaka District Matuail-Derma police station, Dhaka District
Executive Agency	Dhaka City Corporation
Beneficiaries	Dhaka Citizens
Project components	
(1) Type of project	Extension of Matuail landfill site and construction of Amin Bazar landfill site Improvement of landfill operation
(2) Project site	Solid Waste Collection will cover Dhaka City Corporation area. Landfill site will be constructed at Matuail and Amin Bazar
(3) System of treatment and disposal	Controlled landfill (Check and control of incoming waste, landfill with covering soil, leachate collection and treatment, landfill gas removal)
(4) Leachate treatment system	Leachate pond, aeration and recirculation
(5) Leachate discharge	Amin Bazar : Karanachhali River Matuail extension : Lakhya River
(6) Access Road	Amin Bazar : Dhaka- Aricha highway Matuail extension : Dhaka-Derma road
Near villages	Amin Bazar : Baiarpar, Konda Matuail extension : Kajla, Sharifpara, Mirdhabari

3. Description of the existing and background environment

3.1 Setting of the Boundary for the Initial Environment Examination

Major place to have impact of final disposal will be landfill site where solid waste is disposed, access road used for transportation of solid waste and covering soil and downstream of river where leachate will be discharged after treatment.

The Amin Bazar site is situated in floodplain of the Karanachhali river and the area is inundated during each monsoon between June to October. There are two villages within 1 km distance of the site, Konda and Baliapur with population 22,000.

Matuail site is also located in floodplain Lakhya river. There are four villages within 1 km distance of the site, Kajla, Kajla souhh, Sharifpara and Mirdhabari with population 19,000.

Table 3.3.1 shows the surrounding villages and number of households within 400 meters distance of each proposed site.

Table 3.1.1 Surrounding villages, household and population

Landfill Site	Name of Village/Area	No. of Household		Population					
				Up to 300 m			Up to 400 m		
		Up to 300 m	Up to 400 m	Male	Female	Total	Male	Female	Total
Matuail	Kajla	85	130	232	191	423	365	328	793
	Sharifpara,	16	22	55	34	89	62	57	119
	Kajla (south)	5	16	14	12	26	41	38	79
	Mirdhabari, Main Rd	20	145	56	47	103	395	355	750
	Total :	**126**	**313**	**357**	**284**	**641**	**863**	**778**	**1641**
Amin Bazar	Baliarpar	356	465	907	755	1662	1186	996	2182
	Konda	245	352	637	539	1176	907	782	1689
	Total :	**853**	**817**	**2258**	**1862**	**2838**	**3819**	**3334**	**3871**

The Amin Bazar site is situated within the low-lying floodplain of the Karanachhali River and is labeled as a swampy land. The average elevation of this site is between 1-3 m. The area is inundated during each monsoon between June to October. Rest of the year the area remains dry and is used mainly for agriculture and the brick manufacturing industry (as their factory and a source of clay, raw material of bricks.)

Bounding this site to the west is a rural settlement. There are Baliarpur and Konda villages with 817 households within 400m distance. Dhaka-Archa Highway will be used for access to

the site and treated leachate will be discharged to Karanachhali River. **Figure 3.1** shows the proposed site at Aminbazar with black outline. The green box shows the 300m zone and the yellow box shows the 400m zone drawn around the site.

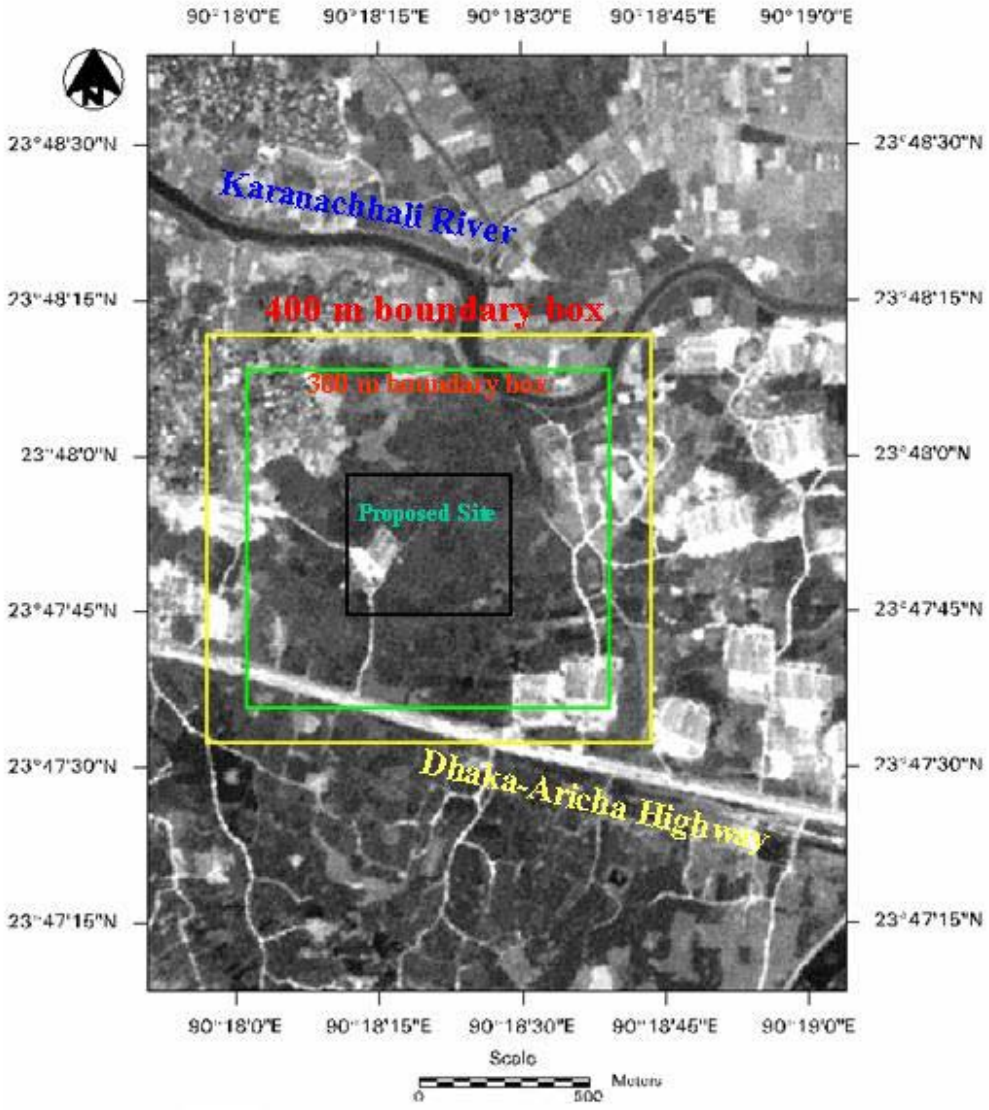

Figure: 3.1: Location of proposed site at Amin Bazar

Matuail site is also located within a floodplain created by the Lakhya River to the east. The elevation is similar to the Amin Bazar site but the duration of inundation is somewhat shorter in this area. The floodwater comes from the north via Dholai Nadi, a distributary of the Lakhya and flows south till it is obstructed by Dhaka-Demra road, a part of the Dhaka-Narayanganj-Demra (DND) embankment system. This area is relatively less used for settlement although filling up of land is being undertaken for future homesteads.

The extension is proposed at the north of the existing landfill site. The site is bounded in the east and west by fallow lands inundated during monsoon and used by organized fish farming. As water recedes in the winter agricultural practices begins and mostly winter rice and some vegetables are grown here. There are 313 household within 400 meters distance of the site as shown in **Table 3.1.1**.

Figure 3.2 shows the proposed site at Matuail with black outline. The green box shows the 300m zone and the yellow box shows the 400m zone drawn around the site. Here also a real estate company is filling up land within 400 m to the north of the proposed site.

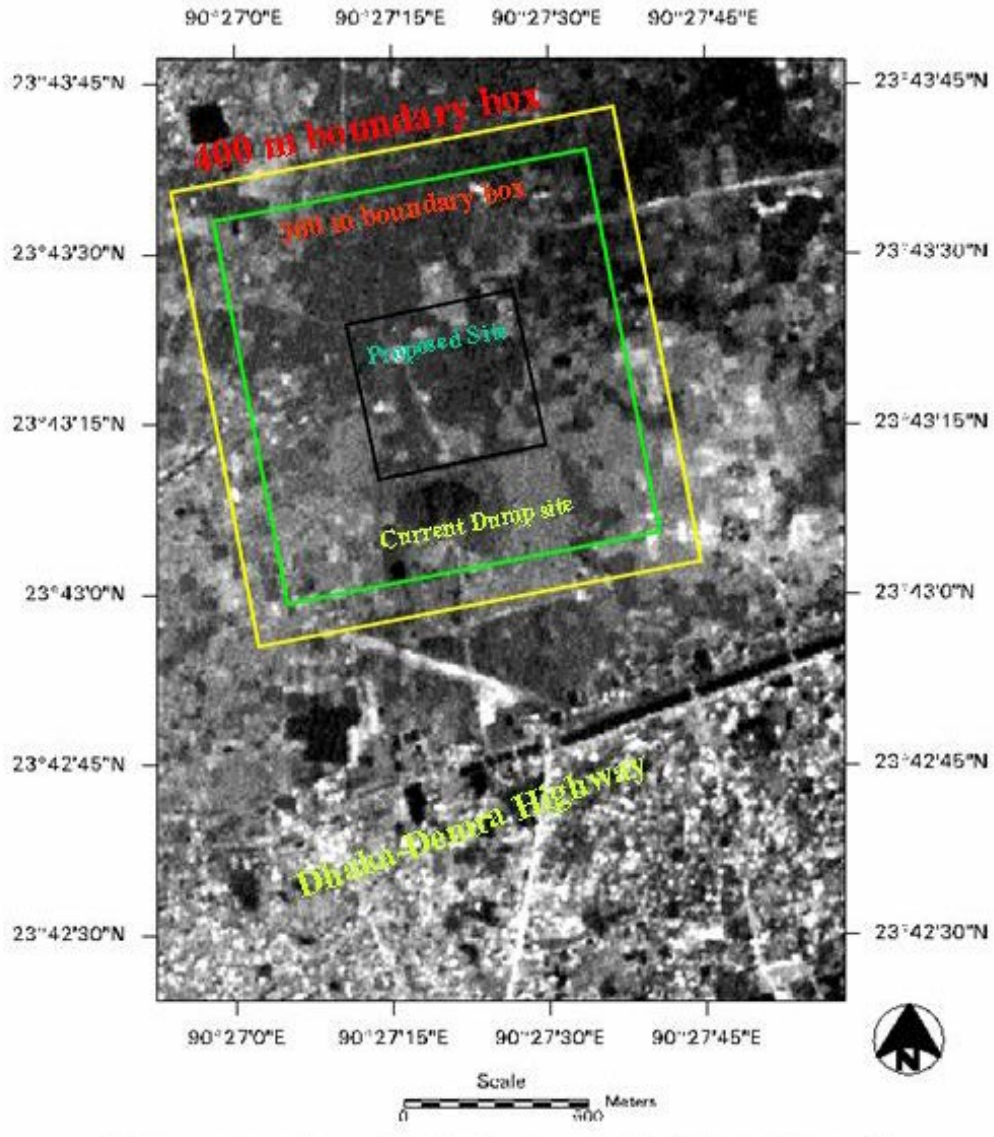

Figure: 3.2: Location of proposed site at Matuail

3.2 Existing Environmental Conditions

Existing environmental conditions at Amin Bazar and Matuail is studied and shown in **Table 3.2.1**.

Table 3.2.1 Existing environmental conditions

No.	Items	Amin Bazar	Matuail
1.	*Location*	The site is located in PS. Savar and on the north side of the Dhaka-Aricha highway.	The site is north of existing landfill site, located in PS. Derma and on the north of the Demra road (old Dhaka-Cittagong highway).
2.	Demography and community	Population of PS. Savar is 602,860 in 2001. There are Bariapar and Konda villages with 817 households within 400 meter distance from the site.	Population of PS. Derma is 421,540 in 2001. There are Kajla, Sharifpara and Mirdhabari villages with 313 household within 400 meter distance from the site.
3.	Economic Activity	Agriculture and brick manufacture at dry season and fishery at rainy season	Agriculture and fishery at dry season and fishery at rainy season
4.	Current land use	Agriculture, brick manufacture (dry season), floodplain at rainy season	Agriculture and fishery at dry season, fishery at rainy season.
5.	Water usage and right	Fishery at rainy season. Flood plain of Karanachhali river connecting to Turag river and Buriganga river	Fishery especially at rainy season, Flood plain of Dholai Nadi which is blocked at the Dhaka –Narayanganj-Demra embankment at rainy season.
6.	Transport condition	Solid waste will be transported through Dhaka-Archa Highway	Solid waste is transported through Demra road.
7.	Infrastructure and public facility	The area is like a rural area. Electricity and water supply is available.	The area is like a rural area. Electricity and water supply is available.
8.	Archeological and historical attributes	No historical attributes at the site	No historical attributes at the site
9.	Hygiene and public health	Public health facilities in the area are insufficient.	Public health facilities in the area are insufficient.
10.	Environmental standard	Water quality to be used for irrigation	Water quality to be used for irrigation
11.	Hydrological condition	High water level:	High water level:
12.	Meteorological condition	Annual rain fall-188.5 cm	Annual rain fall-188.5 cm
13.	Geological, topographical and soil condition	Wet land. Top soil is clay layer about 15-23 meters. This clay layer has zones of silts containing fine sand around depths of 2.4-3.6 meter (thickness 1.8-3 meter)	Wet land. Top soil is clay layer about 9-12 meters.
14.	Surface and subterranean water quality	No data available	Leachate of landfill site has higher concentration of BOD, COD. Gounddwater is not suitable for drinking without treatment
15.	Flora and fauna	No special species	No special species
16.	Landscape and visual amenity	Look like a rural area with brick manufacture	Eyesore landscape of existing landfill site
17.	Air pollution and odour	Chimney of brick manufacture is source of air pollution in dry season	Existing landfill site is a source of odour
18.	Noise and vibration	Only traffic of the Dhaka-Aricha Highway is the source of noise	Heavy equipment of existing landfill site and traffic of Derma road are the source of noise

4. Potential impacts

4.1 Screening of potential impact

Based on the existing environment and the project activity, the screening of potential impact was conducted. Potential impact was found as shown in **Table 4.1.1**.

Table 4.1-1: Screening

No.	Environmental Item	Description	Evaluation	Remarks (Reasons)
Social Environment				
1.	Resettlement	Resettlement due to land occupancy (transfer of rights of residence and land ownership)	(AB) Y	No residential house in the site. However, land owner might be resettled.
			(ME) Y	No residential house in the site. However, land owner might be resettled.
2.	Economic Activities	Loss of production base and change of economic structure	(AB) Y	Current economic activities (orchard, brick field, agriculture and fishing) will be halted
			(ME) Y	Current economic activities (fisheries and agriculture) will be halted
3.	Traffic and Public Facilities	Impacts on schools, hospitals and present traffic conditions, such as the increase of traffic jam and accidents	(AB) Y	Traffic volume will increase
			(ME) N	Traffic volume will not change.
4.	Split of Communities	*Separation of regional communities by hindrance of regional traffic*	(AB) N	Regional traffic will not be hindered.
			(ME) N	Regional traffic will not be hindered.
5.	Cultural Property	Loss or decrease of the value of cultural assets such as temples, shrines and archaeological assets etc.	(AB) N	No significant cultural property within the area.
			(M) N	No significant cultural property within the area.
6.	Water Rights and Rights of Common	Obstruction of fishing rights, water rights and rights of common	(AB) Y	Construction of the landfill site will cause. Obstruction of fishing rights, water rights and right of common.
			(ME) Y	Extension of the landfill will cause obstruction of fishing rights and water rights
7.	Public Health condition	Worsening of health and sanitary conditions due to generation of garbage, and pathogenic insects	(AB) Y	Mitigation measures will be required
			(ME) Y	Mitigation measures will be required
8.	Waste	Generation of construction waste, debris, sludge and general waste	(AB) N	Impact will be less
			(ME) N	Impact will be less
9.	Hazards (Risk)	Increase in risk of cave-ins, ground failure and accidents	(AB) N	Careful construction procedure will ensure safety
			(ME) N	Careful construction procedure will ensure safety
Natural Environment				
10.	Topography and Geology	Change of valuable topography and geology due to excavation and earth fill	(AB) N	Flat land
			(ME) N	Flat land
11.	Soil Erosion	Topsoil erosion by rainfall after land reclamation and deforestation	(AB) N	Very flat floodplain and land of deposition. Reclamation will ensure vegetation cover over the top soil
			(ME) N	Very flat floodplain and land of deposition. Reclamation will ensure vegetation cover over the top soil

No.	Environmental Item	Description	Evaluation	Remarks (Reasons)
12	Groundwater	Exhaustion of groundwater caused by over draft, and water pollution by leachate	(AB)N	No possibility of overdraft of groundwater; and water pollution by leachate will be controlled by proper mitigation measures.
			(ME)N	No possibility of overdraft of groundwater; and water pollution by leachate will be controlled by proper mitigation measures.
13	Hydrological Situation	Change of discharge and water quality due to reclamation and drainage	(AB)Y	Change of discharge will occur due to the landfill construction and change in water quality is likely to occur.
			(ME)N	This area is not within any active flow regime and change in water quality is likely to occur.
14.	Coastal zone	Coastal erosion and change of coastal vegetation due to change of littoral drift and reclamation	(AB)N (ME)N	No coastal zone
15.	Fauna and flora	Obstruction of breeding and extinction of species due to the changes of habitat conditions	(AB)N	No endangered species is reported in the site
			(ME)N	No endangered species is reported in the site
16	Meteorology	Change of micro-climate, such as temperature, wind etc., due to large scale reclamation and construction	(AB)N	No change in micro-climate (wind, temp etc.) expected
			(ME)N	No change in micro-climate (wind, temp etc.) expected
17.	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structures	(AB)Y	Topography, vegetation and aesthetic harmony will not deteriorate with proper reclamation process.
			(ME)Y	Topography, vegetation and aesthetic harmony will not deteriorate with proper reclamation process.
Pollution				
18.	Air Pollution	Pollution caused by exhaust or toxic gases from vehicles and factories	(AB)N (ME)N	Dust by wind and heavy equipment will be a source but far from residential area
19.	Water Pollution	Pollution caused by inflow of debris and effluent from factories into rivers and groundwater	(AB)Y (ME)Y	Leachate will be discharged.
20.	Soil Contamination	Contamination caused by discharge or diffusion of waste water drainage or toxic material	(AB)N (ME)N	No plan to discharge toxic material
21.	Noise and vibration	Noise and vibration generated by vehicles and facility operation	(AB)N (ME)N	Far from residential area
22.	Land Subsidence	Land deformation caused by the draw-down of water table	(AB)N (ME)N	No plan to use groundwater
23.	Offensive Odor	Generation of offensive odor by sewage treatment plant operation	(AB)Y (ME)Y	Odour will be an issue
Overall Evaluation : Either IEE or EIA is necessary for the Project Implementation?			Y	EIA is necessary for Project implementation

Note: Y = Yes, N = No, AB = Amin Bazar Landfill Site, ME = Matuail Extension Site

Resettlement will not be necessary because there is no house in the both proposed sites but owner of the land will have some impact on their economic activities and income. As the many households are living within surrounding area of proposed landfill sites, some houses will be affected on odour, landscape and public hygiene if careless operation is continued.

The both sites have similar soil condition with clay layer which seems to be a sufficient barrier to protect groundwater. Anyway, permeability of this layer shall be checked.

Acceptability of the landfill site by the surrounding residents is shown in the **Table 4.1.2** based on the interview survey. It is very important that most of residents will not accept landfill plan without improvement of landfill operation.

Table 4.1.2 Acceptability of landfill site (%)

	Amin Bazar			Matuail		
	Yes	**No**	**I don't know**	**Yes**	**No**	**I don't know**
(1) Acceptability of landfill site near home	0	76	24	30	67	3
(2) Acceptability of disposal plan	9	80	11	47	43	10
(3) Acceptability after improved operation	50	33	17	90	5	5
(4) Acceptability considering greater interest of Dhaka	65	22	13	88	5	7

4.2 Scoping

A range of significant and likely significant impacts is examined considering project activities during construction and operation (after construction). The result of scoping is shown in **Table 4.2.1**.

(1) Resettlement
No resettlement will be necessary but land owner will be affected on their income, reasonable compensation will be required.

(2) Water Rights and Rights of Common
Water Rights and Rights of Common shall be checked more detail.

(3) Public health
Improvement of landfill operation is necessary as shown in the **Table 4.1.2**. Covering soil and other mitigative measure also be examined.

(4) Landscape
Improvement of landfill operation is necessary and mitigative measure shall be examined.

(5) Water pollution
Improvement of landfill operation is necessary including leachate collection and treatment will be required.

(6) Offensive odour
Improvement of landfill operation is necessary with covering soil and other mitigaive measure shall be examined.

Table 4.2.1: Scoping

No.	Environmental Item	Evaluation	Remarks
Social Environment			
1.	Resettlement	AB (B)	No residents within the site but the land owners have to be compensated.
		ME (B)	No residents within the site and the land owners have to be compensated
2.	Economic Activities	AB (C)	Current activity (agriculture, fishing and brick field) within the project will be halted.
		ME (C)	Current activities (agriculture and fishing) within the project will be halted.
3.	Traffic and Public Facilities	AB (C)	Some impact is expected by solid waste transportation.
		ME (D)	Traffic volume will increase when disposal amount will increase.
4.	Split of Communities	AB (D)	Regional traffic will not be hindered.
		ME (D)	Regional traffic will not be hindered.
5.	Cultural Property	AB (D)	No significant cultural property within the area.
		ME (D)	No significant cultural property within the area.
6.	Water Rights and Rights of Common	AB (B)	Construction of landfill site will obstruct fishing rights, water rights and rights of common.
		ME (C)	Construction of landfill site will obstruct fishing rights and water rights.
7.	Public Health condition	AB (B)	Further study is needed to determine proper mitigative measures.
		ME (B)	Further study is needed to determine proper mitigative measures.
8.	Waste	AB (D)	No impact because of proper mitigative measure.
		ME (D)	No impact because of proper mitigative measure.
9.	Hazards (Risk)	AB (D)	Careful construction procedure will ensure safety.
		ME (D)	Careful construction procedure will ensure safety.
Natural Environment			
10.	Topography and Geology	AB (D)	Small scale excavation and construction will not impact the topography and geology.
		ME (D)	Small scale excavation and construction will not impact the topography and geology
11.	Soil Erosion	AB (C)	Further study needed to determine proper mitigation measure
		ME (C)	Further study needed to determine proper mitigation measure
12.	Groundwater	AB (C)	Further study needed to specifically determine groundwater pollution mitigation measures
		ME (C)	Further study needed to specifically determine groundwater pollution mitigation measures
13.	Hydrological Situation	AB (C)	Further study needed to determine impact upon water discharge and mitigation measures for water pollution.
		ME (C)	*Further study needed to determine impact upon water discharge and mitigation measures for water pollution*

No.	Environmental Item	Evaluation	Remarks
14.	Coastal zone	AB (D)	Not coastal zone
		ME(D)	Not coastal zone
15.	Fauna and flora	AB (D)	No endangered species is reported in the site. This area is not a breeding ground for any species.
		ME (D)	No endangered species is reported in the site. This area is not a breeding ground for any species.
16.	Meteorology	AB (D)	No impact on micro-climate (wind, precipitation, temperature) is expected due to small scale of construction
		ME (D)	No impact on micro-climate (wind, precipitation, temperature) is expected due to small scale of construction
17.	Landscape	AB (C)	Topography, vegetation and aesthetic harmony will be required
		ME (C)	Topography, vegetation and aesthetic harmony will be required
Pollution			
18.	Air Pollution	AB (C) ME(C)	Far from residential area
19.	Water Pollution	AB (B) ME(B)	Important issues to mitigate
20.	Soil Contamination	AB (C) ME(C)	No plan to discharge toxic material
21.	Noise and vibration	AB (D) ME(D)	Far from residential area
22.	Land Subsidence	AB (D) ME(D)	No plan to use groundwater
23.	Offensive Odor	AB (B) ME(B)	Important issues to mitigate

Note: Evaluation Categories:

A: Serious impact is expected
B: Some impact is expected
C: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progress)
D: No impact is expected. IEE/EIA is not necessary.

5. Mitigative and abatement measure

It will be most probable that no resettlement will be necessary because there is no house in the site. However, economic activity conducted at the site will be affected. The land owner will be compensated at reasonable manner.

Necessary facilities of landfill site such as surrounding dike, leachate collection and treatment facilities will be installed and landfill operation will be improved introducing covering soil and control of receiving waste. Environmental items and mitigation measures are shown in **Table 5-1**.

Table 5-1 Mitigative measures

No.	Environmental Item	Area	Mitigation measures
Social Environment			
1.	Resettlement	AB (B)	No residents within the site. The land owners have to be compensated.
		ME (B)	No residents within the site. The land owners have to be compensated
2.	Economic Activities	AB (C)	Land owner will be compensated.
		ME (C)	Land owner will be compensated
3.	Traffic and Public Facilities	AB (C)	Arrangement of intersection of access road
		ME (D)	Arrangement of intersection of access road
4.	Split of Communities	AB (D)	
		ME (D)	
5.	Cultural Property	AB (D)	
		ME (D)	
6.	Water Rights and Rights of Common	AB (B) ME (C)	Affected activity such as fishery will be compensated.
7.	Public Health condition	AB (B) ME (B)	Operation of landfill will be improved introducing soil covering, leachate collection and landfill gas removal.
8.	Waste	AB (D)	
		ME (D)	
9.	Hazards (Risk)	AB (D)	
		ME (D)	
Natural Environment			
10.	Topography and Geology	AB (D) ME (D)	
11.	Soil Erosion	AB (C) ME (C)	The slope of the reclaimed area will be graded with vegetation cover.
12.	Groundwater	AB (C) ME (C)	Landfill site will be constructed carefully without disturbing clay layer of the site. Leachate will be collected and treated (aeration and recirculation).
13.	Hydrological Situation	AB (C) ME (C)	Measures for reduction of floodplain such as excavation will be examined if it will be necessary.

No.	Environmental Item	Area	Mitigation measures
14.	Coastal zone	AB (D) ME(D)	
15.	Fauna and flora	AB (D) ME (D)	
16.	Meteorology	AB (D) ME (D)	
17.	Landscape	AB (C) ME (C)	Operation of landfill will be improved with soil covering. The slope will have vegetation cover
Pollution			
18.	Air Pollution	AB (C) ME(C)	Landfill gas will be collected and removed properly. Natural burning will be prevented with soil covering and landfill gas removal.
19.	Water Pollution	AB (B) ME(B)	Surrounding embankment will be constructed. Leachate will be collected and treated (aeration and recirculation)
20.	Soil Contamination	AB (C) ME(C)	Solid waste will be measured and checked at the entrance. No hazardous waste will be disposed.
21.	Noise and vibration	AB (D) ME(D)	
22.	Land Subsidence	AB (D) ME(D)	
23.	Offensive Odor	AB (B) ME(B)	Operation of landfill will be improved with soil covering. Landfill gas will be collected removed properly.

Note: Evaluation Categories:
A: Serious impact is expected
B: Some impact is expected
C: Extent of impact is unknown (Examination is needed. Impacts may become clear as study progress)
D: No impact is expected. IEE/EIA is not necessary.

6. Residual impact

Impact that may continue after the closure of landfill will be considered residual impacts. Following will be residual impact of landfill in Amin Bazar and Matuail extension but impact will be small comparing project scale and natural scale of surrounding area.

(1) Topography and hydrological situation

Reclaimed land will become higher than flood elevation. Therefore, floodplain will be reduced.

(2) Closed landfill site

Although disposal of solid waste will be completed and operation of landfill site will be finished, decomposition of solid waste will be continued in long period. Leachate and landfill gas will be generated and settlement (subsidence) will be continued as a result of decomposition of organic components. Therefore, landfill site shall be closed properly

and re-development of closed landfill site shall be carried out carefully considering characteristic of closed landfill site.

7. Monitoring program

Landfill operation will be controlled and monitored to avoid environmental pollution. Also environmental pollution and resident opinions will be monitored. Monitoring items are shown in **Table 6-1**.

Table 6-1 Monitoring program

	Monitoring items	**Remark**
Landfill operation	Receiving waste	At the entrance of landfill site
	Leachate amount and quality	Leachate discharge point
	Landfill gas quality	At gas removal pipe
	Settlement	
Environmental	Surface water and groundwater quality	Nearest river/pond and well
	Odour	At the surrounding village
	Resident opinions	At the surrounding village

8. Summary and conclusions

8.1 Summary

Initial Environmental Examination (IEE) on Matuail Extension and Amin Bazar Landfill Sites, has been conducted to examine the environment impact of landfill sites on the environment of the adjacent areas including mitigative measures.

Change of economic activity of the site (brick manufacturing, agriculture and fishery) is identified as areas where the project may cast some adverse affect. However, landowner and affected persons will be compensated properly.

A few parameters of natural environmental conditions like surface and groundwater hydrology are other areas of concern where the project may have impacts. Both the proposed sites are located within low-relief floodplain. Siting of the landfills will have a small impact on the topography of the area. Compared to the floodplains the erosion rate of the topsoil may be higher rate but it is not anticipated to produce any significant impact on the natural environment of the project sites.

In Amin Bazar, the upper clay aquitard extends to a depth of 15-23 meter although the thick clay aquitard has a zone of silts containing fine sand (thickness 2-3 meter) at depth 2.4-3.6 meter. At Matuail site the upper clay aquitard extends to a depth 8 to 9.6 meter. It is expected that upper clay aquitard will be a sufficient barrier to protect groundwater. Also, it is

important that upper clay layer will not be disturbed at construction and operation of landfill site.

Surface water hydrology is another area of concern for the degradation of the natural environment. As both of the proposed landfill sites are within active floodplains the landfill site will have surrounding embankment to avoid pollution of surrounding water. And leachate will be collected and treated with aeration and recirculation before discharge. It is noted that treated leachate will discharge only at rainy season and will not discharge at dry season. It is noted that introduction of covering soil will make possible to install drainage system to separate leachate and rain water and contribute to reduce leachate amount.

Other impact on public health, landscape and offensive odor will also take place if operation of landfill site will not be improved. It is stressed that residents will not accept the plan without improvement of landfill operation, especially in Amin Bazar.

Social & utility services available at present are not likely to be affected by the implementation of the projects.

8.2 Conclusion

The development and operation of landfill sites at Matuail and Amin Bazar will certainly improve the total environmental hygiene of Dhaka City but there will be some impact at the project sites and surrounding area.

Affected landowners should be compensated properly. Other affected persons/organization should also be also compensated properly. It will be necessary have some measures to support affected persons.

In the present circumstances, only 29% of the residents are ready to accept the landfill site projects. It is found to be most encouraging that if the landfill site operation can be improved, more that 71% of the respondents will accept the project. As the project will be necessary for greater interest of Dhaka City, it is quite important to take possible measures to improve landfill operation and cooperate with surrounding community. Monitoring of the landfill operation surrounding environment including resident opinion will be essential throughout the implementation and operation period of the project, to maintain a placid environment and good relationship with surrounding residents.

Attachment-1:

Terms of Reference (TOR)

Table of Contents

Contents

1.0 Introduction

Dhaka City Cooperation is preparing a master plan on solid waste management in Dhaka City to improve living environment and public health through expanding solid waste collection service and introducing proper treatment and disposal system. It will be necessary to facilitate proper equipment and facilities for improvement of solid waste management and also to enforce organizational capability ensure efficient management. Several projects set in the master plan shall be implemented according to the schedule. “Improvement of Solid Waste Management in Dhaka City” will be an urgent project and include establishing two landfill sites – one at Matuail Extension and the other at Amin Bazar. At those landfill sites, solid waste collected from different places of Dhaka City will be dumped. Preparation of final disposal site will be the basis to improve solid waste management. To construct the landfill site, it is required to have the Environmental Clearance Certificate (ECC) according to the Environmental Conservation Rules, 1997.

Initial Environmental Examination on "Improvement of Solid Waste Management in Dhaka City" has been conducted and concluded that Environment Impact Assessment (EIA)will be required to avoid and mitigate adverse affect of the project.

This is the Term of Reference (TOR) for EIA on the project and prepared based on the result of IEE.

2.0 The Project and Study Area

The project is "Improvement of Solid Waste Management In Dhaka City" which include expansion of solid waste collection service and introduction of proper disposal system. Solid waste will be collected from the area of Dhaka City Corporation and will be disposed at Amin Bazar (new) landfill site and Extension of Matuail landfill site. The EIA study shall cover :

- The area of Dhaka City Corporation
- Surrounding areas of Matuail Landfill site and Amin Bazar Landfill site.

3.0 Scope of works

EIA Study shall consist of following works :

(1) Environmental impact of the project
(2) Detail survey of impact and/or mitigation measure
    a. Mitigation and supporting measure for surrounding residents
    b. Survey on aquitard and groundwater of the site
    c. Hydrological situation and water pollution
(3) Examination of environmental management and monitoring plan
(4) Discussion and negotiation with related authority and stakeholders
(5) Preparation of EIA report

3.1 Environmental impact of the project

Project activity during construction, operation and after closure shall be examined further. Also, environmental impact during construction and operation, and after closure shall be evaluated based on the actual environmental conditions considering baseline data collected at IEE survey.

3.2 Detail survey of impact and mitigation measure

(1) Mitigation and supporting measures for surrounding residents

Although landfill operation will be improved, surrounding residents will be affected. Better relation with surrounding residents shall be kept throughout the project implementation. Measures for impact mitigation, communication, cooperation and monitoring shall be examined further.

(2) Survey on aquitard and groundwater of the site

As it is very important to prevent groundwater pollution, further investigation of soil conditions including thickness and permeability of aquitard and groundwater quality at site shall be carried out to ensure most appropriate measure to be taken with further examination.

(3) Hydrological condition and water pollution

Hydrological condition of the site shall be examined in detail considering possible impact on flood and also water quality. Discharge amount and quality of leachate in rainy season shall be estimated considering treatment with aeration and recirculation. And impact on surrounding water quality shall be evaluated.

3.3 Examination of an Environmental Management and Monitoring Plan

Develop an Environmental Management and monitoring plan with feasible and cost-effective measures to prevent and/or reduce negative impacts to acceptable levels. The management plans should contain detailed implementation plan, clear allocation of responsibility among related authority and indicator for monitoring. The plan should be prepared in consultation with the concerned authority.

The environmental management plan should cover following items.

(1) Final design and equipment
(2) Construction method
(3) Operation plan
(4) Management organization
(5) Environmental monitoring indicator/parameter
(6) Environmental monitoring program

3.4 Discussion and consultation with related authority and stakeholders

The contents of EIA shall be prepared with discussion and consultation with related authority and stakeholders.

3.5 Preparation of EIA report and other report

Prepare an Environmental Impact Assessment (EIA) Report which is concise and limited to environmental and social issues. The main text of the report should focus on findings, conclusions and recommended actions, supported by summaries of data collected and appropriate references. Detailed or uninterrupted data should not be in the main text and should be presented in appendices or a separate volume.

EIA reports shall include followings:

(1) Environmental base map

(2) Site conditions

(3) Environmental impact and Mitigation
   a. Major finding of the initial environmental examination (IEE)
   b. Detailed examination of unresolved issues
   c. Evaluation of impacts
   d. Critical issues

(4) Environmental management plan
   a. Final design and construction
   b. Management organization
   c. Environmental monitoring program

(5) Executive summary

4.0 Survey Period

The consultant has to complete the study within 6 months (24 weeks) after signing the contract.

5.0 Personnel of the Consultant

The Consultant should provide sufficient numbers of appropriate qualified personnel to ensure the survey work and carry out EIA Study. The qualification and experience of the key personnels should be as under ;

Position	Qualification and Experience
Team Leader/ Environmental Specialist	Masters in Environmental Science with specialized training and 10 years experience in the relevant field.
Public Health Engineer	Masters in Public Health Engineering with specialized training and 10 years experience in the relevant field.
Hydrologist	Masters in Geology with 10 years experience in the relevant field
Sociologist/Resettlement Specialist	Maters in Social Science with 10 years experience in the relevant field.
Agriculturist	Masters in Agriculture with 10 years experience in the relevant field.

6.0 Reporting

Based upon the results of the above said surveys, an EIA report shall be prepared. The report should be in English & should easily be understandable.

The report will be submitted in four steps as outlined below:

- Inception Report – at the end of 7 days of the start of EIA activity;
- Interim Report – at the last week of the 3rd month of EIA survey;
- Draft final report – at the last week of the 5th month of EIA survey
- Final Report will include the comments that would be made on the draft final report and shall be submitted within 15 days of return of draft final report.

Attachment-2:

Interview Survey Result

1 Introduction

The purpose of the interview survey is to assess the social conditions of the surrounding area of planned landfill sites. This survey is a part of IEE survey of future landfill site to be required for Improvement of Solid Waste Management in Dhaka city. This survey result will also be used to prepare appropriate disposal plan and to minimize environmental impact on the project areas.

2 Survey Methodology

The interview survey was conducted on the residents of the surrounding area of Amin Bazar and Matuail landfill sites. Professionals with adequate knowledge, experience investigators and enumerators have been engaged to conduct the survey. For smooth conduct of the survey a set of questionnaire was prepared. The questionnaire attached herewith (**Appendix-A**) contains following questions.

- Demography (age, sex, marital status etc.)
- Occupation and education (including household income)
- Household and utility service available
- Social service available
- Landfill site and peoples responses
- Affected properties
- Resettlement and compensation

Number of households within the distance of 400 meter at Amin Bazar and Matuail landfill sites is 817 and 313 respectively of which, 54 households at Amin Bazar and 60 at Matuail were surveyed.

3 Survey Result

The entire survey work was completed in seven days. Three groups of experienced enumerators, each group consisting of two persons, were engaged for conducting the field interview survey. After completion of the survey, data obtained have been scrutinized, analyzed, computerized by using Microsoft Excel and the results have been presented in the following sections.

3.1 Demography

3.1.1 Respondents

Total number of households surveyed is 54 and 60 for Amin Bazar and Matuail Extension landfill sites respectively. Total number of family members are 550, of which 266 persons at Amin Bazar and 284 persons at Matuail.

3.1.2 Sex Group

In total 114 households have been surveyed, 54 at Amin Bazar & 60 at Matuail. Of the total household heads, 95.6% are male and only 4.4% are female, as shown in **Table 5.1** cumulative percentage of male & female on whom survey has been conducted is 54.4% & 45.6% respectively. Male female ratio is 119:100.

Table 5.1: Sex Group

Sex	Amin Bazar				Matuail				Total			
	H.H	**%**	**H.M**	**%**	**H.H**	**%**		**%**	**H.H**	**%**		**%**
Male	53	98.2	145	54.5	56	93.3	154	54.2	109	95.6	299	54.4
Female	1	1.8	121	45.5	4	6.7	130	45.8	5	4.4	251	45.6
Total	**54**	**100**	**266**	**100**	**60**	**100**	**284**	**100**	**114**	**100**	**550**	**100**

Note : 1. H/H means Households Heads , 2. H/M means Households Members

3.1.3Age Group

Out of 114 household heads, age group between 35-44 is 36% which is the highest among the other group. The survey results show that the age group of household members between 15 to 24 years represents highest number, 23.3% of the total. Since only 1.8% of the surveyed people is more than 64 years old, longevity of the people appears to be low. Details of age groups are shown in **Table 5.2**.

Table 5.2: Age Group

Sex	Amin Bazar				Matuail				Total			
	H.H	**%**	**H.M**	**%**	**H.H**	**%**		**%**	**H.H**	**%**		**%**
00-09	-	-	28	10.5	-	-	50	17.6	-	-	78	14.2
09-14	-	-	32	12.0	-	-	48	16.9	-	-	80	14.5
15-24	1	1.8	69	25.9	-	-	59	20.8	1	1.0	128	23.3
25-34	11	20.4	47	17.7	12	20.0	47	16.5	23	20.1	94	17.1
35-44	13	24.1	38	14.3	28	46.7	48	16.9	41	36.0	86	15.6
45-54	13	24.1	28	10.5	13	21.7	23	8.1	26	22.8	51	9.3
55-64	10	18.5	16	6.0	5	8.3	7	2.5	15	13.1	23	4.2
64+	6	11.1	8	3.0	2	3.3	2	0.7	8	7.0	10	1.8
Total	**54**	**100**	**266**	**100.0**	**60**	**100**	**284**	**100.0**	**114**	**100**	**550**	**100.0**

Note : 1. H/H means Households Heads , 2. H/M means Households Members

3.1.4Religious Group

95.6% of the household heads are Muslims and 4.4% are Hindus. 96.4% of the surveyed household members are Muslims & 3.6% are Hindus. There are no other religious groups in the study area. **Table 5.3** shows the religious group in two surveyed areas.

Table 5.3: Religious Group

Sex	Amin Bazar				Matuail				Total			
	H.H	%	H.M	%	H.H	%	H.M	%	H.H	%	H.M	%
Muslim	49	90.7	246	92.5	60	100	284	100.0	109	95.6	530	96.4
Hindu	5	9.3	20	7.5	0	0	0	0.0	5	4.4	20	3.6
Total	**54**	**100**	**266**	**100.0**	**60**	**100**	**284**	**100.0**	**114**	**100**	**550**	**100.0**

Note : 1. H/H means Households Heads , 2. H/M means Households Members

3.1.5 Marital Status

Out of 114 household heads, 95.6% are married and others are insignificant. Out of the total 550 household members, unmarried are 45.3%, married 52.4%, divorced 0.5% and widows 1.8%. **Table 5.4** shows the detail marital status of the study area.

Table 5.4: Marital Status

Marital Status	Amin Bazar				Matuail				Total			
	H.H	%	H.M	%	H.H	%	H.M	%	H.H	%	H.M	%
Single	2	3.7	113	42.5	1	1.7	136	47.9	3	2.6	249	45.3
Married	51	94.4	145	54.5	58	96.96	143	50.4	109	95.6	288	52.4
Divorced	-	-	2	0.8	-	-	1	0.4	-	-	3	0.5
Widow	1	1.9	6	2.3	1	1.7	4	1.4	2	1.8	10	1.8
Total	**54**	**100**	**266**	**100**	**60**	**100**	**284**	**100**	**114**	**100**	**550**	**100.0**

Note : 1. H/H means Households Heads , 2. H/M means Households Members

3.2 Occupation and Education

5.3.2.1 Occupational Categories

Business is the main occupation of the Household Heads. 42.1% of the Household Heads are businesspersons. Various occupational categories are found in the **Table 5.5**. Among the household members the dominant occupational groups are business (16.2%) followed by day labour (4.7%). The survey reveals that 25% are students and 23.3% are housewives. It is obvious that, because of relatively younger age group students were found to be a dominant group. And housewives might seem to be a dependent category of population. They contribute to a large extent to the family and community.

Table 5.5: Occupational Categories

Sex	Amin Bazar				Matuail				Total			
	H.H	%	H.M	%	H.H	%	H.M	%	H.H	%	H.M	%
Rickshaw Puller	-	-	0	0.0	4	6.7	7	2.5	4	3.5	7	1.3
Business	24	44.4	55	20.7	24	40.0	34	12.0	48	42.1	89	16.2
Driver	7	13.0	13	4.9	4	6.7	11	3.9	11	9.6	24	4.4
Hawker	-	-	0	0.0	1	1.6	1	0.4	1	0.9	1	0.2
Daily Labour	5	9.2	8	3.0	7	11.7	18	6.3	12	10.5	26	4.7
Mason	-	-	5	1.9	4	6.7	6	2.1	4	3.5	11	2.0
Garments Worker	-	-	0	0.0	-	-	2	0.7	-	-	2	0.4
Domestic Helper	-	-	0	0.0	1	1.6	5	1.8	1	0.9	5	0.9
Student	-	-	64	24.1	-	-	73	25.7	-	-	137	24.9
Housewife	1	1.9	64	24.1	3	5.0	64	22.5	4	3.5	128	23.3
Unemployed	1	1.9	13	4.9	3	5.0	20	7.0	4	3.5	33	6.0
Others	16	29.6	44	16.5	9	15.0	43	15.1	25	22.0	87	15.8
Total :	**54**	**100**	**266**	**100**	**60**	**100**	**284**	**100.0**	**114**	**100**	**550**	**100.0**

Note: Others include Minor Children, Cultivator, Tailor, Imam, Cook, Blacksmith, Fisherman, Tukai (vagabond), Service Holder, Retired Person & very old person.

3.2.2 Monthly Income of the Household Head

The survey results show income group of the household heads of Tk. 4501-6000/- is the largest group among the other income groups. Only 10.5% of the household heads earn more than Tk. 7500/-. Different income groups of the household heads have been shown in **Table 5.6**.

Table 5.6: Monthly Income of the Household Head

Income Range in Tk.	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
< 1500	5	9.3	2	3.3	7	6.1
1501-2500	3	5.6	12	20.0	15	13.2
2501-3000	7	13.0	10	16.7	17	14.9
3001-4500	12	22.2	12	20.0	24	21.1
4501-6000	12	22.2	14	23.3	26	22.8
6001-7500	8	14.8	5	8.3	13	11.4
7500+	7	13.0	5	8.3	12	10.5
Total :	**54**	**100**	**60**	**100**	**114**	**100**

3.2.3 Total Monthly Household Income and Expenditure

Table 5.7 reflects total picture of the different total monthly household income and expenditure groups. Less than Tk. 5000 income group is about 38% of the total respondents and less than Tk. 5000 expenditure group is 46.5%. Households having income & expenditure

range Tk. 5001-10000 are exactly 40.4%. Income & expenditure between Tk. 10001-15000 are 14.0% & 7.9% respectively.

Table 5.7: Total Monthly Household Income and Expenditure

Income & Expenditure Range in Tk.	Income				Expenditure							
	Amin Bazar		Matuail		Amin Bazar		Matuail				Expenditure	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
< 5000	18	33.3	25	41.7	21	38.9	32	53.3	43	37.7	53	46.5
5001-10000	18	33.3	28	46.7	24	44.4	22	36.7	46	40.4	46	40.4
10001-15000	12	22.2	4	6.7	6	11.1	3	5.0	16	14.0	9	7.9
15001-20000	0	0.0	2	3.3	1	1.9	2	3.3	2	1.8	3	2.6
20001-25000	2	3.7	0	0.0	1	1.9	0	0.00	2	1.8	1	0.9
25001-30000	3	5.6	0	0.0	1	1.9	0	0.00	3	2.6	1	0.9
30000+	1	1.9	1	1.7	0	0.00	1	1.7	2	1.8	1	0.9
Total :	**54**	**100**	**60**	**100**	**54**	**100**	**60**	**100**	**114**	**100**	**114**	**100**

3.2.4 Education Level

The study reveals that highest number of the Household Heads, (31.6%) have got primary education and as high as 24.5% of them have never studied i.e. are illiterate. It appears from **Table 5.8**, 21% of the household members surveyed that they never studied in any educational institution, 35.3% has got primary education, who are in true sense, have some alphabetical ideas & only 3.1% has got Bachelor Degree.

Table 5.8: Education Level

	Amin Bazar				Matuail				Total			
	H.H	%	H.M	%	H.H	%	H.M	%	H.H	%	H.M	%
Never Studied	10	18.5	42	15.8	18	30.0	73	25.7	28	24.5	115	20.9
Primary Education	15	27.8	93	35.0	21	21.35	101	35.6	36	31.6	194	35.3
Junior Education	13	24.0	78	29.3	6	10.0	30	10.6	19	16.7	108	19.6
Secondary	12	22.2	32	12.0	8	13.3	37	13.0	20	17.5	69	12.5
Higher Secondary Education	3	5.6	10	3.8	3	5.0	13	4.6	6	5.3	23	4.2
Bachelor+Master Degree	1	1.9	5	1.9	4	6.7	12	4.2	5	4.4	17	3.1
Others	-	-	6	2.3	-	-	18	6.3	-	-	24	4.4
Total :	**54**	**100**	**266**	**100**	**60**	**100**	**284**	**100**	**114**	**100**	**550**	**100**

Note : Other means children below 4-5 years old, who do not go to school.

3.2.5 Length of Stay of Household Head

It has been shown in **Table 5.9** that the percentage of people living in the area since birth is high (63%). This is because, in the suburban areas & areas adjacent to Dhaka City, most people are locals. 13% of the respondents were found to have lived in this area between 6-10 years while 17% are found to be new comers living in the area below 5 years.

Table 5.9 : Length of Stay of the Household Head

	Amin Bazar		**Matuail**		**Total**	**%**
	Total	**%**	**Total**	**%**		
Since birth	47	87.0	25	41.7	72	63.2
< 5	3	5.6	16	26.7	19	16.7
6-10	1	1.9	14	23.3	15	13.2
11-15	1	1.9	3	5.0	4	3.5
16-20	1	1.9	2	3.3	3	2.6
20+	1	1.9	0	0.0	1	0.9
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.2.6 Occupancy Type

Survey shows that about 79.8% of the households live in their own houses indicating that these people have own land and house in the study area. About 19.3% live in rented houses, as reflected in **Table 5.10**. One respondent, a guard of fish firm, lives rent-free in guardhouse.

Table 5.10: Occupancy Type

Type	Amin Bazar		**Matuail**		**Total**	**%**
	Total	**%**	**Total**	**%**		
Own house	54	100.0	37	61.7	91	79.8
Rented	0	0.0	22	36.7	22	19.3
Rent free	0	0.0	1	1.7	1	0.9
Total	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.3 Households and Utility Services Available

5.3.3.1 Type of Houses of the Respondents

The household survey shows that out of the total, 44% have pucca house, 33.3% are semi pucca and 23% are kutcha house. This has been reflected in **Table 5.11**. This shows the increasing trend of people's affordability for better housing. 22.8% of the respondents live in kutcha houses.

Table 5.11 : Type of Houses of the Respondents

Type	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Pucca (concrete +brick)	31	57.4	19	31.7	50	43.9
Semi Pucca (wall/floor pucca, roof tin)	17	31.5	21	35.0	38	33.3
Kutcha (CI sheet+ Bamboo)	6	11.1	20	33.3	26	22.8
Total	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.3.2 Size of House

It was found from the survey that about 75% of the houses are between the size of 26-70 sqm. Few houses are bigger in sizes. Only 1.8% households have more than 140 sq.m. size houses. Different ranges of sizes of houses owned by households have been shown in **Table 5.12**.

Table 5.12 : Size of the house

Range of Size (sqm)	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
<25	6	11.1	10	16.7	16	14.0
26-50	23	42.6	30	50.0	53	46.5
51-70	22	40.7	10	16.7	32	28.1
71-95	3	5.6	4	6.7	7	6.1
96-140	0	0.0	4	6.7	4	3.5
140+	0	0.0	2	3.3	2	1.8
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.3.3 Utility Services Available

Table 5.13 shows availability of utility services in the surveyed area. About 96% of the respondents have water supply, electricity & toilet facilities. Toilets are not fully of the sanitary type. Tubewell is main source of water. Only few have gas connection which is mainly in Matuail site.

Table 5.13 : Utility Services Available

Services	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Water Supply	53	98.1	59	98.3	112	98.2
Sewerage	3	5.6	1	1.7	4	3.5
Electricity	52	96.3	58	96.7	110	96.5
Gas	0	0.0	3	5.0	3	2.6
Toilet	51	94.4	60	100.0	111	97.4
Telephone	1	14.8	6	10.0	7	12.3
Others	13	7.4	3	5.0	16	6.1

Note: Others mean cell phone locally known as mobile phone.

3.3.4 Expenditure for Stay (Residential)

It is revealed from the survey that 81% of the households live in their own houses and do not pay any rent. Range of rent for rest of the households is also low. About 8% households pay less than Tk. 1000 per month as house rent and 3% tenants pay within the range of Tk. 1500-2000 as house rent and this figure only exist in Matuail site. **Table 5.14** shows expenditure for stay in the study area.

Table 5.14: Expenditure for Stay (Residential)

Rent Range (Tk)	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
No rent	54	100	38	65.0	92	80.7
< 500	0	0.0	5	8.3	5	4.4
501-1000	0	0.0	9	15.0	9	7.9
1001-1500	0	0.0	5	8.3	5	4.4
1501-2000	0	0.0	3	5.0	3	2.6
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.4 Social Facilities Available

3.4.1 Available Social Facilities

Primary Health Care services in the surveyed area can be available within a distance of only 1-2 km. Only in Amin Bazar site Hospital, College & Community Center are 8-10 km away from the area. This has been reflected in **Table 5.15**.

Table 5.15: Distance Range of Available Social Facilities

Type of Facilities	Amin Bazar										Matuail										Total									
	<1	%	1-2	%	3-5	%	6-10	%	10+	%	<1	%	1-2	%	3-5	%	6-10	%	10+	%	<1	%	1-2	%	3-5	%	6-10	%	10+	%
Primary Health Care	38	70.4	16	29.6	0	0.0	0	0.0	0	0.0	60	100	0	0.0	0	0.0	0	0.0	0	0.0	98	86.0	16	14.0	0	0.0	0	0.0	0	0.0
Hospital	1	1.9	0	0.0	1	1.9	50	92.6	2	3.7	60	100	0	0.0	0	0.0	0	0.0	0	0.0	61	53.5	0	0.0	1	0.9	50	43.9	2	1.8
Market	51	94.4	3	5.6	0	0.0	0	0.0	0	0.0	60	100	0	0.0	0	0.0	0	0.0	0	0.0	51	94.4	3	5.6	0	0.0	0	0.0	0	0.0
Primary School	53	98.1	1	1.9	0	0.0	0	0.0	0	0.0	60	100	0	0.0	0	0.0	0	0.0	0	0.0	53	98.1	1	1.9	0	0.0	0	0.0	0	0.0
High School	36	66.7	18	33.3	0	0.0	0	0.0	0	0.0	60	100	0	0.0	0	0.0	0	0.0	0	0.0	36	66.7	18	33.3	0	0.0	0	0.0	0	0.0
College	0	0.0	0	0.0	0	0.0	51	94.4	3	5.6	60	100	0	0.0	0	0.0	0	0.0	0	0.0	60	52.6	0	0.0	0	0.0	51	44.7	3	2.6
Mosque/Temple /Church	51	94.4	3	5.6	0	0.0	0	0.0	0	0.0	60	100	0	0.0	0	0.0	0	0.0	0	0.0	111	97.4	3	2.6	0	0.0	0	0.0	0	0.0
Community Center	0	0.0	0	0.0	0	0.0	51	94.4	3	5.6	60	100	0	0.0	0	0.0	0	0.0	0	0.0	50	52.6	0	0.0	0	0.0	51	44.7	3	2.6

3.4.2 Road Type

It is revealed from the **Table 5.16** that roads connecting the surveyed area with Hospital, Market, College & community center are almost 100% pucca. It means that communication facilities are good with the study areas.

Table 5.16 : Available Communication Facilities (Road)

Type of Facilities	Amin Bazar						Matuail						Total					
	Kutcha	%	Brick Soling	%	Pucca	%	Kutcha	%	Brick Soling	%	Pucca	%	Kutcha	%	Brick Soling	%	Pucca	%
Primary Health Care	19	35.2	35	64.8	0	0.0	0	0.0	0	0.0	60	100	19	16.7	35	30.7	60	52.6
Hospital	0	0.0	2	3.7	52	96.3	0	0.0	0	0.0	60	100	0	0.0	2	1.8	112	98.2
Market	0	0.0	2	3.7	52	96.3	0	0.0	0	0.0	60	100	0	0.0	2	1.8	112	98.2
Primary School	20	37.0	34	63.0	0	0.0	0	0.0	0	0.0	60	100	20	17.5	34	29.8	60	52.6
High School	19	35.2	35	64.8	0	0.0	0	0.0	0	0.0	60	100	19	16.7	35	30.7	60	52.6
College	0	0.0	4	7.4	50	92.6	0	0.0	0	0.0	60	100	0	0.0	4	3.5	110	96.5
Mosque/Temple / Church	20	37.0	33	61.1	1	1.9	0	0.0	0	0.0	60	100	20	17.5	33	28.9	61	53.5
Community Center	1	1.9	0	0.0	53	98.1	0	0.0	0	0.0	60	100	1	0.9	0	0.0	113	99.1

3.5.4 Sanitation Practice of the Households

Survey results show that 76.3% of the households are using sanitary latrines and 23% are using kutcha latrine. Only 1% doest not use any latrine normally they use open field. (**Table 5.17)**.

Table 5.17 : Sanitation Practice of the Households

Latrine Type	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
No Latrine/open field	0	0.0	1	1.7	1	0.9
Kutcha Latrine	6	11.1	20	33.3	26	22.8
Sanitary Latrine	48	88.9	39	65.0	87	76.3
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

5.3.4.3 Name & Activity of NGO's Working in the Area

It has been observed from the questionnaire survey that some NGO/CBO's are working in this area like ASA, BRAC, Proshika and Grameen Bank etc. (**Table 5.17**). Their activities are manifold. But for human related activities, their main activity is providing micro credit facilities to the vulnerable group of the society.

Table 5.18: Name & Activity of NGO's working in the area

Name of NGO	Activity	Amin Bazar		Matuail		Total	%
		Total	%	Total	%		
ASA	Micro Credit	53	88.3	36	60.0	89	78.1
BRAC	Micro Credit, Education	46	76.7	2	3.3	48	42.1
Proshika	Micro Credit, Education, Health Care	51	85.0	33	55.0	84	73.7
G. Bank	Micro Credit	9	15.0	0	0.0	9	7.9

3.4.5 Type of Assistance Received from NGO

From survey results reflected in **Table 5.19**, it is found that 7.9% of the respondents receiving micro credit assistance from NGO's and 92.1% do not receive any assistance.

Table 5.19: Type of Assistance Received from NGO

Type of Assistance	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Micro credit	7	13.2	2	3.3	9	7.9
No assistance	47	88.7	58	96.7	105	92.1
Total :	**53**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.5 Landfill Sites and Peoples' Responses

3.5.1 Respondent's Knowledge about Matuail Landfill Sites

From **Table 5.20**, it is seen that 50% respondents in Amin Bazar have knowledge about Matuail Landfill Sites & 95% of the respondents in Matuail knows about Matuail Landfill sites. In average 73.7% of the respondents have knowledge about Matuail Landfill site.

Table 5.20 : Respondent's Knowledge about Matuail Landfill Site

Knowledge about solid waste disposal at Matuail Landfill site	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Have knowledge	27	50.0	57	95.0	84	73.7
Do not have knowledge	27	50.0	3	5.0	30	26.3
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.5.2Respondent's Knowledge about the Affect of Matuail Landfill Site

As seen from **Table 5.21**, 76% of the respondents have opined that Matuail Landfill Sites is dirty & smelly, about 3% said it is not dirty & smelly and 21% did not comment.

Table 5.21: Matuail Landfill Site Dirty & Smelly

	Amin Bazar						Matuail						Total					
	Yes	%	No	%	Do not know	%	Yes	%	No	%	Do not know	%	Yes	%	No	%	Do not know	%
Landfill dirty	28	51.8	3	5.6	23	42.6	59	98.3	0	0.0	1	1.7	87	76.3	3	2.6	24	21.1
Landfill smelly	28	51.8	3	5.6	23	42.6	59	98.3	0	0.0	1	1.7	87	76.3	3	2.6	24	21.1

3.5.3 Acceptability of Landfill Site Near Home

As seen from **Table 5.22**, none of the respondents have accepted Landfill site near their homes in Amin Bazar, while 30% of the respondents at Matuail have expressed their opinion in favor of acceptability of landfill near their homes.

Table 5.22: Acceptability of Landfill site near home

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	0	0.0	18	30.0	18	15.8
No	41	75.9	40	66.7	81	71.1
I don't know	13	24.1	2	3.3	15	13.2
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.5.4 Necessity of Improvement of Matuail Landfil Site

Survey results reveal that 81.6% of the respondents have given opinion in favor of improvement of landfill site (**Table 5.23**). None has opined against it. Only about 18% have said that they do not know.

Table 5.23: Necessity of Improvement of Matuail Landfill Site

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	36	66.7	57	95.0	93	81.6
No	0	0.0	0	0.0	0	0.0
I don't know	18	33.3	3	5.0	21	18.4
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.5.5 Respondent's Knowledge about the Landfill plan

Only 35% of the respondents have the knowledge about landfill site plans and the rest of 65% have no idea about this. This has been shown in **Table 5.24**.

Table 5.24: Respondent's Knowledge about the Landfill plan

Have Know	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	19	35.2	21	35.0	40	35.1
No	35	64.8	39	65.0	74	64.9
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.5.6 Respondent's Land Inside the Planned Area

Survey results show that about 25% of the respondents have land inside the planned area & the rest 75% do not have (**Table 5.25**).

Table 5.25: Respondents Land Inside the Planned Area

Land Located	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	18	33.3	11	18.3	29	25.4
No	36	66.7	49	81.7	85	74.6
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.5.7 Respondent's House Located Inside the Planned Area

Survey results as shown in **Table 5.26** show that 100% of the respondents do not have house inside the planned area.

Table 5.26: Respondents' House located Inside the Planned Area

House Located	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	0	0.0	0	0.0	0	0.0
No	54	100	60	100	114	100
Total :	**54**	**100**	**60**	**100**	**114**	**100**

3.5.8 Affected Land of the Respondents by the Landfill Plan

Survey results produced in the **Table 5.27**show that 71% of the respondent's land will not be affected by the plan. 27% of the respondents' land will be affected by the plan and the rest do not know.

Table 5.27: Affected Land of the Respondents by the Landfill Plan

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	20	37.0	11	18.3	31	27.2
No	33	61.1	48	80.0	81	71.1
I don't know	1	1.9	1	1.7	2	1.8
Total :	**54**	**100**	**60**	**100**	**114**	**100**

3.5.9 Affected House of the Respondents by the Landfill Plan

Survey results as shown in **Table 5.28** show that 71% of the respondents opined that their houses will not be affected. 8.8% of the respondents said that do not know. 20.2% of the respondents apprehend that their houses will be affected.

Table 5.28: Affected House of the Respondents by the Landfill Plan

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	20	37.0	3	5.0	23	20.2
No	29	53.7	52	86.7	81	71.0
I don't know	5	9.3	5	8.3	10	8.8
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.5.10 Affect on the Income by the Landfill Plan

As per interview result, tabulated in **Table 5.29**, majority of the respondents (57.9%) have opined that income will not be affected by the plan. 28.1% of the respondents said that income will be affected by the plan and remaining 14% of the respondents are not aware about this.

Table 5.29: Affect on the Income by the Landfill Plan

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	20	37.0	12	20.0	32	28.1
No	27	50.0	39	65.0	66	57.9
I don't know	7	13.0	9	15.0	16	14.0
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.5.11 Affect on the Family Members by the Landfill Plan

Tabulated survey results in **Table 5.30** show that 69.3% of the respondents have opined that the family members will be affected. 16.7% of the respondents opined that they will not be affected. 14% of the respondents are not aware of the affect of the project.

Table 5.30: Affect on the Family Members by the Landfill Plan

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	41	75.9	38	63.3	79	69.3
No	5	9.3	14	23.3	19	16.7
I don't know	8	14.8	8	13.3	16	14.0
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

5.3.5.12 Acceptability of the Landfill Plan

Interview survey results have been produced in **Table 5.31**and the table show that 60.5% of the respondent will not accept this plan. 28.9% respondents have shown positive indication for acceptance of the plan. 10.5% of the respondents are in a fix and said that they do not know.

Table 5.31: Acceptability of the Landfill Plan

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	5	9.3	28	46.7	33	28.9
No	43	79.6	26	43.3	69	60.5
I don't know	6	11.1	6	10.0	12	10.5
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.5.13 Acceptability of Landfill Plan after Improvement of Operation

Survey results shown in **Table 5.32** show that large number of respondents (71.1%) have opined to accept the plan if landfill operation is improved. 18.4% respondents have opined against the plan even after operational improvement. 10.5% of the respondents say 'do not know'.

Table 5.32: Acceptability of the Landfill Plan after Improvement of Operation

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	27	50.0	54	90.0	81	71.1
No	18	33.3	3	5.0	21	18.4
I don't know	9	16.7	3	5.0	12	10.5
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.6 Information on Affected Properties

5.3.6.1 Affected Dwelling House & Structure by the project

In response to this question no dwelling house are directly affected by the landfill plan.

5.3.6.2 Affected land of the Respondents by the Landfill Plan

Some of the respondents have agriculture land in both Amin Bazar & Matuail and Water bodies in Matuail are directly affected by the landfill plan. It has been shown in **Table 5.33**.

Table 5.33: Affected Land of the Respondents by the Landfill Plan

Use of land	Amin Bazar			Matuail			Total		
	Area of land (acre)	Production (in Ton)	Present value (in 1000 Tk.)	Area of land (acre)	Production (in Ton)	Present value (in 1000 Tk.)	Area of land (acre)	Production (in Ton)	Present value (in 1000 Tk.)
Homestead	-	-	-	-	-	-	-	-	-
Agriculture land	28.80	57.60	592	9.04	23.43	218	37.84	81.03	810
Water Bodies	-	-	-	1.66	3.30	200	1.66	3.30	200
Kitchen garden	-	-	-	-	-	-	-	-	-
Commercial	-	-	-	-	-	-	-	-	-
Industrial	-	-	-	-	-	-	-	-	-
Fallow	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
Total :	**28.8**	**57.6**	**592**	**10.7**	**26.73**	**418**	**39.5**	**84.33**	**1010**

5.3.6.3 Affected Trees & Vegetation

In response to this question both matured and immatured trees and vegetables are not affected by the landfill plan.

3.7 Resettlement

5.3.7.1 Necessity of Relocation of House

Survey results have been reflected in **Table 5.34** and it is seen that 25.5% of the respondent are against relocation of their house. They do not like to move from their present place of residence in fear of being completely homeless & landless. 6.1% of the respondents have opined to accept relocation if necessary. 68.4% of the respondents are not sure what to do & replied 'do not know'.

Table 5.34: Necessity of Relocation of House

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	5	9.3	2	3.3	7	6.1
No	18	33.3	11	18.3	29	25.5
I don't know	31	57.4	47	78.3	78	68.4
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.7.2 Main Reason for Relocation of House

The respondents who apprehend that they will need relocation of houses have expressed that main reasons will be loss of land & house. 103 respondents will not require relocation of houses. Survey results have been incorporated in **Table 5.35**.

Table 5.35: Main Reason for Relocation of House

Reason	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Loss of land	7	13.0	1	1.7	8	7.0
Loss of house	1	1.9	0	0.0	1	0.9
Loss of income	0	0.0	0	0.0	0	0.0
Other	46	85.2	59	98.3	105	92.1
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

Note : *Other means those who (103) do not need relocation & one H/H in Amin Bazar, who would not like to live in the area adjoining the solid waste dumping site & the one who apprehends that commercial value of land will decline.*

3.7.3 Main Concern over the Movement from the Present Residence

Survey results have been entered in **Table 5.36**. It is revealed from the results that main concern are fair compensation, replacement of land & timely payment of compensation.

Table 5.36: Main Concern over the Movement from the Present Residence

Concern	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Fair compensation for lost properties	4	7.4	1	1.7	5	4.4
Replacement of land/house plot	5	9.3	0	0.0	5	4.4
Timely compensation	3	5.6	1	1.7	4	3.5
Assistance during relocation	0	0.0	0	0.0	0	0.0
Loss of Income	1	1.9	0	0.0	1	0.9
Future employment	2	3.7	0	0.0	2	1.8
Others	45	83.3	58	96.7	103	90.4

Note: *Others mean those respondents who are reluctant to say any thing, who do not want to resettle, who do not like to accept the project & who do not like to move from the present house.*

5.3.7.4 Chosen Place of Resettlement

Survey results have been tabulated in **Table 5.37**. 10.5% of the respondents have chosen to resettle within the same area, 11.4% in the neighbouring area, 9.6% in the city & 5.3% outside the city. But majority 63.2% of the respondents do not know what to do in case of resettlement.

Table 5.37: Chosen place of Resettlement

Choice	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Within the same area	7	13.0	5	8.3	12	10.5
Neighboring area	5	9.3	8	13.3	13	11.4
In the city	5	9.3	6	10.0	11	9.6
Outside the city	5	9.3	1	1.7	6	5.3
Do not know	32	59.3	40	66.7	72	63.2
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

3.7.5 Preferred Occupation in Resettled Place

From the **Table 5.38**, it is found that 94.7% of the respondents (others) do not prefer any occupation including those who do not like to resettle in any case. 4 respondents have preferred previous occupation, 1 respondent has preferred to open new business & 1 respondent has said “do not know”.

Table 5.38: Preferred occupation in resettled Place

Preferred Occupation	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Same as before	3	5.6	1	1.7	4	3.5
Employment in the Project site	0	0.0	0	0.0	0	0.0
Open new business	1	1.9	0	0.0	1	0.9
Seek job in the town	0	0.0	0	0.0	0	0.0
Do not know	1	1.9	0	0.0	1	0.9
Others	49	90.7	59	98.3	108	94.7
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

Note: *Others mean those respondents who did not answer the questions including those who do not like to resettle in any case.*

3.8 Compensation

5.3.8.1 Chosen Mode of Compensation

Survey results have been entered in **Table 5.39**. It is revealed that 10.5% of the respondents have chosen cash as compensation & 13.2% land for land. 86 respondents did not choose any mode of compensation, as they will not incur any loss due to implementation of the project. One respondent stated that he will not accept the project. None of the respondent has house plot & built house in resettled area as mode of compensation.

Table 5.39: Chosen mode of compensation

Choice	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Cash compensation	6	11.1	6	10.0	12	10.5
Land for land	12	22.2	3	5.0	15	13.2
House plot	0	0.0	0	0.0	0	0.0
Built house in resettlement site	0	0.0	0	0.0	0	0.0
Others	36	66.7	51	85.0	87	76.3
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

Note: *Others mean the respondents (86) who do not answer the question, as they are not likely to face any loss due to the project and a respondent who does not like to accept the project.*

3.8.2 Expected Rehabilitation Assistance

As regards rehabilitation assistance, 19.3% of the respondents have opined for cash assistance, 2.6% for employment opportunities. Survey results tabulated on **Table 5.40** show that 78.1% of the respondents are in others group. Among them those who do not like to accept the project are few in number. The rest of this group will not require any resettlement. No respondent has opted for vocational training & credit facility.

Table 5.40: Expected Rehabilitation Assistance

Type	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Cash	14	25.9	8	13.3	22	19.3
Vocational training	0	0.0	0	0.0	0	0.0
Credit	0	0.0	0	0.0	0	0.0
Employment	3	5.6	0	0.0	3	2.6
Others	37	68.5	52	86.7	89	78.1
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

Note: *Others mean the respondents who do not accept the project, who will not resettle in any condition as well as the respondents who do not answer the question.*

3.9 Opinion of the Respondents

5.3.9.1 Respondents' Opinion regarding the Landfill Plan

Results of the Field Survey have been entered in **Table 5.41**. 44.7% of the respondents have opined that the plan will create additional employment, 12.3% have opined that it will improve environmental condition & 12.3% have opined that it will improve communication. 1.8% of the respondents have said the project will improve physical conditions of the area.

Table 5.41: Opinion of the Respondents (Multiple Opinion Obtained)

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Improve physical condition of the area	1	1.9	1	1.7	2	1.8
Improve environment condition of the area	1	3.7	12	20.0	14	12.3
Create additional employment opportunity	25	46.3	26	43.3	51	44.7
Improve Communication network	1	1.9	13	21.7	14	12.3
Others	28	51.9	16	26.7	44	38.6

Note: *Others mean opinion expressed by the respondents other than the four specific questions set forth here. Other opinions are in brief as follows; i. Reluctant to accept solid waste disposal plan. ii. Govt. must pay compensation in full in time. iii. Govt. should create facilities. iv. Want to live in sound environment to lead a happy & comfortable life, v. If land is not acquired, the project can be accepted, vi. If the environmental hazard is controlled, the project is acceptable, vii. If steps are taken to save the people from pollution, the project can be accepted, viii. We shall prevent the project, ix. The project will not improve the environmental condition. X. Will not accept the project, xi. The project will create air pollution and communication problem.*

3.9.2 Acceptability of the Landfill Plan for the Greater Interest of Dhaka

Survey results have been tabulated in **Table 5.42**. It can be observed that 77.2% of the respondents have given their opinion in favour of the plan for the sake of the welfare of Dhaka city. Only 13.2% of the respondent do not accept the plan.

Table 5.42: Acceptability of the Landfill Plan for the Greater Interest of Dhaka

Opinion	Amin Bazar		Matuail		Total	%
	Total	%	Total	%		
Yes	35	64.8	53	88.3	88	77.2
No	12	22.2	3	5.0	15	13.2
I don't know	7	13.0	4	6.7	11	9.6
Total :	**54**	**100.0**	**60**	**100.0**	**114**	**100.0**

6. Survey on Recycle Sector

1. Recyclable Material Collectors

The recyclable material collectors can be defined into four categories. These are: waste picker at Dumpsite, at Container, of Private sector, and of Community person. Every waste picker is either interlinked to others or working in individual working group. But the interlinkage of waste pickers depends on the type of collected waste. The recovery rate of each recyclable material is quite satisfactory to the final destination (Recycle Factories). Almost 4,700 collectors are involved in collecting recyclable materials. This survey was carried out during dry season in Bangladesh. During dry season, the number of recyclable material collectors is the highest and it decreases during rainy season. Moreover the quantity and quality of recovered waste materials are also depending on the weather as well.

1.1 Recyclable Material Collector at Dumpsite:

There are two dumpsites in Dhaka City. One is Matuail and the other is Beri Bandh, which is shown in the map attached with this document entitling "Dhaka City Map". Average number of waste picker at dumpsite is 400. It seems that this kind of waste collection is hazardous to anyone. Sometimes they face severe health related problem, but they do it for their only source of income. They also expect free health care service from the authority of dumpsite and also from the government. It was also found that they do this job, even they get another job. They also enjoy this work, which was informed by some recyclable material collectors. They collect Glass, Plastic, Paper, Metal, Leather, Rubber, Bone, and others.

They collect recyclable material on an average 21 kg of various contents. The Table 1 shows the information of collected material and their market price for these collectors, which was replied to the surveyor.

Table 1: Daily output of recyclable material collectors at dumpsite (5 samples)

Recovered Item	Volume (kg/day)	Daily output (Tk/day)	Average unit price (Tk/kg)
Glass	9.5	23	2.4
Plastic	29	149	5.2
Paper	16	46	2.9
Metal	11	139	12.9
Leather	4	6.5	1.6
Rubber	8	13	1.6
Bone	15	36	2.4
Others	11	24	2.2
Total	**103**	**436**	
Average	**21**	**87**	**4.2**

Recyclable material collectors at dumpsite are usually selling their collected materials to nearby middle-scale or large-scale buyer to respective dumpsites. They are getting recovered materials mostly from these collectors at dumpsite. Sometimes, material collectors at dumpsites bring specific material to other buyers who give better prices. With the increase of volume of waste, the number of recyclable material collectors at dumpsite is also increasing year-by-year.

1.2 Recyclable Material Collector at Container:

Around 1,000 recyclable material collectors are working at 400 waste containers. This number varies from time-to-time and place-to-place. They usually collect material by hand and use basket, bag and 'Van gari' for the transportation. They collect Glass, Plastic, Paper, Metal, Leather, Rubber, Bone, and others. They do not collect everyday all types of recyclable materials and their amounts also changeable. In general, rainy season gives adverse effect on recycling particularly of paper, however, this survey was not affected by this effect because it was conducted in dry season.

Table 2: Daily output of recyclable material collectors at container (3 smples)

Recovered Item	Volume (kg/day)	Daily output (Tk/day)	Average unit price (Tk/kg)
Glass	18	27	1.5
Plastic	10	58	5.8
Paper	21	58	2.7
Metal	26	218	8.5
Leather			0
Rubber			0
Bone			0
Others	3	4.5	1.5
Total	**78**	**365**	
Average	**26**	**122**	**4.7**

Material collectors are collecting on an average 26 kg of various contents. They can get better unit price than that of material collectors at dumpsite.

1.3 Recyclable Material Collector of Private Sector:

Some private sectors are engaged in waste collection for Dhaka City Corporation or specific communities under the contract. The employees are also functioning as recyclable material

collectors besides their original tasks. They collect Glass, Plastic, Paper, Metal, Leather, Rubber, Bone, and others. Almost 1,800 material collectors in private sectors are active in Dhaka City. The survey proves that the private sectors are earning the highest income among 4 categories of recyclable material collectors. Collectors of private sector are gaining on an average 63 kg of materials of various contents.

Table 3: Daily output of recyclable material collectors of private sector (4 samples)

Recovered Item	Volume (kg/day)	Daily output (Tk/day)	Average unit price (Tk/kg)
Glass	49	101	2.1
Plastic	61	233	3.8
Paper	57	165	2.9
Metal	15	196	13.5
Leather	3	6	2.0
Rubber	26	32	1.2
Bone	50	100	2.0
Others	16	40	2.5
Total	**250**	**867**	
Average	**63**	**217**	**3.5**

1.4 Recyclable Material Collector of Community Person:

In Appendix F, Photo 2 depicts the community based collection system. The community persons collect Glass, Plastic, Paper, Metal, Leather, Rubber, Bone, and others. Approximately 1,500 persons are engaged in this type of work in Dhaka City.

Table 4: Daily output of recyclable material collectors of community person (4 samples)

Recovered Item	Volume (kg/day)	Daily output (Tk/day)	Average unit price (Tk/kg)
Glass	25	36.5	1.5
Plastic	33	144	4.4
Paper	79	209	2.6
Metal	13	242	18.3
Leather			
Rubber	8	13	1.6
Bone	16	30	1.9
Others	27	68	2.5
Total	**201**	**742**	
Average	**50**	**186**	**3.7**

The unit price of material is less than that collected by private sectors. These two types of collectors are gaining higher quality than collectors at dumpsite and container. The larger amount of materials is collected by private and community persons. Each material collector of community person is collecting on an average 50 kg of materials of various contents. The network of recyclable material collection by community-based system is strong. enough to achieve larger amount and higher price.

2. Recyclable Material Buyers

The recyclable material buyers can be classified into four categories. These are:

Floating Buyer (Feriwala)	Category 1
Small scale buyer	Category 2 (hawkers, brokers)
Middle scale buyer	Category 3 (retail shoppers)
Large-scale buyer	Category 4 (wholesaler, raw material supplier)

Each recyclable material buyer plays a linked role to transfer the collected materials from the source to the factories. Approximately 70,000 people are involved in buying and selling of recyclable materials from the collectors and also directly from the utmost source of generation. Price of recyclable materials depends on the material recovery amount and the demand of factories. Highly demandable and less supplied material gains higher price.

2.1 Floating Buyer (Feriwala):

Approximately 4,000 ‘Feriwalas’ are operating in Dhaka City. The Photo 3 in Appendix F illustrates the symbolic item of ‘Feriwala’. They usually move from one place to another place and from door-to-door to collect the recyclable materials: they don’t have any fixed place of operation. That’s why they are called ‘Floating Buyers’. They mostly buy and collect Glass, Plastic, Paper, Metal, Rubber and others in exchange of new goods (plastic items, sandal, aluminum items and so on) or by cash. Among these materials, the amounts of glass, plastic, paper and metal are dominant. The ‘Feriwala’ is itself buyer and collector of waste from the source of generation of recyclable material. They sell the recyclable wastes mostly to the small sector buyer and middle scale buyer. They are not a part of community based material collectors.

Table 5: Daily sales of floating buyer (feriwala) (6 samples)

Purchased Item	Volume (kg/day)	Total buying (Tk/day)	Total selling (Tk/day)
Glass	51	79	107
Plastic	130	254	357
Paper	188	1,352	1,543
Metal	74	620	716
Leather			
Rubber	5	10	15
Bone			
Others	13	66	90
Total	**461**	**2,381**	**2,828**
Average	**77**	**397**	**471**

2.2 Small Scale Buyer:

Based on the type of waste, there are different types of small-scale buyers. Around 5,000 small scale buyers are active in Dhaka City. Approximate number of people engaged in this sector is 20,000. They use hand for sorting of collected materials and they pay in cash to buy and sell in cash as well. Photo 6 in Appendix F shows the dealings of small scale buyer. The capital and benefit of this buyer is not very high. Most of the cases, they focus on selected recyclable materials. Small scale buyers are widely located, however, many of them stand close to the dumpsites or business centers of specific materials. During the survey, the small-scale buyers show their interest to buy any recyclable materials depending on the demands of materials according to the present market situation.

Table 6: Daily sales of small-scale buyer (2 samples)

Purchased Item	Volume (kg/day)	Total buying (Tk/day)	Total selling (Tk/day)
Glass	50	75	88
Plastic	106	2,272	2,479
Paper			
Metal	152	4,494	4,686
Leather			
Rubber			
Bone			
Others			
Total	**308**	**6,841**	**7,253**
Average	**154**	**3,421**	**3,627**

2.3 Middle-Scale Buyer:

Photo 4 in Appendix F gives the image of middle scale buyer. Their business is specified by type of recyclable materials they need. They use hand for sorting of collected materials and dealing method is by cash. Average 17,000 employees are working in 4,200 middle scale buyers. Most of the middle scale buyers are located near the respective client factories. Sometimes, many small-scale buyers are grouped to form a middle-scale buyer. In exceptional cases it was found that middle scale buyer supply the recyclable materials directly to the recycle factories bypassing the large-scale buyers. Usually middle-scale buyers are buying materials from small-scale buyers, however, they are also buying items directly from material collectors. Middle-scale buyers have storage for purchased materials. Sometimes many factories have their own buyers, which can be classified as either middle-scale buyer or large-scale buyer.

Table 7: Daily sales of middle-scale buyer (2 samples)

Purchased Item	Volume (kg/day)	Total buying (Tk/day)	Total selling (Tk/day)
Glass	10	10	15
Plastic	57	600	668
Paper	50	210	260
Metal	119	964	1,072
Leather			
Rubber			
Bone			
Others			
Total	**236**	**1,784**	**2,014**
Average	**118**	**892**	**1,007**

2.4 Large-Scale Buyer:

Around 29,000 employees are working in 5,500 large-scale buyers. The sorting methods of collected materials are also by hand, and their dealing method is also by cash. Photo 5 in Appendix F shows the representative image of large-scale buyers. The large scale buyer is encompassed with many middle-scale or small-scale buyers. Large-scale buyers are dealing with one or two particular recyclable materials. For example, a large-scale buyer of paper is only focusing on dealing of recyclable papers. A large-scale buyer seems to have a good capital though not a single large-scale buyer disclosed the real figures of capital. The large-

scale buyers are controlling many small to middle-scale buyers by means of money or commercial interaction. It was found that stability of market for any recyclable good depends on the role of large-scale buyers. Large-scale buyers are dealing Glass, Plastic, Leather, Rubber and so on. The buying and selling price of each recyclable material depends on the specific demand of materials of the factories.

Table 8: Daily sales of large-scale buyer (5 samples)

Purchased Item	Volume (kg/day)	Total buying (Tk/day)	Total selling (Tk/day)
Glass	1,820	24,234	29,808
Plastic	3,000	22,560	27,072
Paper	2,500	17,900	22,725
Metal	4,191	57,525	97,850
Leather			
Rubber			
Bone			
Others			
Total	**11,511**	**122,219**	**177,455**
Average	**2302**	**24,444**	**35,491**

3. Recycled Product Factory/Shop Owner

3.1 Recycled Product Factory:

3.1.1 Plastic Factory

The recycled plastic factories are dealing with specific items. They usually sort recyclable materials after buying according to the objective final products. They cut recycled plastics into pieces and separate it by colors. After that they send them to the production steps. Sometimes, after cutting into chips, they are disinfected and processed to export to foreign countries. Different types of plastic bottles are being crushed and used as the raw material of either same or different final products. According to the information of different buyers, these plastic bottles are completely recycled once they are disposed by the users and come to the small-scale or middle-scale buyers. The number of these kinds of factories is increasing with time keeping the demand for these recyclable materials. In Appendices A for the summary of recycled product factories; it is shown that a plastic factory is buying different types of recycled plastic for producing new product of either same type as recycled plastic or different type. Seven interviewed factories which use recycled plastic as part of raw material are producing plastic items like: plastic bucket, mug, bowel, net and so on. There are 150

plastic sandal-producing companies in Dhaka and most of them are using recyclable plastic as part of raw materials.

3.1.2 Paper Factory

Recycled papers are going to factories, where they use that paper as a source of pulp by mixing with imported pulp. On the other hand, 11 board, brown and white paper-producing factories are active in Dhaka city and all of them are getting recyclable papers.

3.2 Recycled Product Shop:

The total number of recycled product shop selling plastic items is 1,500 in Dhaka City. The items they are selling are the same types that are buying, e.g., toys, bucket, bowl, net, mug, glass and so on. The capital of these shops varies depending on the items they are keeping. The types of recycle products are increasing. Accordingly the number and type of recycle product shop are also increasing. With the improvement of production technology, the quality of products becomes good; even the factories are using recyclable materials as the raw materials.

4. Compost Stakeholders

According to the information from compost dealers, the rate of using compost as manure is increasing yearly. Only one compost plant which uses kitchen waste as the raw material is operating in Dhaka City. Four more compost plants are also producing compost in Dhaka City, but they are using other raw materials than kitchen waste: tree leaves, cow dung, bones etc. The compost plant which uses kitchen waste as raw material is taking approximately 3000 kg of kitchen waste from many houses of different areas after making a zoning.

Production process is not so complicated. To get the compost from one batch of production, it takes around 55-60 days. It is found that the production cost of compost made of kitchen waste is cheaper than the others. The cost of kitchen waste is 1.0 Taka per kg and the product is sold to the dealer at 2.5 Taka per kg. The dealers sell the same compost to the users at 5.0 Taka per kg of compost.

Basically all kitchen wastes are dumped and they don't have any economic value in Dhaka City. But there have very few users of these composts in Dhaka City: only a few flower garden owners are using compost as fertilizer. Most of the users are outside Dhaka City. Even though the present demand for compost made of organic waste is quite small, the

compost-producing factories have a plan for large scale production covering whole Dhaka City as the source of material supply.

5. Used Medical Tool Dealers

There are many dealers of this type in Dhaka City. They are handling syringe, tubes and bottles of medicine by collecting through material collectors or directly from hospital and clinics. It is observed that they sort the collected material by type and size and wash them for the next use, however, they would not give any information to the surveyor regarding the route of selling, price and amount and the number of the dealers. It seems a kind of underground business though it keeps a definite market in this country. Therefore it becomes impossible to describe the market structure and activity in this survey,

6. Estimate of Recycle Volume

According to the findings above, material collectors are raising daily amount of recyclable materials from 20 to 60 kg per person on average. This amount gives a suggestion on total recovery in the city by multiplying the number of collectors as shown in Table 9. The estimated amount of daily recovery is 454 ton of various kinds of recyclable materials, which implies that approximately 9 % of discharged waste is recovered, where it is also assumed at 5,000 t/d of municipal waste is discharged.

Table 9 Volume of Recovery by Interview

type of collectors	nuber of collector (person)	average daily recovery (kg/day/person)	total volume (ton/day)
dumpsite waste picker	400	21	8
container waste picker	1,000	26	26
private sector employee	1,800	63	113
community people	1,500	50	75
*feriwalla**	4,000	77	154
street hawker	5,000 **	154	77
total			454

note *: assumed that half of volume is collected from waste generators
note **: number of companies including broker, assumed that 10 % of volume is collected by themselves

7. Compost Dealer Data

ii. Compost Dealer				
Sl. No.			D-1	D-2
1	1. Date of Interview:		2004/1/27	2004/2/23
	Time		1:40	3:00
2	2. Name of the Dealer:		Ms. Shahidul Islam	Alpha Agra Ltd.
3	3. Address of the Dealer:		Kristi Uddyan Nursery	70/1 Scot Bhaban Kakrayal, Mr. Rafiqul Islam
4	4. No. of employees :		6	90
5	5. Total capital (Tk.)		50000	
6. Buying volume of compost per day and price of compost:	Types of Compost Buying	1	Sushama	Organic
	No. of items buying			
	Kg of items buying		250	555
	Price/No. (Tk.)			
	Price / kg (Tk.)		**18**	**3**
	Total Quantity (No.)			
	Total Quantity (kg)		4500	1665
	Total price		4500	1665
	Remarks			
	Types of Compost Buying	2	Puspose	
	No. of items buying			
	Kg of items buying		500	
	Price/No. (Tk.)			
	Price/kg (Tk.)		12	
	Total Quantity (No.)			
	Total Quantity (kg)		6000	
	Total price		6000	
	Remarks			
	Types of Compost Buying	3	Shabai	
	No. of items buying			
	Kg of items buying		400	
	Price/No. (Tk.)			
	Price/kg (Tk.)		12	
	Total Quantity (No.)			
	Total Quantity (kg)		4800	
	Total price		4800	
	Remarks			
	Types of Compost Buying	4	Phalsher	
	No. of items buying			
	Kg of items buying		250	
	Price/No. (Tk.)			
	Price/kg (Tk.)		20	
	Total Quantity (No.)			
	Total Quantity (kg)		5000	
	Total price		5000	
	Remarks			

	Types of Compost Buying	5	Shaktisher
	No. of items buying		
	Kg of items buying		200
	Price/No. (Tk.)		
	Price/kg (Tk.)		22
	Total Quantity (No.)		
	Total Quantity (kg)		4400
	Total price		4400
	Remarks		
7. Selling volume of compost per day and price of compost:	Types of Compost Selling	1	Sushama
	No. of compost selling		
	Kg of compost selling		**250**
	Price/No (Tk.)		
	Price/kg (Tk.)		**25**
	Total Quantity (No.)		
	Total Quantity (kg)		
	Total price		6250
	Remarks		
	Types of Compost Selling	2	Puspase
	No. of compost selling		
	Kg of compost selling		500
	Price/No (Tk.)		
	Price/kg (Tk.)		
	Total Quantity (No.)		17
	Total Quantity (kg)		
	Total price		8500
	Remarks		
	Types of Compost Selling	3	Satal
	No. of compost selling		
	Kg of compost selling		400
	Price/No (Tk.)		
	Price/kg (Tk.)		17
	Total Quantity (No.)		
	Total Quantity (kg)		
	Total price		6800
	Remarks		
	Types of Compost Selling	4	Falisher
	No. of compost selling		
	Kg of compost selling		250
	Price/No (Tk.)		
	Price/kg (Tk.)		25
	Total Quantity (No.)		
	Total Quantity (kg)		
	Total price		6250
	Remarks		

8. Total no. of compost dealers (if possible list and location) in Dhaka City:			50	
			New market, Karwan Bazar, Gulshan , Banani,	
9. Main benefits of the compost :			Fertility of soil (Natural) (Organic Material)	Compost is the best of soil for the cultivation
10. Main issues to buy the compost use :			Incress Production	Vegetable production, incressed the soil fertility
11. Please state your problems in your activity:			Price is high rate	Price is hight, Less sell value
12. Please state your suggestions in overcoming the above problems:			Low price	Financial problem creat better marketing policy
13. Remarks of the Interviewer:				Very promising item for bussiness & environment

7. Awareness Survey (Business Unit)

7. Awareness Survey (Business Unit)

7.1 Survey Objectives

The survey is aiming at identifying a common awareness of business units in respect of solid waste management.

7.2 Survey Period

From February to March, 2004.

7.3 Methodology of the Survey

Interview survey with questionnaire was carried out. The questionnaire is attached at the end of this chapter.

The targeted interviewees were selected according to the type of business. Number of targeted interviewees is shown in Table 7.3.1.

Table 7.3.1 Type of Business Units and Number of Interviewee

Category	Type of Business Unit/ Number of Interviewee		Category	Type of Business Unit/ Number of Interviewee	
Commercial	Restaurant:	5	**Market**	Large market:	3
	Hotel:	2		Small market:	3
	Guest house:	3		**Subtotal:**	**6**
	Shop:	10			
	Large office:	5			
	Subtotal:	**25**			
School	Primary school:	2	**Hospital**	General hospital:	5
	Other school:	2		Medium sized	5
	Subtotal:	**4**		Small clinic	5
				Subtotal:	**15**
Factory	Factory:	10			
	Subtotal:	**10**			
Total				**60**	

7.4 Survey Results

01. CATEGORY: ***SCHOOL***

Location and Address of Schools:

SL. No.	Location						Name of School
	Ward	Area	Zone	Thana	Road	House No.	
1	8	Mirpur	8	Mirpur	North Bishil, KA	-	Dargha Govt. Primary School
2	61	Lalbag	3	Lalbag	Lalbag Road	92	Rahmatulla Model High School
3	22	Rampura	4	Khilgaon	DIT Road	-	Acramunnesa Girl's School
4	7	Mirpur	8	Mirpur	-	-	Bangladesh-German Technical Training Institute

General Information :

Name of School	Type of School	Students	School area (sft/acre)	No. of Floor	Holiday	School Hour
Dargha Govt. Primary School	Primary	1200	1.5 acre	Single	I day/week	8:00 – 2:45 pm
Rahmatulla Model High School	Highschool	2000	1.5 acre	2 Floors	I day/week	7:10 – 4:30 pm
Ekramunnesa Girl's School	Girls' highschool	1000	25000 sft	3 Floors	I day/week	8:00 – 4:30 pm
Bangladesh-German Technical Training Institute	Technical Institution	1050	6 acre	3 Floors	I day/week	9:00 – 5:00 pm 6:00 – 9:00 pm

Inorganic Waste discharged by School:

Waste Type	Frequency	%
Cans, Plastic Boxes, Paper etc.	1	25.00
Cartons, Paper	1	25.00
Paper, Flat bar*	1	25.00
Paper	1	25.00
Total	4	100

**Note:* *Flat bar is a piece of metal waste found in the technical institute.*

Wastes Segregation:

It was found during the survey that no segregation is being done in majority of the schools. Only one school is segregating flat bars which is used for welding practical classes.

Harmful Contents in the Waste:

Only one respondent at school answered that wastes have harmful contents and one answered their ignorance about harmful contents, while two said no;

Reason of Harmful Contents:

In response to the above question only one respondent answered that Wastes are harmful as Environment becomes polluted and cause diseases.

Volume & Type of Waste Discharge at a Time:

Volume and type of wastes was not properly informed, as they don't keep any actual or past information regarding this. Only one school marked that 5kg of paper wastes is formed in a day.

Frequency of Discharging:

Frequency	Frequency	%
One Time/ Day	1	25.00
2 times/Day	2	50.00
No Answer	1	25.00
Total	4	100

Disposal Site Distance:

Distance of Disposal Place	Frequency	%
20 to 25 Meters	1	33.33
No place to dispose	2	66.66
Total	3	100

Waste Keeping Place before Disposal:

Waste Keeping Place	Frequency	%
A place fixed inside the Institute	3	75.00
Waste is burnt & not disposed	1	25.00
Total	4	100

Waste Collected By:

Collected by:	Frequency	%
Employed Staff	2	50.00
DCC	1	25.00
None	1	25.00
Total	4	100

Recycling of Waste:

Among the 4 Schools surveyed none are recycling waste.

Self treating and Disposing Waste:

Among the 4 Schools surveyed none are treating and disposing waste by themselves.

Problems Related to Waste Collection:

Problem Faced:

No problem is faced by the Schools regarding SWM.

Demand on Waste Collection Services:

Most of the school authority don't try to solve the problem and therefore have no demand for this service.

Self –solving of Problem:

Self –solving of Problem	Frequency	%
Yes	1	25.00
No	3	75.00
Total	4	100

Paying for SWM:

Paying for SWM	Frequency	%
Yes	1	25.00
No	2	50.00
Didn't give any answer	1	25.00
Total	4	100

Payment Amount, To whom it is paid and Comment on the paid amount:

Only one school is found to pay Tk. 1500.00 for SWM and another one didn't provide information but both schools are paying the amount to their own employee and consider the amount as moderate.

Willingness to Pay More for SWM:

Two education institutions have stated "*it's up to management decision*" while two expressed that they could give Tk. 150.00 per month for better waste management.

Interest on Self-Segregation:

Among the respondents, all responded positively on Self-segregation.

Knowledge on Environmental Consequences:

3 respondents, out of four schools, have knowledge about waste dumping site as they have gained this knowledge through visiting the dumping sites. All the respondents think that wastes can be a resource.

02. CATEGORY: ***SHOP***

Location and Address of Shops:

SL. No.	Location						Name of Shop
	Ward	Area	Zone	Thana	Road	House No.	
1	49	Dhanmondi	5	Mohammadpur	16 (New), 27 (Old)	362 A	Tex Mart
2	36	Paltan	4	Motijheel	N/A	54 New Super Market B/M	Badal Electronics
3	52	Elephant Road Area	5	Dhanmondi	Elephant Road	218 Sahera Circle	Gallery Apex
4	54	Moghbazar	5	Ramna	New Circular Road	A 2-4 Century Arcade, Moghbazar	Star Tailor Pvt. Ltd.
5	51	Dhanmondi	5	Dhanmondi	Road no. 13	-	Gayan Cosh
6	74	Nababpur	2	Sutrapur	Nababpur Road	95/3	Sonali Hardware Store
7	62	Azimpur	3	Lalbag	Azimpur Road	48/13	Ahmed Drug House
8	34	Malibag	4	Sabujbag	Sulbag Road	424	Fahim Store
9	49	Dhanmondi	5	Dhanmondi	11-A	67	Piraan
10	19	Gulshan -2	9	Gulshan	Kemal Attaturk Avenue	NW (J) 4	NANDAN Mega Shop

General Information of the Shop:

Name of Shop	Type	Floor Area (sft)	Floor	No. of Workers		Holiday	Work Hour
				M	F		
Tex Mart	Ready made garments	2500	1	6	3	1 day/week	10:00 am – 9:00 pm
Badal Electronics	Electronic goods	325	1	5	0	1 day/week	10:00 am – 9:00 pm
Gallery Apex	Shoe	250	1	4	0	No holiday	09:30 am – 10:00 pm
Star Tailor Pvt. Ltd.	Tailoring	540	1	7	0	1 day/week	10:00 am – 9:00 pm
Gayan Cosh	Book and Stationery	1000	1	8	0	1 day/week	10:00 am – 9:00 pm
Sonali Hardware Store	Hardware Items	200	1	5	0	1 day/week	10:00 am – 9:00 pm
Ahmed Drug House	Medicine	150	1	4	0	No holiday	8:00 am – 10:00 pm
Fahim Store	Grocery	120	1	4	0	No holiday	07:30 am – 10:00 pm
Piraan	Handicrafts	250	1	1	1	1 day/week	09:00 am – 8:00 pm
NANDAN Mega Shop	Super market	13000	1	80	25	Owner's discretion	09:00 am – 11:00 pm

Waste Generation By Shop:

Only one shop generates food, raw food and processed food as wastes. Others claimed that they do not generate any wastes.

Most of the shops are generating inorganic wastes like paper, plastic buckets. The type of wastes generated are shown in the table below ;

Inorganic Wastes discharged by shop:

Waste Type	Frequency
Cans, Plastic Boxes, Cartons, Paper	1
Plastic Box, Cartons	1
Cartons, Paper, Cock sheet	1
Paper, Tissue paper, Cutting waste of cloths	1
Paper, Cartons	2
Paper, Paper Boxes	1
Don't produce any waste	1
Cans, Plastic Boxes, Cartons, Paper	1
Paper	1
Total	10

Waste Disposed By:

Waste Discharged by	Frequency	%
Employed Staff/Owner	9	90.00
DCC Cleaner	1	10.00
Total	10	100

Having Harmful Contents in the Waste:

Harmful Contents	Frequency	%
Yes	0	00.00
May be	8	80.00
No	2	20.00
Total	10	100

Frequency of Discharging:

Time	Frequency	%
One Time/ Day	4	40.00
2 Time /Day	3	30.00
No fixed time	3	30.00
Total	10	100

Distance of Disposal Place:

Distance of Disposal	Frequency	%
Less than 10 meters	1	10.00
20 to 25 meters	3	30.00
25 to 40 meters	2	20.00
More than 50 meters	3	30.00
Others	1	10.00
Total	10	100

Recycling of Waste:

Recycling of wastes is not done at all by the shopkeepers, as observed by the interviewers. Almost all had 'negative' reply to the question- whether they are recycling any waste?

Facing of Problems:

In disposing/collecting of wastes, whether they are facing any problem, only 2 respondents replied positively that they are facing problem. But majority that is 8 shop respondents said that they do not face any problem.

Facing of Problems:

Facing of Problems	Frequency	%
Yes	2	20.00
No	8	80.00
Total	10	100

Problem Informed To:

Whether DCC was informed of the problem, only 2 shop respondents said *yes* and 8 shops said *no*.

Problem Informed To:

Problem Informed To	Frequency	%
DCC	2	20.00
None	8	80.00
Total	10	100

Segregation of Wastes:

About segregation of the wastes, only 2 respondents of business units are doing segregation while 5 shops are not doing and 3 shops didn't provide any answer.

Segregation of Wastes:

Segregation of Wastes	Frequency	%
Yes	2	20.00
No	5	50.00
No Answer	3	30.00
Total	10	100

Payment for SWM:

Payment for SWM	Frequency	%
Yes	5	50.00
No	5	50.00
Total	10	100

Interest on Self-Segregation:

Out of all 10 shops only 1 respondent of a shop did not have any interest in segregation of waste. Whereas remaining 9 shops shared positive response to segregate the waste, produced in their shops.

Knowledge About Waste Dumping Site and Waste as a Resource:

All respondents of the shops have knowledge about dumping sites of DCC as they almost all have visited the places. But, 8 respondents think that waste can be a resource while 2 gave 'Negative' answers.

03. CATEGORY: ***RESTAURANT***

Location and Address of Restaurants:

SL. No.	Location						Name of Restaurant
	Ward	Zone	Road	Area	Thana	House No.	
1	49	5	4	Dhanmondi	Dhanmondi	7	Suruchi Food Court & Beverage Ltd.
2	19	9	131	Gulshan	Gulshan	58 C	Lemon Grass
3	54	5	New Circular Road	Mouchak	Ramna	94	Euro Garden
4	32	4	DIT Avenue	Motijheel C/A	Motijheel	1/B DIT Road	Cafe Jheel
5	45	6	Mirpur Road	Mohammad pur	Mohammadpur	1 Asadgate	Mid Night Sun-I

General Information of the Restaurants:

Name of Restaurant	Floor/ Area (sft)		Seats	No. of Workers	Holiday	Working Hours
Suruchi Food Court & Beverage Ltd.	4000	1	95	35	Owner's decision	10:00 am – 10:00 pm
Lemon Grass	6000	2	120	24	Staffs enjoy holiday shift basis	12:30 pm – 3:00 pm 6:30 pm – 10:30 pm
Euro Garden	3500	1	150	15	1 day week	10:00 am – 11:00 pm
Cafe Jheel	1200	1	50	16	1 day week	9:00 am – 8:30 pm
Mid Night Sun-I	3500	1	250	35	Owner's decision	12:30 pm – 10:30 pm

Note: All the restaurants surveyed have only male workers.

Organic Waste discharged by Restaurants:

Waste Type	Frequency	%
Raw Food	1	20.00
Food, Raw and Processed	4	80.00
Total	5	100

Inorganic Wastes discharged by Restaurants:

Type of Waste	Frequency	%
Cans, Plastic Boxes, Cartons, Paper	3	60.00
Cartons, Paper	1	20.00
Paper	1	20.00
Total	5	100

Volume and Type of Waste Discharge at a Time:

a) Food Item:

Type of Food	Discharged Weight (Kg/Pcs) /Day	Frequency	%
Vegetable & Other food	12 to 35 kg	2	40.00
Only food	5 to 10 kg	2	40.00
Food, Raw food & Processed food	31 to 33 kg	1	20.00
Total		5	100

b) Others:

Type of Waste	Discharged Weight (kg/pcs)/Day	Discharged By
Plastic	1 kg	1 Restaurant
Carton	1 to 3 pcs	2 Restaurants
Can	15 to 20 pcs	2 Restaurants
Paper	1 kg	1 Restaurants

Waste Disposed By:

Waste Disposed by	Frequency	%
Employed Staff	4	80.00
Cleaning Staff	1	20.00
Total	5	100

Wastes Segregation:

Waste Segregation	Frequency	%
Food, Plastic Materials, Cans	1	20.00
Organic & Inorganic items of Food	1	20.00
No Segregation	3	60.00
Total	5	100

Having Harmful Contents in the Waste:

Harmful Contents	Frequency	%
Yes	1	20.00
May be	4	80.00
No	0	0.00
Total	5	100

Frequency of Discharge:

Frequency of Disposal	Frequency	%
One Time/ Day	2	40.00
2 Time / Day	3	60.00
No fixed time	0	0.00
Total	5	100

Distance of Disposal Place:

Distance of Disposal	Frequency	%
25 to 40 Meters	1	20.00
More than 50 Meters	3	60.00
Van comes & collects garbage	1	20.00
Total	5	100

Waste Keeping Place before Disposal:

Waste Keeping Place	Frequency	%
Plastic bag inside the kitchen	1	20.00
Inside Garbage can & Plastic bag inside the kitchen	4	80.00
Total	5	100

Waste Collected By:

Collected By	Frequency	%
Employed staff	4	80.00
Private Company	1	20.00
Total	5	100

Recycling of Waste:

Among the 5 Restaurants respondent, none of them are recycling waste.

Self-treating and Disposing Waste:

Among the 5 Restaurants respondent, none of the respondents said that they are treating and disposing waste by themselves.

Problem Faced:

All the five units have been facing problem and their problems are noted down as below;

Type of Problems faced:

Facing Problem	Frequency	%
No Dustbin Near the Restaurant	2	40.00
Situated within the Market Building	1	20.00
Lack of Sincerity of Private Waste Picking Organizations & they are raising service charge frequently.	1	20.00
No Van & Lack of SWM system	1	20.00
Total	5	100

Solution Provided by the Respondents:

Solution Types	Frequency	%
DCC can fix a dustbin near the restaurant	2	40.00
DCC can collect waste	2	40.00
Private Organization activities should be checked & monitored	1	20.00
Total	5	100

Problem Informed To:

Inform to	Frequency	%
Ward Commissioner	3	60.00
Garbage Collector	1	20.00
None	1	20.00
Total	5	100

Self-Solving of Problems:

All of the Restaurant respondents are trying to solve the problem by themselves. But the result varies restaurant to restaurant:

Result of Problem Solving:

Result	Frequency	%
Successful	1	20.00
Partly successful	3	60.00
Unsuccessful	1	20.00
Total	5	100

Payment for SWM:

All of them are paying for SWM and the amounts paid for solid waste management are;

Amount Paid:

Amount/Month (Tk.)	Frequency	%
100/ month	1	20.00
1000/ month	1	20.00
5000/month	1	20.00
1200/ month	1	20.00
2500/month	1	20.00
Total	5	100

Amount Paid To:

Amount Paid To	Frequency	%
Own employee	4	80.00
Private company	1	20.00
Total	5	100

Comment on Present Payment:

Comment	Frequency	%
Moderate	2	40.00
Too Much	2	40.00
Too Little	1	20.00
Total	5	100

Interest on Self-Segregation:

Among 5 respondents all responded positively on Self-segregation.

Knowledge about Dumping Site and Waste as a Resource:

Only 4 respondents have knowledge about waste dumping sites as they have visited those places. However, all the respondents think that wastes can be a resource to us.

04. CATEGORY: ***LARGE OFFICE***

Location and Address of Large Offices:

SL. No.	Location						Name of Large Office
	Ward	Area	Zone	Thana	Road	House No.	
1	53	Kakrail	5	Motijheel	Kakrail	26/1	Karnaphuli Ltd.
2	20	Mohakhali C/A	9	Gulshan	Mohakhali	47	Develop Design Consultants
3	31	Motijheel	4	Motijheel	Shapla Circle	-	Bangladesh Bank
4	7	Mirpur	8	Mirpur	Mirpur 2 No. Road	-	Proshika
5	39	Karwanbazar	6	Tejgaon	Kazi Nazrul Islam Avenue	-	BRDB Head Office

General Information

Name of Large Office	Floor Area (sft)	Number of Floors	Holiday	Remains Open	No. of Worker			
					M	%	F	%
Karnaphuli Ltd.	20000	4 Floors	1 day week	9:00 – 5:00	150	**84.7**	27	**15.2**
Develop Design Consultants	36000	12 Floors	Govt. Holiday	9:00 – 5:00	280	**93.3**	20	**6.7**
Bangladesh Bank	-	45 Floors (3 units)	Govt. Holiday	9:00 – 4:00	3350	**88.1**	450	**11.8**
Proshika	40000	14 Floors	1 day week	9:00 – 5:00	140	**35**	260	**65**
BRDB Head Office	72000	06 Floors	Govt. Holiday	9:00 – 4:00	840	**88.4**	110	**11.5**

Type of Organic Wastes generated:

Waste Type	Frequency	%
Raw Food	2	40.00
Food item, Raw Food	1	20.00
N/A	2	40.00
Total	5	100

Inorganic Waste generated from Offices:

Waste Type	Frequency	%
Carton, Paper.	4	80.00
Paper	1	20.00
Total	5	100

Volume & Type of Waste generated at a Time:

Type of Waste	Discharged Amount (Kg/pcs) /Day
Raw food, Vegetables	11kg
Food	5 kg
Kitchen Waste	10 to 15 kg
Paper	6 to 20 kg
Carton	15 pcs
Waste Paper	5 kg

Waste Disposal By:

Waste Disposal by	Frequency	%
Employed Staff	3	60.00
Cleaner	2	40.00
Total	5	100

Frequency of Disposal:

Number of Time	Frequency	%
One Time/ Day	3	60.00
2 Times /Day	1	20.00
Convenient Time	1	20.00
Total	5	100

Distance of Disposal Place:

Distance	Frequency	%
Less than 10 meters	1	20.00
20 to 25 meters	2	40.00
More than 50 meters	1	20.00
More than 300 meters	1	20.00
Total	5	100

Waste Keeping Place before Disposal:

Waste Storing Places	Frequency	%
Garbage can inside the business premise	2	40.00
Inside Garbage Can, plastic bag in kitchen	2	40.00
A drum kept outside the office building	1	20.00
Total	5	100

Wastes Segregation:

Waste Segregation	Frequency	%
No Segregation occurred	2	40.00
Carton & wastage paper	2	40.00
Plastic Material	1	20.00
Total	5	100

Having Harmful Contents in the Waste:

Harmful Contents	Frequency	%
Yes	2	40.00
May Be	3	60.00
Total	5	100

How Wastes are Harmful:

Reason of Harmfulness	Frequency	%
Polluting environment by creating germs, bad smell	1	20.00
Bad smell & insects produced from dumped waste	1	20.00
No comments	3	60.00
Total	5	100

Waste Collected By:

Finally collected by	Frequency	%
Employed Staff	3	60.00
Private Company	1	20.00
None	1	20.00
Total	5	100

Recycling of Waste:
Recycling of wastes is not done in any of the offices.

Self-treatment and Waste Disposal:
Out of the 5 large offices, none is treating and disposing wastes by themselves.

Problem Facing:
Only one large office like Bangladesh Bank is having problem due to no dustbin or containers adjacent to the office area. So, they suffer for need of disposal bins/containers.

Problem Informed To:

Informed to	Frequency	%
DCC	2	40.00
Garbage Collector	1	20.00
None	1	20.00
Total	5	100

Paying for SWM:

Paying for SWM:	Frequency	%
Yes	4	80.00
Information not given regarding payment	1	20.00
Total	5	100

Paying Amount:

Amount/Month (Tk.)	Frequency	%
500/ month	1	20.00
3000/ month	1	20.00
35000/ month (For 5 Cleaners & 2 Sweepers as Salary)	1	20.00
No Information	2	40.00
Total	5	100

Payment made to:

Payment made to:	Frequency	%
Own employee	4	80.00
Private Company	1	20.00
Total	5	100

Comment on Present Amount:

Comment	Frequency	%
Moderate	4	80.00
No Comment	1	20.00
Total	5	100

Willingness to pay for better SWM:

Amount /Decision of Payment	Frequency	%
100 Tk/ Month	1	20.00
Can pay more than present payment*****	1	20.00
Up to Management Decision	3	60.00
Total	5	100

***Note:** The Office Authority (**DDC**) is interested to pay more for a better SWM. At present they are expending Tk. 3000.00 per month.*

Interest on Self-Segregation:
Among the respondents, all responded positively on Self-segregation.

Knowledge on Environmental Consequences:
Out of five respondents of large offices 3 provided positive answers that they have knowledge about waste dumping site.

When asked if they had ever been to dumping sites all of them said that they have visited dumping sites. Also it was found that all respondents of five large offices think that wastes can be useful resources.

05. CATEGORY: ***GUEST HOUSE***

Location and Address of Guest Houses:

SL. No.	Location						Name of Guest House
	Ward	Zone	Road	Area	Thana	House No.	
1	1	10	17	Uttara, Sector-7	Uttara	1	Floerietle Inn
2	19	9	35/A Lake Side	Gulshan	Gulshan	31/B	Golden Deer
3	49	5	10/A	Dhanmondi	Dhanmondi	46	D. K. Guest House

General Information

Guest House	Floor Area in sft	Number of Floors	No. of Rooms
Floerietle Inn	2500	4 Floors	16 Rooms
Golden Deer	3000	5 Floors	25 Rooms
D. K. Guest House	4500	Single Floor	7 Rooms

Organic Waste Generated by Guest House:

Waste Type	Frequency	%
Raw Food	2	66.66
Food item, Raw food, Processed Food	1	33.33
Total	3	100

Inorganic Waste Generated by Guest House:

Waste Type	Frequency	%
Cans, Plastic Boxes, Cartons, Paper	1	33.33
Cans, Cartons, Paper	1	33.33
Paper	1	33.33
Total	3	100

Volume & Type of Waste Discharged at a Time:

Waste Type	Discharged Amount (kg/pcs)/Day
Kitchen Waste	5 to 25 kg
Raw Food, Processed Food	4 Kg
Mineral Water Bottle	15 to 20 pcs
Plastic Boxes	15 to 16 pcs
Carton	5 to 7 pcs
Can	5 to 12 pcs
Wastage Flower	0.5 kg
Paper	5 Kg

Waste Disposed By:

Cleaners, employed by guest house authority, dispose all the 3 Guest House's wastes.

Frequency of Disposal:

Frequency of Disposal	Frequency	%
One Time a day	3	100.00
Total	3	100

Distance of Disposal Place:

Distance	Frequency	%
20 to 25 Meters	1	33.33
No place to discharge	2	66.66
Total	3	100

Waste Keeping Place before Disposal:

Waste Keeping Place	**Frequency**	**%**
Plastic Bag inside the Guest House Kitchen	1	33.33
In a drum kept in the basement of the House	1	33.33
In a drum kept in the basement of the House	1	33.33
Total	3	100

Waste Collected By:

Waste Collected By	**Frequency**	**%**
Private organization	3	100.00
Total	3	100

Wastes Segregation:

Wastes Segregation	**Frequency**	**%**
Plastic Material	2	66.66
No segregation occurred	1	33.33
Total	3	100

Harmful Contents in the Waste:

Harmful Contents	**Frequency**	**%**
May Be	3	100.00
Total	3	100

Recycling of Waste:

All respondents at three Guest Houses said “no” to recycling of waste.

Self Treating and Disposing Waste:

None of the three Guest House’s respondents are treating and disposing wastes by themselves.

Interest on Self-Segregation:

Among the respondents of guest houses, all were positive on Self-segregation.

Problem Facing:

Respondents of these three guesthouses are facing no problem regarding SWM.

Demand on Waste Collection Services

Demand for waste collection is absent as respondents at guesthouses don’t face any problem.

Self-Solving of Problem:

None of the guesthouses admitted about trying to solve the problem by themselves.

Paying for SWM:

Amount/Month (Tk.)	**Frequency**	**%**
50 Tk.	1	33.33
200 Tk.	1	33.33
500 Tk.	1	33.33
Total	3	100

Payment made to:

Willingness to Pay	**Frequency**	**%**
If they get satisfactory Service	2	66.66
100 Tk./Month	1	33.33
Total	3	100

Knowledge About Waste Dumping Site and Waste as a Resource:

It was evident during the survey that all the respondents have knowledge about dumping site as they have visited those areas and all of them think that waste can be used as a resource.

06. CATEGORY: ***HOTEL***

Location and Address of Hotels:

SL. No.	Location						Name of Hotel
	Ward	Zone	Road No.	House No.	Area	Thana	
1	Ward:19	09	21	B72	Gulshan	Gulshan	Hotel De Castle
2	Ward:39	06	KNI Avn	54	Karwan Bazar	Tejgaon	La Vinci Hotel
3	Ward:57	05	Minto Road	01	Shahbag	Ramna	Hotel Sheraton

General Information:

Name of Hotel	Floor Area (sft/acre)	No. of Floor	No. of Room
Hotel De Castle	21000 sft	7	37
La Vinci Hotel	25000 sft	13	70
Hotel Sheraton	3.17 acre	30	290

Organic Waste discharged by Hotel:

Waste Type	Frequency
Food, Raw Food, Processed Food etc.	3
Total	3

Inorganic Waste discharged by Hotel:

Waste Type	Frequency
Cans, Plastic Boxes, Cartons, Paper, Polythene etc.	3
Total	3

Volume & Type of Waste Disposed at a Time:

Waste Type	Discharged Amount (kg/pcs)/Day	Frequency
Raw food, processed food	11 to 25 kg	3
Mineral Water Bottles	10 to 35 pcs	3
Carton	3 to 5 pcs	2
	70 to 80 pcs	1
Can	20 pcs	2
	100 to 120 pcs	1
Paper	1 Kg	1

Waste Disposed By:

Waste Disposed by	Frequency	%
Employed Staff	2	66.67
Private Company	1	33.33
Total	3	100

Frequency of Disposing:

Time	Frequency	%
3 Times/ Day	1	33.33
2 Time /Day	2	66.66
Total	3	100

Disposal Distance:

Disposal Distance	Frequency	%
25 to 40 meters	1	33.33
Waste kept in front of Hotel	1	33.33
Adjacent to Hotel's Main building	1	33.33
Total	3	100

Waste Keeping Place before Disposal:

These hotels are keeping wastes in garbage cans inside the business premises before final disposal.

Waste Collected By:

Collected by	Frequency	%
Employed Staff	1	33.33
Private Company	2	66.66
Total	3	100

Wastes Segregation:

Segregation	Frequency	%
Food Item	1	33.33
No Segregation occurred	1	33.33
Organic & Inorganic wastes	1	33.33
Total	3	100

Having Harmful Contents in the Waste:

All of the respondents think that wastes contain harmful contents and mentioned the following reasons for harmfulness;

How Wastes are Harmful:

Reason of Harmfulness	Frequency	%
Mosquito mostly generates from wastes	1	33.33
Harmful for environment	1	33.33
Cause infectious disease and environment becomes polluted by waste container and disposal site	1	33.33
Total	3	100

Recycling of Waste:

None of respondents at three Hotels are recycling their waste.

Self-treating and Disposing Waste:

None of them are treating and disposing waste by themselves.

Problem Faced:

The respondents are not facing any problem regarding SWM.

Problem Informed To:

Because of facing no problem regarding swm, the respondents at three hotels did not inform anyone.

Self-Solving of Problem:

All of the Hotel respondents are not trying to solve the problem by themselves.

Paying for SWM:

Paying for SWM	Frequency	%
Yes	2	66.66
N/A	1	33.33
Total	3	100

Note: N/A Refers to Hotel Sheraton as they are not paying any amount for swm rather receiving money for sale of the wastes through bid and the bid amount is about 25 to 30 lacs (yearly).

Paying Amount:

Amount/Month (Tk.)	Frequency	%
500/ month	1	50.00
Paid by monthly salary	1	50.00
Total	2	100

Paying To:

Paying To	Frequency	%
Own Employee	1	50.00
Private Company	1	50.00
Total	2	100

Comment on Present Payment:

Comment	Frequency	%
Moderate	1	50.00
Too Much	1	50.00
Total	2	100

Interest on Self-Segregation:

All of the respondents possess interest for self-segregation;

Knowledge About Waste Dumping Site:

All of the respondents have knowledge about waste dumping site in Dhaka city as they have visited dumping sites.

Waste as a Resource:

Production Item	Frequency	%
Electricity, Fertilizer, Hardboard etc.	1	33.33
Electricity, Fertilizer	1	33.33
Power plant generation, fertilizer and paper	1	33.33
Total	3	100

07. CATEGORY: ***MARKET***

Location and Address of Market:

SL. No.	-						Name of Market
	Ward	Area	Zone	Thana	Road	House No.	
1	8	Mirpur	8	Mirpur	Mazar Main Road	-	Hazrul Shah Ali CC Market
2	52	Nilkhet	5	Dhanmondi	-	-	Banalata Super Market, New Market, Dhaka
3	74	Nababpur	2	Sutrapur	Kaptan Bazar	57	Kaptan Bazar, Thatari para
4	52	Hatirpool	5	Dhanmondi	Sonargaon Road	DCC Market	Hatirpool Katcha Market
5	1	Uttara, Sector-3	10	Uttara	7	25	Rajlaxmi Complex
6	23	Malibag	4	Sabujbag	Bishwa Road	-	Malibag Market

General Information of the Market:

Name of Market	Type of Market	Number of Tenants	Floor Area Acre/sft	No. of Floor	Holiday	Remains Open
Hazrul Shah Ali CC Market	Large Market whole sale/retailer	246 Tenants	6 acres	1	No Holiday	8:00am - 10:00 pm
Banalata Super Market, New Market, Dhaka	Large Market whole sale/retailer	700 Tenants	1 acre	3	No Holiday	8:00am - 11:00 pm
Kaptan Bazar, Thatari para	Large Market whole sale/retailer	450 Tenants	5 acres	1	Friday half Holiday	8:00am - 11:00 pm
Hatirpool Kutcha Market	Market whole sale/retailer	251 Tenants	10000 sft	1	No Holiday	7:00am - 11:00 pm
Rajlaxmi Complex	All items excluding vegetables	107 Tenants	30000 sft	3	1 day/week	9:30 am - 11:00 pm
Malibag Market	Market whole sale/retailer	209 Tenants	1.5 acre	1	No Holiday	7:00am - 11:00 pm

Note: Kutcha market means temporary structure and in general retail type.

Selling Products by Market:

Selling Products	Frequency	%
Rice, Fish, Vegetables, Meat, Hardware, etc.	3	50.00
All kind of goods	2	33.33
Raw food, Bones	1	16.66
Garments, Cosmetics, Bakery food	1	16.66
Total	6	100

Organic Waste discharged by Market:

Waste Type	Frequency	%
Raw Food	2	33.33
Raw Food, Bone	1	33.33
Raw food, Bones	1	16.66
Raw food, Vegetables	1	16.66
Total	6	100

Inorganic Waste generated by Market:

Waste Type	Frequency	%
Carton, Paper	3	50.00
Can, Carton, Paper	2	33.33
Paper	1	16.66
Total	6	100

Waste Disposed By:

Waste Discharged by	Frequency	%
Employed Staff	4	66.66
Sweeper	1	16.66
Shop Owners & Other Staffs	1	16.66
Total	6	100

Wastes Segregation:

It is interesting to see that no segregation is taking place in any of the markets.

Having Harmful Contents in the Waste:

Three respondents said that wastes have harmful contents while remaining respondents are not sure. Among the them three have identified the following reasons. But one respondents did not provide any information;

How Wastes are Harmful:

Reason of Harmfulness	Frequency	%
Knows harmful, but don't know how it is caused	1	16.66
Bad for human health & environment, Customers don't come to market	1	16.66
No comment	4	66.66
Total	6	100

Volume & Type of Waste generated at a Time:

Type of Waste	Frequency	%
No idea of discharged waste's volume	2	33.33
No calculation and weight measured	3	50.00
Major wastes are produced by vegetables, don't weigh other garbage	1	16.66
Total	6	100

Frequency of Disposal:

Frequency	Frequency	%
1 Time/ Day	1	16.66
2 Times /Day	1	16.66
Convenient Time	3	50.00
No Fixed Time	1	16.66
Total	6	100

Distance of Disposal Place:

Distance	Frequency	%
Two places adjacent to the market	1	16.66
25 to 40 Meters	1	16.66
More than 50 meters	2	33.33
No Fixed distance	1	16.66
Waste kept by the side of market	1	16.66
Total	6	100

Waste Keeping Place before Disposal:

Waste Keeping Place	Frequency	%
Garbage can inside the Market	2	33.33
All kept nearby the Market	1	16.66
Outside common garbage can	1	16.66
No fixed place or can	2	33.33
Total	6	100

Waste Collected By:

Collected by	Frequency	%
Employed Staff	3	50.00
DCC	1	16.66
DCC Cleaners, Waste Picker	1	16.66
DCC, Employed Staff, Waste Picker	1	16.66
Total	6	100

Recycling of Waste:

Among the 6 Market respondents, none are recycling any waste.

Self-treating and Disposing Waste:

Among the 6 Market respondents, none are treating and disposing waste by themselves.

Types of Problems:

Type of Problems	Frequency	%
DCC cleaners don't clean & sweep everyday	3	60.00
DCC has no sweeper-cleaner here	1	20.00
Water Supply, No toilets, No waste storage place & Bad Drainage	1	20.00
Total	5	100

Problem Informed To:

Informed to	Frequency	%
DCC	2	40.00
Mayor, Environment Ministry, Conservancy Unit	1	20.00
Ward Commissioner	1	20.00
Market Authority*	1	20.00
Total	6	100

*Note: *Market authority refers to the owners who took responsibility on their own and shop owners pay for this service.*

Solution of Problem:

Type of Solution	Frequency
By 3 times of cleaning: Morning: 6-8 am; Noon:1 – 7; Night: after 10 pm	1
DCC cleaners payment should be subject to satisfaction of the market people.	1
supervision from the shop owners and not from DCC	1
DCC should have strict application of Laws.	1
N/A	2
Total	6

Note: *Currently DCC supervise or look after the cleaners works.*

Result of Self-Solving Attempt:

Result	Frequency	%
Successful	1	16.66
Partly Successful	2	33.33
N/A	3	50.00
Total	4	100

Present Payment Amount:

Amount/Month (Tk.)	Frequency	%
200 Tk. (for Utility & Cleaning)	1	25.00
2500 Tk.for Salary of two person	1	25.00
5000 Tk. to 6000 Tk. (For 5 Cleaner & 2 Sweepers as Salary)	1	25.00
6000 Tk.	1	25.00
Total	4	100

Paying To:

Paying To	Frequency	%
Own Employee	3	50.00
Market Authority*	1	16.66
N/A	2	33.33
Total	6	100

*Note: *Market owner of Rajlaxmi Complex at Uttara is taking money as well as responsibility for waste management of his complex.*

Comment on Present Payment:

Comment	Frequency	%
Moderate	3	75.00
Too Little	1	25.00
Total	4	100

Willingness to pay for better SWM:

Amount of Payment	Frequency	%
Depend upon Market Association's Decision	1	25.00
Not interested to pay more	1	25.00
Yes*	1	25.00
9000 Tk./Month	1	25.00
Total	4	100

**Note: Yes refers to willingness to pay for better swm but can't quote any amount.*

Interest on Self-Segregation:

Among the respondents, all of them responded positively on Self-segregation.

Knowledge About Waste Dumping Site:

5 respondents visited dumping site, so they have knowledge on waste dumping site while all the respondents think that waste can be a resource.

08. CATEGORY: *FACTORY*

Location and Address of Factory:

SL. No.	Location						Name of Business Unit	Type of Business Unit
	Ward	Zone	Road	Area	Thana	House No.		
1	54	5	Outer Circular Road	Moghbazar	Ramna	227	Jaycus Apparels Ltd.	Garments Factory
2	48	3	Hazari Bagh	Hazaribag Tannery	Hazaribag	147	Bengal Leather Complex Ltd.	Tannery
3	65	3	Islambag Road	Islambag	Islambag	54/4-A East Islambag	Haque Plastic	Plastic
4	70	2	Siddique bazar Road	Siddique bazaar	Kotwali	80/2 Siddique bazaar	Holding no name	Leather factory
5	66	2	Jumman Ali Lane	Mitford	Kotwali	50 Nalgola	Saikat Metal Industries	Household Utensils Factory
6	51	5	Green Road	Farmgate	Tejgaon	104/1	Memory Bakery	Bakery
7	52	5	New Market Road	Nilkhet	Dhanmondi	96/1to 318-319	Promise Book Binding	Stationary Binding
8	47	5	Satmasjid Road	Mohammadpur	Mohammadpur	5	Akkas Motor	Automobile Workshop
9	39	6	Old Airport Road	Tejkunipara	Tejgaon	117/A	Sea Fish Centre	Food Processing
10	46	6	Satmasjid Housing Road	Mohammadpur	Mohammadpur	37	Lifeguard Packaging	Packaging Unit

General Information

Factory	Type	Floor Area (Sft/Acre)	Floor	Holiday	Workers		Working Hours
					M	F	
Jaycus Apparels Ltd.	Garments Factory	9500 sft	2	1day/ Week	100	200	8:00 am – 5:00 pm
Bengal Leather Complex Ltd.	Tannery	27000 sft	3	1day/ Week	250	0	10:00 am – 6:00 pm
Haque Plastic	Plastic	300 sft	1	No holiday	08	0	8:00 am – 5:00 pm
Holding no name	Leather factory	200 sft	1.5	No holiday	10	0	8:00 am – 12:00 am
Saikat Metal Industries	Household Utensils Factory	900 sft	1	No holiday	*	-	8:00 am – 8:00 pm
Memory Bakery	Bakery, Factory	2500 sft	1	1day/ Week	38	0	9:00 am – 5:00 pm
Promise Book Binding	Stationary Binding	200 sft	1	No holiday	07	0	10:00a – 10:00 pm
Akkas Motor	Automobile Workshop	1000 sft	1	1day/ Week	15	0	8:00 am – 10:00 pm
Sea Fish Centre	Food Processing Unit	1000 sft	1	No holiday, staff work on shift	20	0	10:00am –10:00 pm
Lifeguard Packaging	Packaging Unit	1600 sft	1	1 day/ Week	20	40	8:00 am – 5:00 pm

* Note: *Did not provide any information regarding number of workers.*

Major Raw Material Used:

Major Raw Materials used	Frequency
Fabrics, Padding	1
Raw Hides, Chemicals	1
Plastic powder	1
Rubber, Rexin, Leather, Paper Board	1
Ingot, Brocket & used silver, used & exhausted rod, Utensils made of silver	1
Flour, Atta, Sugar, Oil etc.	1
Paper, Paper Board	2
Spare parts, technical tools, light machine etc.	1
Sea Fishes	1
Total	10

Discharge Amount/Day:

Wastes	Discharged Amount
Chemical	25 to 30 kg
Plastic	1 kg
Wastage paper, Rexin	2 kg
Can	0
Fabrics	20 kg
Hides	0.5 tons
Tyre, Tube	4 to 5 pcs

Inorganic Waste discharged by Factory:

Waste Type	Frequency	%
Cartons, Paper	3	30.00
Plastic Box	1	10.00
Tyre, Tube, Seat rexin, wastage paper etc.	1	10.00
Paper, Doisting	1	10.00
Nothing	3	30.00
Paper	1	10.00
Total	10	100

Waste Disposed by:

Waste Discharged by	Frequency	%
Employed Staff	4	40.00
Regular Staffs/ Factory Staff	6	60.00
Total	10	100

Frequency of Discharging:

Frequency	Frequency	%
One Time/ Day	4	40.00
2 Time /Day	3	30.00
No fixed time	1	10.00
When it is Convenient	1	10.00
Only Sweeps	1	10.00
Total	10	100

Distance of Disposal Place:

Distance	Frequency	%
More than 50 meters	9	90.00
Don't know where the cleaner dispose waste	1	10.00
Total	10	100

Waste Keeping Place before Disposal:

Waste Keeping Place	Frequency	%
Garbage can inside bakery	5	50.00
No fixed place or can	4	40.00
Just in corner of the business premises	1	10.00
Total	10	100

Waste Collected By:

Collected By	Frequency	%
Employed staff	3	30.00
Regular Staff	1	10.00
None	5	50.00
Local people who have formed a group	1	10.00
Total	10	100

Type of Segregation Occurring:

Waste Segregation	Frequency	%
Yes (Metal)	1	10.00
Paper	1	10.00
No segregation	8	80.00
Total	10	100

Having Harmful Contents in the Waste:

Harmful Contents	Frequency	%
Yes	2	20.00
May be	3	30.00
Not Sure	5	50.00
Total	10	100

Cause of Harmfulness:

Cause	Frequency	%
Bakery: Bacterial Infection Disease may occur	1	10.00
Tannery: Chemical used in tannery pollutes adjacent drain water and surrounding air which is most harmful	1	10.00
N/A	8	80.00
Total	10	100

Recycle Material:

Recycle Material	Frequency	%
Cutting edge of utensils are reused to make new thing	1	10.00
N/A	9	90.00
Total	10	100

Self-Treating and Disposing: Among the 10 Factory Respondents, none of them are treating and Disposing waste by themselves.

Interest on Self-Segregation:

All the respondents at 10 factory units have expressed their interest on Self-segregation.

Problems Related to Waste Collection and Demand on Waste Collection

Only one factory is facing problem as 'Dustbin is far away from factory' but 9 factory units don't face any problem and the factory has informed Ward Commissioner both verbally and in written. Regarding solving of the waste management oriented problem, only one factory tried to solve the problem by themselves.

Payment for SWM:

Paying Amount/Month	Frequency	%
2500 Tk.	1	10.00
2500 to 3000 Tk.	1	10.00
1800 Tk	1	10.00
300 Tk	1	10.00
100-150 as additional incentives for cleaners	1	10.00
50 Tk	1	10.00
N/A	4	40.00
Total	10	100

Amount paid to whom and Comment on Amount:

Most of the payment for SWM is made to own employee but one unit is paying to others;

Most of the respondents at 7 factory units find the paid amount for *SWM* as moderate while others don't think so;

Willingness to Pay More Amount:

Amount	Frequency	%
50 Tk/Month	3	33.33
100 Tk/Month	1	11.11
200 Tk/Month	3	33.33
Management Decision	2	22.22
Total	9	100

Knowledge About Waste Dumping Site and Waste as a Resource:

All the respondents at 10 business units have knowledge of dumping sites as they have visited sites. Except one all the respondent think that waste can be a useful resource.

09. CATEGORY: *HOSPITALS/ CLINICS*

Location and Address of Hospitals:

SL. No.	Name of Hospital	Location and Address	Type of Hospital
1	Infection Disease Hospital	Ward-20, Zone-9, Mohakhali, Dhaka-1212	Specialized
2	IBN Sina Hospital	Ward-49, Zone-5, H-68, R- 15A, Dhanmondi Dhaka	General
3	Ganasastha Nagar Hospital	Ward-49, Zone-5, H-14/E, R-6, Dhanmondi Dhaka	General, University, Diagnostic Centre
4	Care Land Hospital Ltd.	Ward-24, Zone-4, 259/B Khilgaon, DCC Area, Dhaka	General
5	Gulshan Modern Clinic	Ward-21, Zone-9, H-5, R-11, Gulshan 1, Dhaka	General
6	Vision Eye Hospital	Ward-49, Zone-5, H-27, R-27(old), Dhanmondi, Dhaka	Specialized
7	Conscious Hospital	Ward-49, Zone-5, H-25A, R-6, Dhanmondi, Dhaka	General
8	Matarnal & Child Health Training Institute	Ward-62, Zone-3, 49/A Azimpur Road, Lalbag Dhaka	Specialized
9	Gulshan Maa O Shishu Clinic Ltd.	Ward-19, Zone-9, H-11A, Kamal Attaturk Ave, Gulshan-2, Dhaka	Specialized
10	Uttra Central Hospital	Ward-1,H-01, R- 7, Sector-1, Uttra, Dhaka	General
11	Shebika General Hospital	Ward-43, Zone-6, H-22/11,Shamoli, Mirpur Road, Dhaka	General
12	Dhaka National Medical College & Hospital	Ward-78, Zone-2, 53/1 Jonhson Road, Kotwali, Dhaka	General
13	BIRDEM Hospital	Ward-57, Zone-5, Shabag, Kazi Nazrul Islam Ave, Ramna, Dhaka	General
14	National Heart Foundation Hospital	Mirpur -2, Mirpur	General
15	Al Helal Diagnostic & Private Hospital	153 Senpara Parbata, Begum Rokeya Sarani	General

1. General Information

Hospital Type:

Type of Hospital	Frequency	%
General	10	66.67
Specialized	4	26.67
General, University, Diagnostic Centre	1	6.66
Total	15	100

Number of Beds in Hospital:

No. of Beds	Frequency	%
Up to 10	3	20.00
11 to 20	4	26.66
21 to 30	1	6.66
31 to 100	4	26.66
Up to 130	1	6.66
300	1	6.66
More than 500	1	6.66
Total	15	100

Number of Out Patients:

No. of Out Patients	Frequency	%
1 to 10 Patients/ Day	3	20.00
11 to 20 Patients/ Day	5	33.33
21 to 30 Patients/ Day	1	6.66
200 Patients/ Day	2	13.33
500 Patients/ Day	2	13.33
501 to 1500 Patients/ Day	1	6.66
1501 to 2500 Patients/ Day	1	6.66
Total	15	100

2. Production of Waste and Quantity

Weight of Common Medical Waste discharged by number of Hospital:

a) Cotton:

Amount of discharged cotton	Discharged by/Unit	%
Half Roll/Day	1	6.66
1 Roll/day	4	26.66
2 Rolls/Day	3	20.00
3 Rolls/Day	2	13.33
4 Rolls/Day	2	13.33
5 Rolls/Day	1	6.66
0.5 Kg/Day	1	6.66
N/A	1	6.66
Total	15	100

b) Saline Tube:

Nos.	Discharged by	%
1 to 10 pcs	4	26.66
11 to 20 pcs	3	20.00
21 to 50 pcs	4	26.66
51 to 60 pcs	1	6.66
100 to 150 pcs	2	13.33
N/A	1	6.66
Total	15	100

3. Segregation of Wastes

Segregating Items:

Segregated Items	Frequency	%
Syringe	5	33.33
Needle	4	26.66
Dry, Blood, Sharp matters	1	6.66
Other Wastes	1	6.66
Nothing	4	26.66
Total	15	100

Place of Segregation:

Place of Segregation	Frequency	%
In Ward	6	54.54
At every bed	2	18.18
Operative Room, Pathology, Laboratory	2	18.18
Others	1	9.99
Total	11	100

Type of Bag for Segregation:

Type of Bag Used for Segregation	Frequency	%
Plastic Bowl	7	63.63
Plastic Container	3	27.27
Metal Container	1	9.09
Total	11	100

Type of Bags Used for Transportation:

Type of Bag	Frequency	%
Plastic Bowls	5	33.33
Plastic Containers	6	40.00
Plastic Buckets	3	20.00
Metal Containers	1	6.66
Total	15	100

Using Labels after Segregation:

After segregation of the wastes, labeling of segregated waste is not done properly as the survey shows only 20 percent i.e. 3 hospitals use labels for wastes that are segregated.

Method of Segregation:

Segregation Method	Frequency	%
Destroying	1	6.66
Keeping separately	8	53.33
Categorically keeping in boxes	1	6.66
No method	3	20.00
No Answer	2	13.33
Total	15	100

4. SWM Personnel in Hospital

Personnel Engaged for Hospital SWM:

Personal Engaged for SWM	Frequency	%
Yes	3	20.
No	11	73.33
No Answer	1	6.66
Total	15	100

Having Written Guidelines for Hospital SWM:

Having Guidelines	Frequency	%
Yes	2	13.33
No	13	86.66
Total	15	100

5. SWM Policy of Hospital

Having Any Hospital SWM Team:

Having SWM Team	Frequency	%
Yes	2	13.33
No	6	40.00
Cleaning Staff for SWM	6	40.00
No Answer	1	6.66
Total	15	100

6. Problems in Waste Collection

Regarding existing waste collection system from hospitals, only 7 hospitals (47%) are enjoying the facilities whereas 8 hospitals (53%) don't have any. In this context whether there is any problem in collection system, interviewees were asked. 4 hospitals (73%) replied 'yes, they have problem' and remain 11 hospitals (27 %) didn't.

7. Demand on Waste Collection Services

Next question related to 'facing problem' was that whether they have requested DCC or others? The survey reveals that only 5 hospitals (33%) have made such request while 10 hospitals (67%) never requested anyone.

8. Willingness to Cooperate DCC

Comments of Present Payment for SWM:

Comments	Frequency	%
Too much	1	6.66
Moderate	6	40.00
Too little	1	6.66
Others	1	6.66
No Answer	6	40.00
Total	15	100

Willingness to pay for Better SWM:

Willingness	Frequency	%
Management's Decision	13	86.68
10000/ Month	01	6.66
1000/ month	01	6.66
Total	15	100

Interest on Self-Segregation:

Respondents of all 15 hospitals were found to have interest in segregation.

9. Knowledge on Environmental Consequences

Waste Dumping Site:

The survey reveals that only respondent of one hospital has replied negatively that he has no knowledge about waste dumping site in Dhaka city.

Awareness Needed for Better SWM:

The respondents at the hospitals felt the need of awareness programme on SWM for all.

Besides, 13 respondents (87%) of hospitals said that the wastes could be a resource while 2 respondents were confused as they answered 'May Be'.

10. Comments Made by Respondents at Hospitals

During the survey as part of information sharing the respondents were requested to comment or provide suggestions regarding overall waste management in their respective hospitals. These are collected separately and presented below;

- Clinical wastes should be treated separately and MoH can regulate an uniform system for all clinics at a reasonable cost.
- Separate waste management system should be introduced under MoH for medical waste management.
- Medical Waste treatment should be done in an uniform manner so that these types of wastes cannot infect others. MoH can setup an incinerator and provide waste management training.
- Health ministry should run a Uniform use system for Medical Waste Treatment especially for clinics.
- If wastes can be a source of money generation, SWM can be effective.
- Need better SWM for the future generation.
- Incinerator is expensive. Govt. should introduce a system where Health Ministry should come forward with a uniform system for all.
- We need a special collection system as well as medical waste treatment system as these are more harmful than others.

Business Unit Awareness Survey

INTERVIEW SCHEDULE		**DATE OF INTERVIEW :**		**TIME OF INTERVIEW:**	
LOCATION					
Ward:			Area:		
Zone:			Thana:		
Road:			House No:		
NAME OF THE RESPONDENT :					
DESIGNATION OF RESPONDENT:					
NAME OF BUSINESS UNIT :					
TYPE OF BUSINESS UNIT:					
Commercial	**Market**	**School**	**Hospital**	**Factory**	
Specify:					

A_1= Restaurant

01. Floor Area	: ___ m^2 (wg^2) **/**___**ft^2**		02. No. of Floor:		
03. Seat Capacity	: _____ seats/diners				
04. Holidays:					
	One day/week		No Holiday		
	One day/Month		No System		
	Only Govt. Holidays		Owner's Discretion		
	Others:				
05.	Remains Open:				
	.....am to .....pm		.....am to .....pm		
	.....am to .....pm		.....am to .....pm		
	Others:				
06.	Number of Workers :		*Male:*		*Female*

A2= Hotel

01. Floor Area	: ___ m^2 (wg^2) **/**___**ft^2**	02. No. of Floor:	
03. Capacity	: _____ rooms		

A3= Guest House

01. Floor Area	___ m^2 (wg^2) **/**__**ft^2**	02. No. of Floor:	
03. Capacity	: _____ Guestrooms		

A4= Shop

01. Major goods selling					
02. Floor Area:	__ m^2 (wg^2) **/**__**ft^2**	03. No. of Floor:			
04. Holidays :					
	One day/week		No Holiday		
	One day/Month		No System		
	Only Govt. Holidays		Owner's Discretion		
	Others:				
05.	Remains Open:				
	.....am to .....pm		.....am to .....pm		
	Others:				
06.	Number of Workers :		*Male:*		*Female:*

A5= Large Office						
01. Floor Area	__ m^2 (wg^2)**/** _**ft^2**		02. No. of Floor:			
03. Holidays:						
	One day/week		No Holiday			
	One day/Month		No System			
	Only Govt. Holidays		Owner's Discretion			
	Others:					
04.	Remains Open					
	.....am to .....pm		.....am to .....pm			
	Others:					
05.	Number of Workers		*Male:*		*Female*:	
B= Market						
01.	Number of tenants by type of business :					
02.	Type of Business Units in Market Area :					
03.	Floor Area in Total	: ----------m2 or acre	04. No. of Floor:			
05. Holidays :						
	One day/week		No Holiday			
	One day/Month		No System			
	Only Govt. Holidays		Owner's Discretion			
	Others:					
06.	Remains Open					
	.....am to .....pm		.....am to .....pm			
	Others:					
C= School						
01.	Name of the School:					
02.	Number of Students:		------Day		------Night	
03.	Type of School :					
	Primary School		High school			
	Technical School		College			
	Others:					
04.	Floor Area in Total	___ ft^2 or acre	05. No. of Floor:			
06. Holidays:						
	One day/week		No Holiday			
	One day/Month		No System			
	Only Govt. Holidays		Owner's Discretion			
	Others:					
07.	Remains Open:					
	.....am to .....pm		.....am to .....pm			
	.....am to .....pm		.....am to .....pm			
	Others:					
E= Factory						
01. Major products						
02.	Floor Area:	_ m^2(wg^2)**/**__**ft^2**	03. No. of Floor:			
04.	Major raw material (specify)					

05.	Spread of lot :					
06. Holidays:						
	One day/week		No Holiday			
	One day/Month		No System			
	Only Govt. Holidays		Owner's Discretion			
	Others:					
07.	Remains Open:					
	.....am to .....pm		.....am to .....pm			
	Others:					
08.	Number of Worker/Employees		*Male:*		*Female*	

WASTE DISCHARGE

01. Type of Major Waste Generated

Type	**Items**					**Any Other**
Organic	Food Item		Raw food		Processed food	
Inorganic	Cans	Plastic Boxes	Cartons	Paper	Polythene	

1.1 Who discharges wastes?

	Staff Employed		Cook		Cleaner		Sweeper
Others							

02. Do you know about segregation of waste? □Yes □No

2.1 If yes, what are the segregated wastes?

	Food		Plastic Material		Cans
Others					

03. Do you know if waste contains harmful contents?

	Yes		No		May be		Not sure
Others							

4.1 If yes, specify how they are harmful?

....

04. Volume of waste discharged at a time?

Sl No.	**Type**	**Item**	**Kg/Pcs**	**Comments**
i	Food			
ii	Plastic			
iii	Carton			
iv	Can			
v	Container			

05. Frequency of discharge of wastes:

	No fixed time		When it is convenient
	___ Times/day		_____ Times/week
Other:.....			

06. How far is the place of discharge?

	Front of the Restaurant		Less than 10 meters		20-25 meters		25 -40 meters		+50 meters
Others:									

07. Where/how waste is kept until discharged?

i	Garbage can inside Business Premise	
ii	Plastic bag inside the kitchen	
iii	Common garbage can outside the Business Premise	
iv	No fixed place or can	
V	*Others*:	

08. Who collects waste?

	DCC		Private Company		Employed Staff		Waste Picker
Others							

09. Whether you are recycling any waste? ☐Yes ☐No

9.1 If yes, specify the goods and uses

.....

9.2 Who are collecting the recycled materials?

	DCC		Private company		Employee
Others					

10. Do you treat and dispose waste by yourself ? ☐Yes ☐No

10.1 If yes, specify manner and place: .....

PROBLEMS RELATED TO WASTE COLLECTION

11. Do you face any problem in waste disposing? ☐Yes ☐No

11.1 If yes, specify the problems:

.....

11.2 What do you think can be the solutions for the problems?

.....

DEMAND ON WASTE COLLECTION SERVICE

12. Who did you inform about the problem?

	DCC		Ward Commissioner		Garbage Collectors
Others					

12.1 How did you inform?

	Verbal Complain		Written Complain
Others			

13. Did you initiate to solve the problem by yourselves? □Yes □No

13.1 If, yes what was the result?

	Successful		Unsuccessful		Partly successful
Others					

13.2 If not successful what you think were the barriers?

Specify: .....

WILLINGNESS TO COOPERATE DCC ON SWM

14. Are you paying any amount for SWM? □Yes □No

14.1 If yes, how much?

	Tk. 20 per month		Tk. 50 per month		Tk. 100 per month)
Others					

14.2 Who are you paying this?

	Private company		To own employee
Any other person/organization			

14.3 How do you rate the present amount?

	Too little		Too much		Moderate
Others					

14.4 How much you can pay for better SWM ?

	Tk. 50.00		Tk. 100.00		Tk. 150.00		Tk. 200.00
Others							

14.5 Will you segregate waste for separate collection, if requested? □Yes □No

ENVIRONMENTAL CONSEQUENCES

15. Do you know where the waste is dumped? □Yes □No

15.1 If yes, where (Specify): .....

.....

15.2 Did you see any dumping site? □Yes □No

15.3 If yes, specify the name of the site.....

.....

15.4 Do you think waste can be a resource to mankind? □Yes □No

15.5: If yes, how (specify):

.....

16. Do you know what the environment of dump site looks like ? □Yes □No

Name of interviewer:

General Observation:

***** Please note that *Others* must contain relevant information related to the questions.**

D. QUESTIONS for HOSPITALS

I. Name of Hospital :

a. Location :
b. Type of Hospital

	Specialist		General		University		Diagnostic Centre

Specify in case of special

category:……..

c. Number of Beds:
d. Number of Outpatients :

1.0 Production of solid waste and quantity:

	Waste Category	Discharging	Estimated Quantity	
Medical Waste	Pathological		Kg/Per day	Piece/Per day
	Infectious			
	Radioactive			
	Chemical			
	Pharmaceuticals			
	Knives/Blade			
	Cotton			
	Salaine Tube			
General Waste				
Recyclable Material	Tube			
	Syringe			
	Needle			
	Containers			
	Bottle			
	Box			
	Can			

Others, if any specify:…….

2.0 Waste Segregation:

2.1 Do you segregate from general waste any particular waste? □Yes □No

If yes, specify: .....

2.2 Where does the segregation take place?

	Operating room		Laboratory
Other Space:			

2.3 What types of containers/bags are used initially to segregate waste?

	Metal Containers		Cardboard Box		Straw Box
	Polythene		Bags		Plastic Containers
Others					

2.4 What types of container/bags are used for collection and internal transport of waste ?

	Metal Containers		Cardboard Box		Straw Box
	Polythene		Plastic Containers		Bags
Others					

2.5 Do you label/mark the segregated waste? □Yes □No

If yes, specify (how):.....

2.6 What are the methods for segregation of waste?:.....

2.7 Does the method require any tools/machinery ? □Yes □No

If yes, what type ?:.....

2.8 What are the contexts of the segregated waste?.....

2.9 How is the segregated waste treated ?

Specify:.....

…

3.0 SWM Personnel in Hospital

3.1 Do you have personnel in charge of hospital SWM? □Yes □No

- Designated Position:.....
- General Qualification:.....
  - Educational:……
  - Technical: ……
  - Special training related to waste management: ……..

Has received any training on hospital SWM? □Yes □No

If yes give details please:

- Do the SWM staffs have job descriptions detailing their tasks? □Yes □No
- Is there any instruction/training to newly hired SWM staff? □Yes □No

4.0 SWM Policy of Hospital

4.1 Is there any manual or guideline document on management of hospital waste available?

a. In the Ministry? □Yes □No

If yes, give title of the document:

b. In the Hospital? □Yes □No

If yes, give title of the document:

4.2 Does your hospital have a waste management plan? □Yes □No

(If Possible Attach A Copy)

4.3 Does your hospital have a waste management team/s? □Yes □No

If yes, please list the members and numbers:

Sl No.	Name	Desgn.	Sex	Job Nature			Work Hours
				Permanent	Temporary	Contract basis	
01							
02							
03							
04							
05							
06							

4.4 Are there clearly defined procedures for collection and handling of wastes from specified units in the hospital? □Yes □No

4.5 How are the present waste collection, handling and disposal responsibilities defined in the job descriptions of the staff involved?

Waste Collection .....
Waste Handling.....
Waste Disposal.....

5.0 Problems in Waste Collection

5.1 Any Inconvenience you are facing at present? □Yes □No

If yes, please specify: ……

5.2 Have any plan to settle the problems? □Yes □No

If yes, please specify: ……

6.0 Demand on Waste Collection Service

6.1 Have you made any request to DCC? □Yes □No

If yes, how ?

	In writing		Orally		Over Phone
Others					

6.2 Have you made any request to others? □Yes □No

If yes, who are they? (Specify).....

7.0 Willingness to cooperate with DCC

7.1 How much are you paying for waste collection at present?

Taka	Monthly	Yearly	Others (specify)

7.2 How do you think the amount of payment?

	Too much		Too little		Moderate
Others:					

7.3 How much can you pay for better waste collection service?

Taka	Monthly	Yearly
Others:		

7.4 Would you segregate waste for separate collection, if requested?

	No		Not sure		Yes
Others:					

8.0 ENVIRONMENTAL CONSEQUENCES

8.1 Do you know where the waste is dumped? □Yes □No

Where?……

8.2 Do you know what the environment of a dumpsite looks like? □Yes □No

8.3 Do you think awareness is important for a better SWM? □Yes □No

If no, then what you think of the alternatives:…….

What you think that waste can be a resource material, if it is proper managed and well treated?

	No		May Be		No nothing about this
	Yes		Not sure		No Knowledge

8.4 Other Comments:

....

....

....

Name of interviewer:

General Observation:

8. Awareness Survey (Household)

8. Awareness Survey (Household)

8.1 Survey Objectives

The objective of the Survey is to understand present situations of waste discharge by residents, needs for improvement of solid waste management at local levels, awareness of solid waste management and willingness and capacity to participate in community based activities. The survey will contribute to identify the appropriate and suitable mechanism and measures for promoting people's participation and community-based activities in the solid waste management system of Dhaka City.

8.2 Survey Period

From February to March, 2004.

8.3 Methodology of the Survey

The survey is composed of the followings:

- Household Questionnaire Survey
- Group Interview Survey

(1) Household Questionnaire Survey

Interview survey with questionnaire was carried out in selected areas. The survey areas and number of samples are shown below. The questionnaire is attached at the end of this chapter.

Survey Areas and Number of Samples

Income groups to be surveyed were selected as show in the Table 8.3-1. 17 areas from 9 different types of areas were selected as survey areas as shown in Table 8.3-2. 20 households were sampled from each survey area. The total number of samples was 340.

Table 8.3-1 Classification of Income Group

Income Group		Monthly Income (Taka/month)	Covered by Survey
Upper Class	Highest Class	100,000～	X
	Upper Class	50,000～99,999	
Middle Class	Upper Middle Class	20,000～49,999	-
	Middle Class	10,000～19,999	X
	Lower Middle Class	5,000～9,999	-
Lower Class	Lower Class	3,000～4,999	X
	Lowest Class	0～2,999	

Table 8.3-2 Survey Areas and Number of Samples

Area Category	Type of Development	Higher Income Group (Monthly H/H Income: more than 50,000 Taka)	Middle Income Group (Monthly H/H Income: 10,000-20,000 Taka)	Lower Income Group (Monthly H/H Income: less than 5,000 Taka)	Total Number of Samples
New Urban Areas	Planned Developed Area	➢ Uttara ➢ Gulshan	-	-	40
	Spontaneously Developed area	-	➢ Khilgaon ➢ Mirpur	➢ Rampura ➢ Rayerbazar	80
Older Urban Areas	Planned Developed Area	-	➢ Azimpur ➢ Mohammadpur	-	40
	Spontaneously Developed area	-	➢ Kalyanpur ➢ Shantinagar	-	40
Old Dhaka	Planned Developed Area	➢ Wari ➢ Islampur	-	-	40
	Spontaneously Developed area	-	-	➢ Sayedabad ➢ Lalbag	40
Total Number of Samples		80	120	80	280

Area Category	Waste Management Project	Survey Area	Total Number of Samples
Slum Area	Waste management activity do not exist	➢ Mirpur ii ➢ Shahidnagar	60
	Waste management activity exist	➢ Mirpur; section ii	

(2) Focus Group Discussion

Focus group discussions were carried out in selected areas. Conducted focus group discussions are shown in the Table 8.3-3.

Table 8.3-3 Conducted Focus Group Discussions

Name of Area	Ward No.	Target Group	Venue	Date	No. of Participants
Gulshan-Banani	19	Community Leaders	Ward Commissioner's Office, Ward 19, Banani, Dhaka	17/02/04	07
		Women Group	Ward Commissioner's Office, Ward 19, Banani, Dhaka	22/02/04	12
		Domestic Helper	H # 34/A, R # 55, Gulshan-2, Dhaka	12/03/04	10
		Youth Group	Gulshan Youth Club Field, Gulshan, Dhaka	20/03/04	24
Malibagh/ Khilgaon	23	Women Group	Ward Commissioner's Office, Ward-23, Malibagh, Dhaka	11/02/04	21
		Youth Group	Youth Health Education Training Center, Khilgaon	15/02/04	19
		Community Leaders	Ward Commissioner's Office, Ward-23, Malibagh, Dhaka	01/03/04	18
Jatrabari (Saidabad)	84	Community Leaders	Ward Commissioner's Office, Ward 84, Jatrabari, Dhaka	09/03/04	16
		Youth Group	Surjakamal Youth Club, Ward 84, Jatrabari, Dhaka	09/03/04	12
		Women Group	Ward 84/12, North Jatrabari, Jatrabari, Dhaka	15/03/04	19
Lalbagh	61	Community Leaders	25 Jagannath Saha Road, Amligola, Lalbagh, Dhaka	22/03/04	11
		Women Group	189 Jagannath Saha Road, Amligola, Lalbagh, Dhaka	23/03/04	27
		Youth Group	25 Jagannath Saha Road, Amligola, Lalbagh, Dhaka	06/04/04	23
Shaheed Nagar	60	Residents of Slum Area	1/2, Raja Narayan Dhar Road, Qillar More Lalbagh, Dhaka	06/04/04	18

8.4 Survey Results

HIGH INCOME GROUP

3. WASTE STORAGE & PRIMARY COLLECTION:

3.1 Space to Keep Waste

Space	Frequency	%
1. Yes	76	95.00
2. No	4	5.00
Total	80	100

3.2a: Waste Storage Place in the House

Place	Frequency	%
1. In the House	74	92.50
2. In the Garden	2	2.5
3. Others	0	0.00
Not answered	4	5.00
Total	80	100.00

3.2b: Waste Storage Capacity

Storage Capacity	Available	%
1. Sufficient for One Day	72	90.00
2. Sufficient for Two Day	4	5.00
3. Sufficient for Three Day	0	0.00
4. Sufficient for Four days to One week	0	0.00
5. Sufficient for More than one week	0	0.00
6. Others	0	0.00
N/A	4	5.00
Total	80	100

3.2c. Problems due to Storage of Waste:

Problems	Available	%
1. Bad Smell	26	32.50
2. Insect and Flies	17	21.25
3. Dirtiness to Look	13	16.25
4. Others	0	0.00
5. No Problem	20	25.00
N/A	4	5.00
Total	80	100

3.3 Disposal In-Charge

Disposal In-Charge	Frequency	%
1.Member of HH	2	2.50
2.Servant	77	96.25
3.Others (Cleaner)	1	1.25
Total	80	100

Relation with Household

Relationship	Frequency	%
Interviewee (Self)	1	50.00
Son	1	50.00
Total	**2**	100

3.4 Way of Waste Disposal

Disposal System	Frequency	%
1. Door-to-Door Collection	70	87.50
2. Dispose to Waste bin/Container	6	7.50
3. Dumped in Vacant Land/River/Marsh	4	5.00
4. Others	0	0.00
Total	80	100

3.5 Door-to-Door Collection System

Collected by	Frequency	%
1. NGO	1	1.42
2. Small Local Association/Organized Community	35	50.00
3. Youth Club	0	0.00
4. Private Company	12	17.14
5. Govt. Staff Association	0	0.00
6. DCC Sweeper	22	31.42
7. Individual Person	0	0.00
8.Others	0	0.00
Total	70	99.98

3.6 Satisfaction on Waste Collection

Satisfied	Frequency	%
1. Yes	61	87.14
2. No	9	12.85
Total	70	100.00

3.7 Dissatisfaction on Waste Collection

Reasons	Available	%	Not Available	%	Total
1. Does not collect everyday	6	66.66	3	33.33	9
2. Collection time is not fixed	8	88.88	1	11.11	9
3. No door-to-door collection service	0	0.00	9	100.00	9
4. Others (Bad Smell)	0	0.00	9	100.00	9

3.8 Pay for Waste Collection

Pay for Waste Collection	Frequency	%
1. Yes	57	81.42
2. No	10	14.28
Not Answered	3	4.28
Total	70	100.00

3.9 Amount Paid:

Amount (Per month/Tk.)	Frequency	%
1. 1 - 10	0	0.00
2. 11 – 20	20	35.08
3. 21 – 50	11	19.29
4. 51 – 100	14	24.56
5. 100 +	12	21.05
6. Others	0	0.00
Total	57	100.00

3.10 Interested to Pay for Waste Collection:

Interested to Pay	Frequency	%
1. Yes	9	90.00
2. No	1	10.00
Total	10	100.00

3.10a. Payment Capability (Willingness):

Amount (Per Month/ Tk.)	Frequency	%
1. 1 - 10	2	22.22
2. 11 – 20	5	55.55
3. 21 – 50	2	22.22
4. 51 - 100	0	0.00
5. 100 +	0	0.00
6. Other gift	0	0.00
Total	9	100.00

3.10b Reason for Unwillingness:

Reason	Frequency	%
1. Time schedule of garbage collection is not good	0	0.00
2. Not satisfied with their work	0	0.00
3. Already paid tax to DCC for these works	1	100.00
4. Others	0	0.00
Total	1	100.00

4. DCC/PRIVATE COMPANY SERVICES

4.1 Distance Between House & Bin

Distance	Frequency	%
1. Less than 70 ft.	9	11.25
2. Less than 150 ft.	16	20.00
3. Less than 300 ft.	14	17.50
4. More than 300 ft.	28	35.00
5. Respondent does not know	13	16.25
Total	80	100

4.2 Satisfaction on DCC Collection:

Satisfied	Frequency	%
1. Yes	46	57.50
2. No	33	41.25
Not Answered	1	1.25
Total	80	100

4.3 Causes of Dissatisfaction on DCC's waste collection service:

Reason	Available	%
1. Bins/containers are too far from the house	8	24.24
2. Waste are scattered around bins/containers	11	33.33
3. Time schedule of collection in not suitable	12	36.37
4. Others	2	6.06
Total	33	100

4.4 Satisfaction on Street Sweeping:

Satisfied	Frequency	%
1. Yes	42	52.50
2. No	37	46.25
Did not answer	1	1.25
Total	80	100

4.5 Cause of Dissatisfaction on Street Sweeping:

Reason	Available	%
1. Does not do a good job of sweeping	16	43.24
2. Does not sweep regularly	16	43.24
3. Time of sweeping is not suitable	5	13.51
4. Street sweeping is not provided in my area	16	43.24
5. Drainage is clogged	0	0.00
6. Others	37	100.00

4.6 Complain to DCC:

Complain	Frequency	%
1. Yes	6	7.5
2. No	69	86.25
3.No answer	5	6.25
Total	80	100

4.7-a To whom the Respondents did complain:

Complain To	Frequency	%
1. DCC Ward Inspector	0	0.00
2. DCC Zone Office	0	0.00
3. DCC Central Office	0	0.00
4. Private Company	1	16.66
5. Ward Commissioner	3	50.00
6. Community Leader	2	33.33
Total	6	100.00

4.7-b Complaint on:

Issue	Available	%
1. Does not do a good job of sweeping/garbage collection	1	16.66
2. Does not sweep/collect garbage regularly	3	50.00
3. Time of sweeping is not suitable	0	0.00
4. Street sweeping is not provided in my area	1	16.66
5. Drainage is clogged	1	16.66
6. Location of bin/container to be changed	0	0.00
7. Others	0	0.00

4.7c: Initiatives by DCC

Initiatives	Frequency	%
1. The Problem was Improved	1	16.66
2. The problem was partially improved	2	33.33
3. There was no response/ The problem was not improved	3	50.00
4. The problem/solution got worse	0	0.00
5. Received complaints from DCC Sweepers	0	0.00
6. Others	0	0.00
Total	6	100.00

4.8 Comparison of SWM Service between Private Company & DCC:

Comments	Frequency	%
They take waste in fixed time (early morning) which DCC never maintained.	1	2.50
Local collectors take the waste 2 times a day but DCC took only once.	1	2.50
DCC should maintain their time to collect waste.	1	2.50
Environment Improved.	1	2.50
Did not provide any answer.	36	90.00
Total	40	100.00

5. WASTE SEGREGATION, REUSING, RECYCLING & COMPOSTING

5.1 Segregation of Waste:

Segregation of Waste	Frequency	%
1. Yes	18	22.50
2. No	62	77.50
Total	80	100

5.2 Way of Segregation:

Segregated Items	Frequency	%
Kitchen waste, bottle, steel, can, glass etc.	2	11.10
Bottle, Steel, Can, cloth etc.	2	11.10
Kitchen wastes are separated.	2	11.11
Kitchen wastes are separately disposed.	1	5.56
Newspaper, Water bottle, any type of glass.	1	5.56
Newspaper, any other paper.	1	5.56
Newspaper, Plastic bottles, Clothes, hard board	5	27.78
Drinking glass, bottles are segregated.	1	5.56
Bottles, Plastic Bag are segregated.	1	5.56
Did not provide any answer	2	11.11
Total	18	100

5.3 Selling Recyclable Waste:

Sale of Recyclable Waste	Frequency	%
1.Yes	73	91.25
2. No	7	8.75
Total	80	100

5.4 Information On Recyclable Waste, Type of Collectors

a) Newspaper as a recycling material:

Recycled Materials	Collected By	Frequency	%
Newspaper	1. Waste Picker	7	9.59*
	2. Street Hawker	64	87.67*
	6. Others	2	2.74*
Total		**73**	**100.00**
Newspaper not recycled		**0**	**0.00**
Total		**73**	**100.00**

b) Cardboard as a recycling material:

Recycled Materials	Collected By	Frequency	%
Cardboard	1. Waste Picker	1	50.00
	2. Street Hawker	1	50.00
Total		**2**	**2.73**
Cardboard not recycled		**71**	**97.26**
Total		**73**	**100.00**

c) Glass Bottles as a recycling material:

Recycled Materials	Collected By	Frequency	%
Glass Bottles	1. Waste Picker	22	62.85
	2. Street Hawker	10	28.57
	4. Middle Scale Buyer	1	2.85
	6. Others	2	5.71
Sub Total		**35**	**47.94**
Glass Bottles not recycled		**38**	**52.05**
Total		**73**	**100.00**

d) Other Glasses as a recycling material:

Recycled Materials	Collected By	Frequency	%
Other Glasses	1. Waste Picker	12	57.14
	2. Street Hawker	6	28.57
	4. Middle Scale Buyer	1	4.76
	6. Others	2	9.52
Total		**21**	**28.76**
Glass Bottles not recycled		**52**	**71.23**
Total		**73**	**100.00**

e) Steel Can as a recycling material:

Recycled Materials	Collected By	Frequency	%
Steel Can	1. Waste Picker	5	**55.55**
	2. Street Hawker	3	33.33
	6. Others	1	11.11
Sub Total		**9**	**12.32**
Steel Can not recycled		**64**	**87.67**
Total		**73**	**100.00**

f) Aluminum Can as a recycling material:

Recycled Materials	Collected By	Frequency	%
Aluminum Can	1. Waste Picker	4	50.00
	2. Street Hawker	4	50.00
Sub Total		**8**	**10.95**
Aluminum not recycled		**65**	**89.04**
Total		**73**	**100.00**

g) Metals as a recycling material:

Recycled Materials	Collected By	Frequency	%
Metals	1. Waste Picker	1	50.00
	2. Street Hawker	1	50.00
Sub Total		**2**	**2.73**
Metals not recycled		**71**	**97.26**
Total		**73**	**100.00**

h) Kitchen Waste:

Recycled Materials	Collected By	Frequency	%
Kitchen	1. Waste Picker	4	100.00
Sub Total		**4**	**5.47**
Metals not recycled		**69**	**94.52**
Total		**73**	**100.00**

i) Bone:

Recycled Materials	Collected By	Frequency	%
Bones	1. Waste Picker	0	0.00
	4. Middle Scale Buyer	0	0.00
	6. Others	0	0.00
Sub Total		**0**	**0.00**
Bones not recycled		**73**	**100.00**
Total		**73**	**100.00**

j) Plastic Bags as a recycling material:

Recycled Materials	Collected By	Frequency	%
Plastic Bags	2. Street Hawker	4	80.00
	6. Others	1	20.00
Sub Total		**5**	**6.84**
Plastic Bags not recycled		**68**	**93.15**
Total		**73**	**100.00**

k) Cloths as a recycling material:

Recycled Materials	Collected By	Frequency	%
	2. Street Hawker	4	14.81
	3. Rickshaw/Van Driver	2	7.40
	6. Others (Given to Maid)	21	77.77
Sub Total		**27**	**36.98**
Cloths not recycled		**46**	**63.01**
Total		**73**	**100.00**

l) Leather:

Recycled Materials	Collected By	Frequency	%
Leather	2. Street Hawker	1	100.00*
Sub Total		**1**	**1.36**
Leather not recycled		**72**	**98.63**
Total		**73**	**100.00**

m) Rubber:

Recycled Materials	Collected By	Frequency	%
Rubber	2. Street Hawker	1	100.00*
Sub Total		**1**	**1.36**
Metals not recycled		**72**	**98.63**
Total		**73**	**100.00**

n) Other Waste: No Other Waste item is found as a recycling material in high income group of respondents.

5.5 Composting Waste in House:

Composting	Frequency	%
1. Yes, at my house	0	0.00
2. Yes, give waste to NGO/Others for Composting	0	0.00
3. No	76	95.00
4. Others	0	0.00
Not answered	4	5.00
Total	80	100.00

5.6 a: Willingness to Waste Segregate:

Willingness to Waste Segregation	Frequency	%
1. Yes	24	30.00
2. No	56	70.00
Total	80	100

What Respondents can do in this regard?

Comments	Frequency	%
Can separate waste and try to inform other to do it for a clean environment	1	4.17
Good idea but it will take time for starting at every household	2	8.33
Will give household waste separately to the waste collectors	2	8.33
Kitchen waste can be segregated from other wastes	10	41.66
Can segregate and keep in different containers	7	29.17
Separate solid waste for further use	1	4.17
Will segregate kitchen waste from other waste if any organization collects	1	4.17
Total	24	100

5.6 b: Willingness to Recycle:

Willing to Recycle Waste	Frequency	%
1. Yes	10	12.50
2. No	70	87.5
Total	80	100

What Respondents can do in this regard?

Comments	Frequency	%
Can keep recyclable waste separately for any company who will recycle these	7	70.00
Cold drink cans or any other type of recyclable things should keep separate and take necessary step for further use	1	10.00
Will try to use usable plastic and glass wastes	1	10.00
If govt. or any company do recycling, recyclable waste can be provided to them	1	10.00
Total	10	100

5.6c: Willingness to Compost:

Willing to Compost Waste	Frequency	%
1. Yes	12	15.00
2. No	68	85.00
Total	80	100

What Respondents can do in this regard?

Comments	Frequency	%
Household waste can be used and dumped for fertilization	3	25.00
Rotten waste can be dumped in a corner of the household	2	16.66
Kitchen Waste can be used for manure	5	41.67
Government or any company should come first with the approach as household have lack of space	2	16.67
Total	12	100

6. OVERALL ENVIRONMENT

6.1 Most Pressing Problem in the Locality:

Problems	Frequency	%
Water Supply	9	11.25
Sewage Disposal	13	16.25
Garbage Collection	9	11.25
Air Pollution	31	38.75
Others	22	27.5
Dirty Road	1	4.55*
Drainage Problem	2	9.09*
Insufficient road light	1	4.55*
Lack of social security	5	22.73*
Mosquito	3	13.64*
Traffic Jam	5	22.73*
Lack of Electricity	2	9.09*
Sound Pollution	3	13.64*

** % Calculation is done on Others (22) categories.*

7. OPINION ON SWM, IMPROVEMENT OF LIVING ENVIRONMENT, PRIVATISATION OF WASTE COLLECTION & STREET SWEEPING

7.1 Opinion

Comments	Frequency	%
Timely waste collection needed, Recycling item should be collected, and Waste should be used to make compost.	5	6.25
Two times collection should be done.	4	5.00
NGO should be engaged for better SWM	3	3.75
DCC workers/ Private Association worker can segregate waste at the time of collection	4	5.00
Can help if they are trained up	7	8.75
Concerned authority need to be more active	2	2.50
No opinion	11	13.75
If government can do anything regarding this issue that should be very good for the society.	10	12.50
Segregation of waste at household needs to be started.	7	8.75
If GO and NGO come cordially then proper waste management, recycle and reusing can be done.	2	2.50
Government should take initiatives and drains should be covered.	5	6.25
Gas and fertilizer can be produced from waste; Government should help us in this regard.	11	13.75
Waste management system should be developed by DCC & Private organization.	7	8.75
Need more dumping center, training needed for cleaners also.	1	1.25
Solid waste management should be done by DCC.	1	1.25
Total	80	100

7.2 Other Ways to Manage Solid Waste and Improvement of Living Environment:

Comments	Frequency	%
Effective & supervision of SWM by DCC; Container should be covered	5	6.25
Accountability needed in SWM, Tree plantation needed for good environment	2	2.50
All wastes should be collected and transfer within 24 hours, it should be processed after collection	4	5.00
The waste should be removed regularly, There should be regular spray for insecticides & mosquitoes, there should be punishment for violating the law of environment	1	1.25
The waste carrying vehicles should be covered. The authority should be more conscious for preventing mosquitoes; There should be reward for the law obeying and punishment for law violating people.	3	3.75
Use of polythene bag must be stopped	1	1.25
Private Organization's activities should be monitored	4	5.00
Mixed landuse should be stopped	1	1.25
Public awareness by campaign, besides the number of dustbin and sweeper should be increased. Regular spray of insecticides is necessary.	8	10.00
Government can do good composting by the organic waste	1	1.25
Private company should take necessary action for collect the waste and to prepare gas, fertilizer	1	1.25
If people become sincere and govt. helps for environment then environmental condition will be improved	10	12.50
Waste should be collected by covered van and should be removed regularly from containers.	5	6.25
Everybody should come forward to save the environment; DCC should take initiatives.	5	6.25
Watering on road required.	2	2.50
Should be privatized all the sector of waste management	5	6.25
Composting will help to clean our environment; unemployment problem can also be reduced.	8	10.00
If a composting industry established they could collect the waste by them.	2	2.50
More containers required so that locally scattered waste can't pollute air.	3	3.75
If people are sincere we can improve our environment but not alone.	7	8.75
No opinion	2	2.50
Total	80	100

8. COMMUNITY BASE ACTIVITIES ON SWM

8.1 Participated in Community Base Activity(s):

Participation	Frequency	%
1. Yes	16	20.00
2. No	64	80.00
Total	80	100

8.2 Type of Activity Participated:

Activity	Frequency	%
Member of Local Residential Association, pay & attend meetings	3	18.75
Have formed a Welfare Committee to collect garbage and dispose and for night guard	4	25.00
Working in a project named "Urban Development" in ICDDRB as team leader & Specialist and doing for improvement of the city	1	6.25
Working in a NGO as active participant	4	25.00
Working in a Rotary club, Kotchikatchar Mela	1	6.25
Working in HRD as vice president and do a lot for environment	1	6.25
Participated a 'samity' meeting to clean environment	1	6.25
Did not provide any information	1	6.25
Total	16	100

8.3 Participated in SWM:

Activity	Participated	%	Not Participated	%	Total
1. Clean Narrow Road/Drain by Community Group	5	31.25	11	68.75	16
2. Pay some cost to CBO/Private for Clean Narrow Road/Drain	11	68.75	5	31.25	16
3. Clean park by Community Group	3	18.75	13	81.25	16
4. Community Managed Rally for Clean Campaign	6	37.5	10	62.5	16
5. Others	0	0.00	16	100.00	16

8.4 Interest to participate in Future SWM activity (s):

Interested	Frequency	%
1.Yes	45	70.31
2. No	18	28.12
Not Answered	1	1.56
Total	64	100

8.5. Field of Interest to Participate:

Field of Interest	Available	%	Not Available	%	Total
1. Clean narrow road/drain by community group	15	33.33	30	66.66	45
2. Pay some cost to CBO/private for clean narrow road/drain	26	57.77	19	42.22	45
3. Clean park by community group	4	8.88	41	91.11	45
4. Community managed rally for clean campaign	22	48.88	23	51.11	45
5. Others (Attended Seminar)	1	2.22	44	97.77	45

MIDDLE INCOME GROUP

3. WASTE STORAGE & PRIMARY COLLECTION

3.1 Space to Keep Waste:

Space	Frequency	%
Yes	119	99.17
No	1	0.83
Total	120	100.00

3.2a Waste Storage Place:

Place	Frequency	%
In the House	119	100.00
Total	119	100.00

3.2-b Waste Storing Capacity:

Capacity	Available	%
1. Sufficient for One Day	107	89.91
2. Sufficient for Two Day	12	10.08
3. Sufficient for Three Day	0	0.00
4. Sufficient for Four days to One week	0	0.00
5. Sufficient for More than one week	0	0.00
6. Others	0	0.00

3.2c. Problems on Waste Storing:

Problem	Available	%	Not Available	%	Total
1. Bad Smell	92	76.67	28	23.33	120
2. Insect and Flies	65	54.17	55	45.83	120
3. Dirtiness to Look	22	18.33	98	81.67	120
4. Others	0	0.00	120	100.00	120
5. No Problem	25	20.83	95	79.17	120

3.3 Household Disposal In-Charge:

HH Disposal In-Charge	Frequency	%
1. Member of HH	18	15.00
2. Servant/maid	95	79.17
3. Others (Relatives)	1	0.83
Not Answered	5	4.17
Total	120	100.00

Specific Family Member as Disposal In-Charge:

List of Family Member as Disposal In-Charge	Frequency	%
Interviewee (Self)	3	16.67
Sons	2	11.11
Wife	8	44.44
Wife or Daughter	3	22.22
Brother	1	5.56
Total	18	100

3.4 Way of Disposing Waste:

Waste Disposal System	Frequency	%
1. Door-to-Door Collection	90	75.00
2. Dispose to Waste bin/Container	24	20.00
3. Dumped in Vacant Land/River/Marsh	5	4.17
4. Others	0	0.00
Not Answered	1	0.83
Total	120	100.00

3.5 Type of Door-to-Door Collection:

Door-to-Door Collected by	Frequency	%
1. NGO	8	8.89
2. Small Local Association/Organized Community	64	71.11
3. Youth Club	0	0.00
4. Private Company	2	2.22
5. Govt. Staff Association	0	0.00
6. DCC Sweeper	12	13.34
7. Individual Person	2	2.22
8.Others (Maid)	**2**	2.22
Total	90	100

3.6 Satisfaction on Waste Collection:

Satisfaction on Collection	Frequency	%
1. Yes	77	85.56
2. No	13	14.44
Total	90	100.00

3.7 Dissatisfaction on Waste Collection:

Reason	Available	%	Not Available	%	Total
1. Does not collect everyday	6	46.15	7	53.04	13
2. Collection time is not fixed	5	38.46	8	61.53	13
3. No door-to-door collection service	1	7.69	12	92.30	13
4. Others (Bad Smell)	1	7.69	12	92.30	13

3.8 Payment on Collection:

Payment on Collection	Frequency	%
1. Yes	85	94.44
2. No	5	5.56
Total	90	100.00

3.9 Paying Amount:

Paying Amount	Frequency	%
1. 1 to 10 Tk. Per Month	4	4.71
2. 11 to 20 Tk. Per Month	65	76.47
3. 21 to 50 Tk. Per Month	15	17.65
Did not mention	1	1.18
Total	85	100.00

3.10 Interested to pay for waste collection :

Interest on Payment	Frequency	%
Yes	3	60.00
No	1	20.00
Did not provide any answer	1	20.00
Total	5	100.00

3.10a Payment Capability (Willingness):

Amount in Tk.	Frequency	%
1. 1 to 10 Tk	0	0.00
2. 11 to 20 Tk	2	66.67
3. 21 to 50 Tk	1	33.33
4. 51 to 100 Tk.	0	0.00
5. 100+ Tk.	0	0.00
6. Others gift	0	0.00
Total	3	100.00

3.10b Reason of Not giving Money:

Reason	Frequency	%
1. Time schedule of garbage collection is not good	0	0.00
2. Not satisfied with waste collection work	1	100.00
3. Already paid tax to DCC	0	0.00
4. Others	0	0.00
Total	1	100

4. DCC/PRIVATE COMPANY SERVICES

4.1 Distance Between House & Bin:

Dustbin Distance	Frequency	%
1. Less than 70 ft.	16	13.33
2. Less than 150 ft.	16	13.33
3. Less than 300 ft.	13	10.83
4. More than 300 ft.	49	40.83
5. Respondent does not know	26	21.67
Total	120	100.00

4.2 Satisfaction on DCC Collection:

Satisfied	Frequency	%
1. Yes	34	28.33
2. No	86	71.67
Total	120	100.00

4.3 Cause of Dissatisfaction on DCC's waste collection service:

Reason	Frequency	%
1. Bins/containers are too far from the house	18	20.94
2. Waste are scattered around bins/containers	42	48.83
3. Time schedule of collection in not suitable	21	24.42
4. Others	5	5.81
Don't collect waste regularly	0	0.00
No bin	0	0.00
Not available door-to-door system	0	0.00
Total	86	100

4.4 Satisfaction on Street Sweeping:

Satisfied	Frequency	%
1. Yes	41	34.17
2. No	78	65.00
Did not provide any information	1	0.83
Total	120	100.00

4.5 Cause of Dissatisfaction on street sweeping:

Cause of Dissatisfaction	Available	%
1. Does not do a good job of sweeping	15	19.23
2. Does not sweep regularly	33	42.30
3. Time of sweeping is not suitable	8	10.26
4. Street sweeping is not provided in my area	16	20.51
5. Drainage is clogged	6	7.70
6. Others	0	0.00
Total	78	100

4.6 Complain to DCC

Complain to DCC	Frequency	%
1. Yes	20	16.67
2. No	96	80.00
Not Answered	4	3.33
Total	120	100.00

4.7a To Whom The Respondents did Complain:

Complain To	Frequency	%
1. DCC Ward Inspector	2	10.00
2. DCC Zone Office	1	5.00
3. DCC Central Office	0	0.00
4. Private Company	0	0.00
5. Ward Commissioner	12	60.00
6. Community Leader	5	25.00
Total	20	100.00

4.7b Complaint on:

Issue of Complain	Available	%
1. Does not do a good job of sweeping/garbage collection	2	10.00
2. Does not sweep/collect garbage regularly	9	45.00
3. Time of sweeping is not suitable	2	10.00
4. Street sweeping is not provided in my area	2	10.00
5. Drainage is clogged	3	15.00
6. Location of bin/container to be changed	1	5.00
7. Others (Road lamp fuse)	1	5.00
Total	20	100

4.7c DCC's Initiative:

DCC's Initiative	Frequency	%
1. The Problem was Improved	3	15.00
2. The problem was partially improved	6	30.00
3. There was no response/ The problem was not improved	11	55.00
4. The problem/solution got worse	0	0.00
5. Received complaints from DCC Sweepers	0	0.00
6. Others	0	0.00
Total	20	100.00

5. WASTE SEGREGATION, REUSING, RECYCLING & COMPOSTING

5.1 Waste Segregation Occur:

Waste Segregation	Frequency	%
1.Yes	27	22.50
2. No	93	77.50
Total	120	100.00

5.2 Way of Segregation:

Name of Segregated Wastes	Frequency	%
▪ Bottle Glasses, cloth	1	3.70
▪ Bottle, Paper, Cloths, Kitchen Wastes	1	3.70
▪ Glasses, Kitchen Waste	1	3.70
▪ Kitchen Waste	5	18.51
▪ Kitchen waste, bottles	2	7.41
▪ Newspaper, bottles, cans, cloths	2	7.41
▪ Newspaper, glass, bottles, cloths	1	3.70
▪ Newspapers	7	25.92
▪ Plastic bags & Kitchen Wastes are segregated in separate box	2	7.41
▪ Recycle waste are segregated in a place	1	3.70
▪ Steel cans are separated from kitchen waste	1	3.70
▪ Having 3 baskets for separating waste	1	3.70
▪ Wet & dry waste are kept separated	1	3.70
▪ Not mentioned	1	3.70
Total	27	100.00

5.3 Selling Recyclable Waste:

Selling Recyclable Waste	Frequency	%
1. Yes	106	88.33
2. No	14	11.67
Total	120	100.00

5.4 Information On Recyclable Waste, Type of Collectors
a) NEWSPAPER as a recycling material:

Recycled Materials	Collected By	Frequency	%
Newspaper	1. Waste Picker	7	7.22*
	2. Street Hawker	89	91.75*
	3. Rickshaw/Van Driver	1	1.03*
Total		**97**	**91.51**
Newspaper not recycled		**7**	**6.60**
Total		**106**	**100.00**

b) CARDBOARD as a recycling material:

Recycled Materials	Collected By	Frequency	%
Cardboard	Street Hawker & Other (Maid)	1	100.00*
Total		**1**	**0.94**
Cardboard not recycled		**105**	**99.06**
Total		**106**	**100.00**

c) GLASS BOTTLES as a recycling material:

Recycled Materials	Collected By	Frequency	%
Glass Bottles	1. Waste Picker	37	52.86*
	2. Street Hawker	24	34.29*
	3. Rickshaw Van Driver	1	1.43*
	5. Recycle Products Dealer	1	1.43*
	6. Others	8	11.43*
Total		**70**	**66.04**
Glass Bottles not recycled		**37**	**34.91**
Total		**106**	**100.00**

d) OTHER GLASSES as a recycling material:

Recycled Materials	Collected By	Frequency	%
Other Glasses	1. Waste Picker	17	42.50*
Total	2. Street Hawker	18	45.00*
	3. Rickshaw/Van Driver	3	7.50*
	5. Recycle Products dealer	2	5.00*
		40	**37.74**
Glass Bottles not recycled		**66**	**62.26**
Total		**106**	**100.00**

e) STEEL CAN as a recycling material:

Recycled Materials	Collected By	Frequency	%
Steel Can	1. Waste Picker	2	8.70*
	2. Street Hawker	18	78.26*
	5. Recycle Product Dealer	2	8.70*
	6. Others (Maid)	1	4.35*
Total		**23**	**21.70**
Steel Can not recycled		**83**	**78.30**
Total		**106**	**100.00**

f) ALUMINUM CAN as a recycling material:

Recycled Materials	Collected By	Frequency	%
Aluminum Can	1. Waste Picker	11	64.71*
	2. Street Hawker	4	23.53*
	5. Recycle Product Dealer	1	5.88*
	6. Others	1	5.88*
Total		**17**	**16.04**
Aluminum not recycled		**89**	**83.96**
Total		**106**	**100.00**

g) METALS as a recycling material:

Recycled Materials	Collected By	Frequency	%
Metals	1. Waste Picker	3	50.00*
	2. Street Hawker	2	33.33*
	5. Recycle Product Dealer	1	16.67*
Total		**6**	**5.66**
Metals not recycled		**100**	**94.34**
Total		**106**	**100.00**

h) KITCHEN WASTE:

Recycled Materials	Collected By	Frequency	%
Kitchen	1. Waste Picker	1	3.33*
	3. Rickshaw/Van Driver	2	66.67*
Total		**3**	**2.83**
Metals not recycled		**103**	**97.17**
Total		**106**	**100.00**

i) BONE:

Recycled Materials	Collected By	Frequency	%
Bones	1. Waste Picker	2	33.33*
	4. Middle Scale Buyer	2	33.33*
	6. Others	2	33.33*
Total		**6**	**5.66**
Metals not recycled		**100**	**94.34**
Total		**106**	**100.00**

j) PLASTIC BAGS as a recycling material:

Recycled Materials	Collected By	Frequency	%
	1. Waste Picker	1	12.50*
Plastic Bags	2. Street Hawker	5	62.50*
	3. Rickshaw/Van Driver	1	12.50*
	6. Others	1	12.50*
Total		**8**	**7.55**
Plastic Bags not recycled		**98**	**92.45**
Total		**106**	**100.00**

k) CLOTHS as a recycling material:

Recycled Materials	Collected By	Frequency	%
Cloths	1. Waste Picker	1	2.50*
	2. Street Hawker	15	37.50*
	3. Rickshaw/Van Driver	2	5.00*
	4. Middle-scale buyer	2	5.00*
	6. Others (Maid, Poor people)	20	50.00*
Total		**40**	**37.74**
Cloths not recycled		**66**	**62.26**
Total		**106**	**100.00**

l) LEATHER:

Recycled Materials	Collected By	Frequency	%
Leather	3. Rickshaw/Van Driver	1	100.00*
Total		**1**	**0.94**
Metals not recycled		**105**	**99.06**
Total		**106**	**100.00**

m) RUBBER:

Recycled Materials	Collected By	Frequency	%
Rubber	1. Waste Picker	1	100*
Total		**1**	**0.94**
Metals not recycled		**105**	**99.06**
Total		**106**	**100.00**

n) CERAMICS item is not found as a recycling material in in Middle Income Group Area

o) OTHER WASTE: No other waste item is found as a recycling material in Middle Income Group Area

5.5 Composting Waste in House:

Composting	Frequency	%
1. Yes, at my house	0	0.00
2. Yes, I give waste to NGO/Others for Composting	1	0.83
3. No	119	99.17
4. Others	0	0.00
Total	120	100.00

5.6a Willingness to Segregate:

Willing to Segregate Waste	Frequency	%
1. Yes	38	31.67
2. No	82	68.33
Total	120	100.00

What respondents can do in this regard ?

Comments	Frequency	%
▪ Separate baskets can be used	21	55.26
▪ Kitchen waste in different box	2	5.26
▪ Awareness Development	1	2.63
▪ DCC should help by proper information for segregation	3	7.89
▪ If DCC make rule, will follow	1	2.63
▪ They can organize a local committee	2	5.26
▪ Now a days we segregate waste	1	2.63
▪ Separate box needed	2	5.26
▪ Willing to segregate waste	5	13.16
Total	38	100.00

5.6b Willingness to Recycle:

Willing to Recycle Waste	Frequency	%
1. Yes	6	5.00
2. No	114	95.00
Total	120	100

What respondents can do in this regard ?

Comments	Frequency	%
▪ Can try by segregating	3	50.00
▪ Need idea	1	16.67
▪ If any organization help, can do easily	1	16.67
▪ Did not provide answer	1	16.67
Total	6	100.00

5.6c Willingness to Compost:

Willing to Compost Waste	Frequency	%
1. Yes	5	4.17
2. No	115	95.83
Total	120	100.00

What respondents can do in this regard ?

Comments	Frequency	%
▪ Can dig a hole and make compost	3	60.00
▪ Household waste can be used as fertilizer	1	20.00
▪ Household waste can be separated for further use	1	20.00
Total	5	100.00

6. OVERALL ENVIRONMENT

6.1 Most Pressing Problem in the Locality:

Problems	Available	%	Not Available	%	Total
Water Supply	17	14.16	103	85.83	120
Sewage Disposal	38	31.66	82	68.33	120
Garbage Collection	18	15.00	102	85.00	120
Air Pollution	32	26.66	88	73.33	120
Others	**22**	18.33	**98**	81.66	120
Drainage Problem	1	4.55*	-	-	-
Irregular Billing System	1	4.55*	-	-	-
Irregular Gas Supply	1	4.55*	-	-	-
Mosquito	8	36.36*	-	-	-
Sound Pollution	2	9.09*	-	-	-
Sound Pollution & Mosquito Problem	3	13.64*	-	-	-
Lack of Electricity	3	13.64*	-	-	-
Presence of Slum	1	4.55*	-	-	-
Traffic Jam	2	9.09*	-	-	-

** % calculation is done on the others categories.*

7. OPINION ON SWM, IMPROVEMENT OF LIVING ENVIRONMENT, PRIVATIZATION WASTE COLLECTION & STREET SWEEPING

7.1 Opinion:

Comments	Frequency	%
Useful for the people but they cannot do it properly till they are trained	6	5.50
Not interested/no opinion	24	20.30
Government and DCC can take a modern system where people will participate eagerly	30	25.00
Due to lack of space composting is not possible at household	4	3.34
Should try to segregate, recycle, reuse waste.	4	3.33
Public should be aware and then the government should help.	4	3.33
DCC is responsible to manage waste.	4	6.67
Different ways to minimize waste should be followed.	8	7.50
Waste collection should be done separately, then every family should follow	9	1.67
Kitchen waste can be segregated	2	5.84
If GO or NGO help us then we can segregate, reuse and composting	7	5.84
Willing to work in social service	7	3.34
Waste picker can collect the wastes separately. If, waste container vans have separate chambers, then it will be easier to do the waste segregation.	4	1.67
Waste should be collected from house to house separately and then store in dumping station, not in the container.	2	1.67
Like other country government can made a composting plant for proper utilization of wastes.	2	2.50
For waste segregation DCC should provide separate bins and containers.	3	2.50
Total	120	100

7.2 Other Ways to Manage Solid Waste and Improvement to Living Environment:

Comments	Frequency	%
Everybody should be aware of this matter	4	3.33
Need to follow other developed countries cleaning system	9	7.50
Advertisement needed for public awareness	7	5.83
No comments	13	10.83
Increase the number of Bins / Containers	1	0.83
Strong law & legalization of proper waste management	2	1.67
Improvement of sewage disposal system	4	0.83
Door to door collection is essential	1	6.67
Drains must be cleaned, ponds must be cleaned	8	3.33
DCC should clean the roads and drains	4	1.67
Waste is a burning issue in Dhaka city	2	2.50
Regular sweeping, sufficient SWM services worker needed & after 2 weeks spray needed for mosquitoes	3	1.67
Remove slum, tree plantation, Collection system should be changed	2	1.67
Incineration method should be adopted by DCC, Road and drain should be cleaned daily	2	1.67
Should put waste in specific area.	2	3.33
Narrow roads, unplanned area are major problem, Every system should be changed.	4	3.33
The waste removal system is very irregular and sewerage system should be better, also eradication of mosquito needed.	2	1.67
More manhole cover required, dustbins are very necessary, CNG run vehicle required for better environment	9	7.50
A proper solid waste management system can improve the environment, private company or NGO can be involved and encouraged.	5	4.17
Density of population should be reduced.	3	2.50
A system should be developed so that waste may be collected daily to improve the living environment	6	5.00
If govt. and NGO also people are conscious about environment, then it must be developed	7	5.83
All of the people have to be careful about their environment. It must be developed	6	5.00
If one Composting plant is established by the raw material of waste, then they can take the household waste separately by their own arrangement.	1	0.83
More container or bin should be set up in the locality. Should provide covered bins for reduction of air pollution occurred by scattered waste.	1	0.83
Waste should be collected from house to house two times daily. Effective supervision of collection activities will improve the environmental pollution.	1	0.83
Waste management should be handed over to the private company for smooth and effective services.	1	0.83
Tree plantation in the road side is needed for better environment. Waste should be collected from the bin every day.	2	1.67
The solid waste should be removed regularly, because it pollutes our environment and it also helps the mosquitoes to breed more. Regular spray of insecticides is also necessary.	7	5.83
We need more covered dustbins and manholes. Dumped waste should be removed regularly. There should be hard punishment system for throwing wastes here and there.	1	0.85
Total	120	100

8. COMMUNITY BASE ACTIVITIES ON SWM

8.1 Participated Community Base Activity(s):

Participation	Frequency	%
Yes	21	17.50
No	99	82.50
Total	120	100.00

8.2 Type of Activity Participated:

Type of Activity	Frequency	%
▪ Clean road or drains in front of residence	1	4.76
▪ Environmental Development	2	9.52
▪ Work for Improvement of Living Environment	2	9.52
▪ Attended Meetings in society	1	4.76
▪ Member of Private/ Community based Association/Organization	2	9.52
▪ Organize Local Association to collect waste for area	1	4.76
▪ Plantation	1	4.76
▪ Rally for Awareness Program	1	4.76
▪ Attend meeting on Community Based Activities	2	9.52
▪ Attend meeting about environment in this area	3	14.29
▪ Organize meeting to improve our environment	2	9.52
▪ Waste Collection	1	4.76
▪ Working in a team of waste collection	1	4.76
▪ Working in a samity for a clean environment	1	4.76
Total	21	100.00

8.3 Participation on SWM:

Kind of Participation	Participated	%	Not Participated	%	Total
1. Clean Narrow Road/Drain by Community Group	5	23.81	16	76.19	21
2. Pay some cost to CBO/Private for Clean Narrow Road/Drain	8	38.05	13	61.90	21
3. Clean park by Community Group	1	4.76	20	95.24	21
4. Community Managed Rally for Clean Campaign	3	14.29	18	85.71	21
5. Others	0	0.00	21	100.00	21

8.4 Interest to participated in future SWM activities:

Interest on Future SWM	Frequency	%
1. Yes	97	80.83
2. No	23	19.17
Total	120	100.00

8.5. Field of interest to participate:

Field of Interest	Available	%	Not Available	%	Total
1. Clean narrow road/drain by community group	13	13.40	86	88.66	97
2. Pay some cost to CBO/private for clean narrow road/drain	54	55.67	43	44.33	97
3. Clean park by community group	0	0.00	97	100.00	97
4. Community managed rally for clean campaign	47	48.45	50	51.55	97
5. Others	2	2.06	95	97.94	97
Awareness development	1	50.00*			
Seminar, Survey	1	50.00*			

** % calculation is done on other categories*

LOW INCOME GROUP

3. WASTE STORAGE & PRIMARY COLLECTION

3.1 Space to Keep Waste:

Space	Frequency	%
Yes	50	62.50
No	30	37.50
Total	80	100

3.2a Place of Waste Storage:

Place of Waste Storing	Frequency	%
In the House	50	100.00
Total	50	100

3.2b Waste Storage Capacity

Storage Capacity	Frequency	%
Sufficient for One Day	50	100.00
Sufficient for Two Day	0	0.00
Sufficient for One to Two Day	0	0.00
Total	50	100.00

3.2c. Problems Due to Waste Storage:

Problems	Available	%	Not Available	%	Total
Bad Smell	32	64.00	18	36.00	50
Insect and Flies	27	54.00	13	46.00	50
Dirtiness to Look	2	4.00	48	96.00	50
Others	0	0.00	50	100.00	50
No Problem	14	28.00	36	72.00	50

3.3 Household Disposal In-Charge:

HH Disposal In-Charge	Frequency	%
1.Member of HH	76	95.00
2.Servant	1	1.25
3.Others	0	0.00
N/A	3	3.75
Total	80	100

Specific Family Member as Disposal In-Charge:

Family Member	Frequency	%
Interviewee (Self)	5	6.58
Interviewee (Self) and Son	1	1.31
Interviewee (Self) and Wife	3	3.95
Son	6	7.89
Wife	52	68.41
Sister	1	1.32
Wife or Daughter	1	1.32
Wife or Daughter	3	3.95
Daughter	2	2.63
Brother	1	1.32
Mother, Sister & Brother	1	1.32
Total	76	100

3.4 Way of Disposing Waste:

Waste Disposal System	Frequency	%
Door-to-Door Collection	24	30.00
Dispose to Waste bin/Container	15	18.75
Dumped in Vacant Land/River/Marsh	41	51.25
Total	80	100

3.5 Type of Door-to-Door Collection:

Door-to-Door Collected by	Frequency	%
Small Local Association/Organized Community	8	33.33
DCC Sweeper	15	62.50
Private Company	1	4.16
Total	24	100.00

3.6 Satisfaction on Waste Collection:

Satisfaction	Frequency	%
Yes, Satisfied	19	79.16
Not Satisfied	5	20.83
Total	24	100

3.7 Dissatisfaction on Waste Collection:

Reasons	Available	%	Not Available	%	Total
Does not collect everyday	5	100.00	0	0.00	5*
Collection time is not fixed	1	20.00	4	80.00	5
No door-to-door collection service	0		0	0.00	5
Others	0		5		5

3.8 Payment on Collection:

Payment on Collection	Frequency	%
1. Yes	22	91.66
2. No	2	8.33
Total	24	100.00

3.9 Amount of Payment:

Amount	Frequency	%
1 to 10 Tk. Per Month	18	81.81
11 to 20 Tk. Per Month	4	18.18
21 to 50 Tk. Per Month	0	0.00
Total	22	100.00

3.10 Interest for Payment:

Interest for Payment	Frequency	%
Yes, Interested to Pay	1	50.00
Not interested	0	0.00
No answer	1	50.00
Total	2	100.00

3.10a Interest to Pay (Amount) In Future:

Amount	Frequency	%
1 to 10 Tk	1	100.00
11 to 20 Tk	0	0.00
Total	1	100.00

3.10b Reason of Not giving Money:
None is unwilling to pay money; so information regarding this query is absent.

4. DCC/PRIVATE COMPANY SERVICES

4.1 Distance Between House & Bin:

Dustbin Distance	Frequency	%
Less than 70 ft.	15	18.75
Less than 150 ft.	6	7.50
Less than 300 ft.	5	6.25
More than 300 ft.	12	15.00
Respondent does not know	20	25.00
N/A	22	27.50
Total	80	100

4.2 Satisfaction on DCC Collection:

Satisfied	Frequency	%
Yes, Satisfied	19	23.75
Not Satisfied	61	76.25
Total	80	100

4.3 Cause of Dissatisfaction on DCC's waste collection service:

Reasons	Available	%	Not Available	%	Total
Bins/containers are too far from the house	15	24.59	46	75.40	61
Waste are scattered around bins/containers	28	45.90	33	54.09	61
Time schedule of collection in not suitable	3	4.91	58	95.08	61
Others	27	44.26	34	55.73	61
No bin	21	77.77*			
Irregular Collection	1	3.70*			
Waste are not collected at home	3	11.11*			
No Door To Door and Bin	2	7.40*			

**Percentage calculations is done on others categories*

4.4 Satisfaction on Street Sweeping:

Satisfied	Frequency	%
Yes, Satisfied	22	27.50
Not Satisfied	57	71.25
N/A	1	1.25
Total	80	100

4.5 Cause of Dissatisfaction on street sweeping:

Reasons	Available	%	Not Available	%	Total
Does not do a good job of sweeping	21	36.84	36	63.15	57
Does not sweep regularly	25	43.85	32	56.14	57
Time of sweeping is not suitable	4	7.01	53	92.98	57
Street sweeping is not provided in my area	27	47.36	30	52.63	57
Drainage is closed	9	15.78	48	84.21	57
Others	0	0.00	57	100.00	57

4.6 Complain to DCC

Complain to DCC	Frequency	%
Yes	6	10.52
No	51	89.47
Total	57	100

4.7a To Whom the Respondents Complain:

Complain To	Frequency	%
Ward Commissioner	5	83.33
DCC Zone Officer	1	16.66
Total	6	100

4.7b Complaint on:

Issue of Complain	Available	%	Not Available	%	Total
Does not do a good job of sweeping/garbage collection	3	50.00	3	50.00	6
Does not sweep/collect garbage regularly	3	50.00	3	50.00	6
Time of sweeping is not suitable	1	16.66	5	83.33	6
Street sweeping is not provided in my area	0	0.00	6	100.00	6
Drainage is clogged	1	16.66	5	83.33	6
Location of bin/container to be changed	1	16.66	5	83.33	6
Others	0	0.00	6	100.00	6

4.7c DCC's Initiative:

DCC's Initiative	Frequency	%
The problem was partially improved	2	33.33
There was no response/ The problem was not improved	4	66.66
Total	6	100

5. WASTE SEGREGATION, REUSING, RECYCLING & COMPOSTING

5.1 Waste Segregation Occur:

Waste Segregation Occur	Frequency	%
Yes	4	5.00
No	76	95.00
Total	80	100

5.2 Way of Segregation:

Way of Segregation	Frequency	%
• Glass	1	25.00
• Some of them are reusing like bottle, cloth	2	50.00
• Did not provide any answer	1	25.00
Total	4	100

5.3 Selling Recyclable Waste:

Selling Recyclable Waste	Frequency	%
Yes	23	28.75
No	57	81.25
Total	80	100

5.4 Information On Recyclable Waste, Type of Collectors

a) Newspaper as a recycling material:

Recycled Materials	Collected By	Frequency	%
Newspaper	1. Waste Picker	0	0.00*
	2. Street Hawker	7	100.00*
Total		**7**	**30.43**
Newspaper not recycled		**16**	**69.57**
Total		**23**	**100.00**

b) Cardboard item is not found as a recycling material.

c) Glass Bottles as a recycling material:

Recycled Materials	Collected By	Frequency	%
Glass Bottles	1. Waste Picker	8	50.00*
	2. Street Hawker	6	37.50*
	3. Rickshaw Van Driver	0	0.00*
	4. Middle Scale Buyer	2	12.50*
	5. Recycle Products Dealer	0	0.00*
	6. Others	0	0.00*
Sub Total		**16**	69.57
Glass Bottles not recycled		**7**	**30.43**
Total		**23**	**100.00**

d) Other Glasses as a recycling material:

Recycled Materials	Collected By	Frequency	%
Other Glasses	1. Waste Picker	8	50.00*
	2. Street Hawker	6	37.50*
	3. Rickshaw/Van Driver	0	0.00*
	4. Middle Scale Buyer	2	12.50*
	5. Recycle Products dealer	0	0.00*
Sub Total		**16**	69.57
Glass Bottles not recycled		**7**	**30.43**
Total		**23**	**100.00**

e) Steel Can as a recycling material:

Recycled Materials	Collected By	Frequency	%
Steel Can	1. Waste Picker	0	**0.00***
	2. Street Hawker	2	100.00*
	5. Recycle Product Dealer	0	0.00*
Sub Total		**2**	**8.70**
Steel Can not recycled		**21**	**91.30**
Total		**23**	**100**

f) Aluminum Can as a recycling material:

Recycled Materials	Collected By	Frequency	%
Aluminum Can	1. Waste Picker	1	33.33*
	2. Street Hawker	2	66.67*
	5. Recycle Product Dealer	0	0.00*
Sub Total		**3**	13.04
Aluminum not recycled		**20**	**86.96**
Total		**23**	**100**

g) Metals as a recycling material:(No recyclable waste available)

Recycled Materials	Collected By	Frequency	%
Metals	1. Waste Picker	0	0.00
	2. Street Hawker	0	0.00
	5. Recycle Product Dealer	0	0.00
Sub Total		**0**	**0.00**
Metals not recycled		**23**	**100.00**
Total		**23**	**100**

h) Kitchen Waste: (No recyclable waste available)

Recycled Materials	Collected By	Frequency	%
Kitchen	1. Waste Picker	0	0.00
	3. Rickshaw/Van Driver	0	0.00
Sub Total		**0**	0.00
Metals not recycled		**23**	**100.00**
Total		**23**	**100**

i) Bone: (No recyclable waste available)

Recycled Materials	Collected By	Frequency	%
Bones	1. Waste Picker	0	0.00
	4. Middle Scale Buyer	0	0.00
	6. Others	0	0.00
Sub Total		**0**	**0.00**
Bones not recycled		**23**	**100.00**
Total		**23**	**100**

j) Plastic Bags as a recycling material: (No recyclable waste available)

Recycled Materials	Collected By	Frequency	%
Plastic Bags	2. Street Hawker	0	0.00
	3. Rickshaw/Van Driver	0	0.00
	6. Others	0	0.00
Sub Total		**0**	**0.00**
Plastic Bags not recycled		**23**	**100.00**
Total		**23**	**100**

k) Cloths as a recycling material:

Recycled Materials	Collected By	Frequency	%
Cloths	1. Waste Picker	1	100.00*
	2. Street Hawker	0	0.00
	3. Rickshaw/Van Driver	0	0.00
	6. Others	0	0.00
Sub Total		**1**	**4.35**
Cloths not recycled		**22**	**95.65**
Total		**23**	**100**

l) Leather: (No recyclable waste available)

Recycled Materials	Collected By	Frequency	%
Leather	3. Rickshaw/Van Driver	0	0.00
Sub Total		**0**	**0.00**
Leather not recycled		**23**	**100.00**
Total		**23**	**100**

m) Rubber: (No recyclable waste available)

Recycled Materials	Collected By	Frequency	%
Rubber	1. Waste Picker	0	0.00
Sub Total		**0**	**0.00**
Metals not recycled		**23**	**100.00**
Total		**23**	**100**

n) Other Waste: No other waste item is found as a recycling material in Old Dhaka Area

5.5 Composting Waste in House:

Composting	Frequency	%
Yes	0	0.00
No	76	95.00
N/A	4	5.00
Total	80	100

5.6a Willingness to Segregate:

Willing to Segregate Waste	Frequency	Percentage
Yes	20	25.00
No	60	75.00
Total	80	100

What respondents can do in this regard?

Comments	Frequency	%
Can use separate container for waste segregation	3	15.00
Can segregate household waste, if different person collects	3	15.00
Will try to waste segregate	2	10.00
Can segregate kitchen waste	4	20.00
Will segregate kitchen waste from other waste if any org. supports	4	20.00
Waste should be segregated by using different bins	3	15.00
Can use 2 or 3 containers for segregate our waste	1	5.00
Total	20	100

5.6b Willingness to Recycle:

Willing to Recycle Waste	Frequency	%
Yes	0	0.00
No	80	100.00
Total	80	100

5.6c Willingness to Compost:

Willing to Compost Waste	Frequency	Percentage
Yes	2	2.50
No	78	97.50
Total	80	100

What respondents can do in this regard?

- Want to give kitchen waste to NGO if any NGO wants to collect.

6. OVERALL ENVIRONMENT

6.1 Major Problem in Locality:

Major Problem	Frequency	%
Water Supply	22	27.50
Sewage Disposal	38	47.50
Garbage Collection	37	46.25
Air Pollution	3	3.75
Others	13	16.25
Drainage Problem	3	23.05*
Drainage & Mosquito Problem	2	15.38*
Mosquito	4	30.77*
Polluted Water	3	23.08*
Polluted Water & Mosquito	1	7.69*

** Percentage calculation is done on others categories.*

7. OPINION ON SWM, IMPROVEMENT OF LIVING ENVIRONMENT, PRIVATISATION OF WASTE COLLECTION & STREET SWEEPING

7.1 Opinion :

Comments	Frequency	%
DCC is responsible for manage waste	3	3.75
DCC & private organisation should collect household waste properly	2	2.50
Waste collection should be 2 times daily	1	1.25
Waste should be collected from house to house separately then store in dumping station	1	1.25
Awareness needed in this regard	2	2.50
Have interest but no place of composting.	2	2.50
DCC should take initiatives	4	5.00
If government & non government organisation help segregated items can be given to them	6	7.50
It's a good idea, will try to segregate	4	5.00
Government should take initiatives	1	1.25
Government should take initiatives and people will cooperate	1	1.25
Segregate waste for further use	2	2.50
Waste should be used in various purpose	2	2.50
Need to segregate kitchen waste	1	1.25
Willing to participate about recycling and composting	1	1.25
DCC can collect household waste separating for further use such as recycling and composting	1	1.25
Better to segregate the waste and to recycle those products for further use	1	1.25
Willing to segregate the household waste in different container	2	2.50
If GO or NGO works in root level, better waste management is possible	6	7.50
GO and NGO's training is needed waste management, reuse and recycling	4	5.00
Waste should not be burnt and some waste also should not be reused	1	1.25
No opinion	32	40.00
Total	80	100

7.2 Other Ways to Manage Solid Waste and Improvement of Living Environment:

Comments	Frequency	%
Living environment should be improved	5	6.25
Living in a odd position, DCC should take initiatives	8	10.00
No Idea	9	11.25
Proper supervision of these activities can reduce the air pollution	2	2.50
Waste should collected for two times daily, effective supervision required	2	2.50
Mosquito medicine required.	1	1.25
Man & Women take bath in same place, different place required and also proper sewage disposal.	3	3.75
Good management required on waste management and improvement of environment.	5	*6.25*
Waste bin should place in a planned way	1	1.25
Need to develop slum area.	2	2.50
People awareness required.	2	2.50
Sewage Disposal & drainage system should be improved; New rules should be active by DCC.	5	6.25
No one should throw waste on the road	3	3.75
Roads and drains should be cleaned	1	1.25
Waste bin should place in a planned way, so that bad smell doesn't come	1	1.25
The management need to collect waste, private company may be engaged in this regard	3	3.75
General people should be aware regarding solid waste management	8	10.00
Need container	3	3.75

Improve the system of water supply	1	1.25
DCC should modernize law for SWM	5	6.25
Stop supply of the polluted water	1	1.25
Peoples participation needed to save environment	3	3.75
It is quite impossible to improve environment without govt. help.	5	6.25
Make a supervision team to observe DCC Workers about their duty	1	1.25
	80	100

8. COMMUNITY BASE ACTIVITIES ON SWM

8.1 Participated in Community Base Activity(s):

Participation	Frequency	Percentage
Yes	3	3.75
No	77	96.25
Total	80	100

8.2 Type of Activity Participated:

Activity	Frequency	%
Employ 1 person to clean my area	1	33.33
Waste collection	2	66.67
Total	3	100

8.3 Participation in SWM:

Kind of Participation	Participated	%	Not Participated	%	Total
Clean Narrow Road/Drain by Community Group	1	33.33	2	66.66	3
Pay some cost to CBO/Private for Clean Narrow Road/Drain	1	33.33	2	66.66	3
Clean park by Community Group	0		3	100	3
Community Managed Rally for Clean Campaign	0		3	100	3
Others	0		3	100	3

8.4 Interest in Future SWM Participation:

Interest in Future SWM	Frequency	%
Yes	59	73.75
No	21	26.25
N/A	0	0.00
Total	80	100

8.5. Field of interest to participate :

Field of Interest	Available	%	Not Available	%	Total
Clean narrow road/drain by community group	19		40		59
Pay some cost to CBO/private for clean narrow road/drain	1		58		59
Clean park by community group	0		59	100	59
Community managed rally for clean campaign	45		14		59
Others	0		59	100	59

SLUM AREA

03. WASTE STORAGE AND PRIMARY COLLECTION

3.1 Space to Keep Waste:

Space	Frequency	%
Yes	20	33.33
No	40	66.67
Total	60	100

3.2a Waste Storage Place:

Place of Waste Storing	Frequency	%
In the House	5	8.33
In the Garden	2	3.33
Others (Waste Concern)	13	21.67
N/A	40	66.67
Total	60	100

3.2b Waste Storage Capacity:

Capacity	Frequency	%
Sufficient for One Day	4	6.67
Sufficient for Two Day	2	3.33
Sufficient for Three Day	2	3.33
Sufficient for More than One Week	1	1.67
Others (Everybody Disposed in Container)	11	18.33
N/A	40	66.67
Total	60	100

3.2c Problems due to Waste Storage:

Waste Storing Problems	Frequency	%
Bad Smell	12	20.00
Insects such as flies	10	16.67
Dirtiness in look	12	20.00
Others	0	0.00
No Problem	26	43.33
Total	60	100

3.3 Household Disposal In-Charge:

Specific Family Member as Disposal In-Charge:

List of Family Member as Disposal In-Charge	Frequency	%
Interviewee (Self)	4	6.78
Mother	2	3.41
Son	1	1.69
Wife	51	86.45
Daughter	1	1.67
Total	59	100

3.4 Ways of Disposing Waste:

Waste Disposal System	Frequency	%
Door-to-Door Collection	3	5.00
Dispose to Waste bin/Container	1	1.67
Dispose in Vacant Land/River/Marsh	38	63.33
Dispose in Container by Waste Concern	15	25.00
Others	3	5.00
Total	60	100

3.5 Type of Door-to-Door Collection:

Collected by	Frequency	%
Small Local Association/Organized Community	1	1.67
Private Company	5	8.33
N/A	54	90.00
Total	60	100

3.6 Cause of Dissatisfaction:

Reason	Frequency	%
Collection Time is not fixed	1	1.67
No Door-to-Door Collection Service	1	1.67
No Waste Containers	2	3.33
N/A	56	93.33
Total	60	100

3.10a Payment Amount:

Amount Paid	Frequency	%
1 to 10 Tk	33	55.00
11 to 20 Tk	7	11.66
21 to 30 Tk	1	1.67
Others (Waste Concern pay)	1	1.67
N/A	18	30.00
Total	60	100

3.10b Reasons for not giving Money:

Reasons	Frequency	%
Not Satisfied with Waste Collection Work	2	3.33
Due to High Expenditure of Family	1	1.67
As they get money from Waste Concern	11	18.33
N/A	46	76.67
Total	60	100

04. DCC/PRIVATE COMPANY SERVICES

4.1 Distance Between House & Bin:

Distance	Frequency	%
Less than 70 ft.	12	20.00
Less than 150 ft.	3	5.00
More than 300 ft.	6	10.00
Respondent does not know	2	3.33
N/A	37	61.67
Total	60	100

4.2 Satisfaction on DCC Collection:

Satisfied Action	Frequency	%
Satisfied	20	33.33
Not Satisfied	6	10.00
N/A	34	56.67
Total	60	100

4.3 Cause of Dissatisfaction:

Causes	Frequency	%
Bin/Containers are too far from House	4	6.67
No Dustbin or Container	2	3.33
N/A	54	90.00
Total	60	100

4.5 Causes of Dissatisfaction:

Causes	Frequency	%
Time of Sweeping is not suitable	2	3.33
No Street Sweeping	32	53.33
Drain is Clogged	1	1.67
Does not do a good job of sweeping & Does not Sweep Regularly	3	5.00
Does not do a good job of sweeping, Does not Sweep Regularly & Time of Sweeping is not suitable	2	3.33
Does not do a good job of sweeping, Does not Sweep Regularly, Time of Sweeping is not suitable & Drain is Clogged	1	1.67
Does not do a good job of sweeping, Time of Sweeping is not suitable & Drain is Clogged	1	1.67
Does not Sweep Regularly & Time of Sweeping is not suitable	2	3.33
N/A	16	26.67
Total	60	100

05. WASTE SEGREGATION, REUSING, RECYCLING AND COMPOSTING

5.2 Way of Segregation:

Segregation Method	Frequency	%
Kitchen Wastes are disposed in a drum	10	16.67
Only dispose kitchen waste to waste concern bin	4	6.67
Only segregate kitchen waste for compost	1	1.66
N/A	45	75.00
Total	60	100

06. OVERALL ENVIRONMENT

6.1 Problems in the Locality:

Problems	Frequency	%
Water Supply	13	21.66
Sewage Disposal	19	31.66
Garbage Collection	1	1.66
Air Pollution	3	5.00
Lack of Electricity	1	1.67
Water Supply & Sewage Disposal	9	15.00
Water Supply, Sewage Disposal & Garbage Collection	3	5.00
Water Supply & Garbage Collection	1	1.67
Water Supply & Air Pollution	1	1.67
Sewage Disposal & Garbage Collection	6	10.00
Sewage Disposal, Garbage Collection & Water Logging	1	1.67
Sewage Disposal & Water Logging	1	1.67
Garbage Collection & Air Pollution	1	1.67
Total	60	100

07. OPINIONS ON SWM, IMPROVEMENT OF LIVING ENVIRONMENT, PRIVATIZATION OF WASTE COLLECTION & STREET SWEEPING

7.1 Opinion on waste management by waste segregation resuming, recycling and composting;

1. Cannot do anything due to lack of idea.
2. If we have the idea we are willing to do it
3. Government can give subsidy and a private firm can work to recycle, reuse and compost
4. A standard solid waste management system is needed
5. If only we had a dustbin we could have used it
6. We can store things that can be reused, recycled and can be sold
7. We need a dustbin; there is no enough land to compost

8. We have wish but no knowledge
9. Solid waste should be collected by DCC
10. Waste must be collected twice daily
11. Local private organization can make a plant for composting.
12. Awareness needed for family level to segregate waste. Private organization needed in this area.
13. Already participate on the Waste Concern's composting activities to supply them waste

7.2 Opinions on waste management for improvement of living environment ;

1. We need clean, dust free road with no pollution in the atmosphere
2. Mosquito free environment, clean road, more dust bins
3. A system is needed to improve the living condition
4. Clean and pollution free environment
5. Dustbin needed and better drainage system
6. If DCC removes the waste regularly then there wont be any bad smell and pollution.
7. Effective supervision is needed for waste management
8. More covered container should provided by DCC, it will prevent air pollution.
9. Sewerage management may be managed by govt. or any other group
10. If government does any management in this matter, we shall help govt.
11. Door to door collection services should be provided by any NGO or Pvt. Organization
12. Take proper initiative to improve the water logging problem

8. COMMUNITY – BASED ACTIVITIES ON SOLID WASTE MANAGEMENT

Participation in Community Based Activities:

8.2Type of Activity:

Type of Activity	Frequency	%
Organize a group to collect waste in the locality	1	1.66
Waste Collection	1	1.67
N/A	58	96.67
Total	60	100

8.3 Participation on SWM:

Participation on SWM	Frequency	%
Clean Narrow Road/Drain	3	5.00
Clean Narrow Road/Drain & Pay some Cost to CBO/ Private Organization	1	1.67
N/A	56	93.33
Total	60	100

8.5 Type of Participation of Future SWM:

Participation Types	Frequency	%
Clean Narrow Road/Drain	15	25.00
Pay some Cost to CBO/Private Organization	3	5.00
Community Managed Rally for Clean Campaign	24	40.00
Clean Narrow Road/Drain & Pay some Cost to CBO/Private	1	1.66
Clean Narrow Road/Drain & Community Managed Rally for Clean Campaign	3	5.00
Clean Park & Community Managed Rally for Clean Campaign	1	1.67
N/A	13	21.67
Total	60	100

Household Awareness Survey
The Study on Solid Waste Management in Dhaka City
DCC-JICA Joint Study Team

Day/Month/Year of interview: / / 2004 Time: –

Name of Interviewer: _____

Name of Supervisor: _____

Name of Area : _____ Ward No:_____Zone No. _____

1.1 Name of HH head (interviewee)	
1.2 Home Address	

Type of Area	Type of Development:	Economic Class
□ 1. Newer Urban Area □ 2. Older Urban Area □ 3. Old Dhaka	□1. Planned Developed Area □2. Spontaneously Developed Area	□1. Upper Class (50,000+) □2. Middle Class (10,000-30,000) □3. Lower Class (0-5,000)
□ 4. Slum Area		

NOTE: THE INTERVIEWEE MUST BE THE HOUSEHOLD (HH) HEAD.

1. INFORMATION ON HOUSEHOLD

Sl. No.	Relationship with House Head	Age	Sex	Religion	Occupation		Monthly Income	Educational Level
					Primary	Secondary		

1.1 Educational Level		
□ 1. Never studied in any educational institution □ 2. Primary education (Grade 1-5) □ 3. Junior secondary education (Grade 6-8) □ 4. Secondary education (Grade 9-10)	□ 5. Higher secondary education (Grade 11-12) □ 6. Bachelor's degree □ 7. Master's degree □ 8. Ph. D. □ 9. Others (pls. specify)_____	
1.2 Age Group	1. 0-9 2. 10-14 3. 15-24 4. 25-34	5. 35-44 6. 45-54 7. 55-64 8. 65 +
1.3 How many years of head of household has been living in Dhaka City?	1. Since birth 2. - 5 Years 3. 05 – 10 4. 10 – 15 5. 15 – 20 6. 20 +	
1.4 What is the total household income?	Taka/month	

2. LIVING ENVIRONMENT

2.1 Do you own or rent the house you live in?	□ 1. Owned □ 2. Rented □ 3. Occupied, rent free □ 4. Others (pls. specify)_____
2.2 What is the house made of?	□ 1. Pucca (Concrete + Brick) □ 2. Semi-Pucca □ 3. Kacha (CGI sheet and bamboo) □ 4. Kacha (Bamboo and straw) □ 5. Others (pls. specify)_____
2.3 What is the size (area) of the house?	_____sq.ft.
2.4 Facilities available within the house ? (multiple answers acceptable)	
□ 1. Water supply □ 2. Sewerage □ 3. Electricity □ 4. Gas	□ 5. Toilet □ 6. Telephone □ 7. Others (pls. specify) _____
2.5 Do you own any appliances? (multiple answers acceptable)	
□ 1. Radio □ 2. Television □ 3. Refrigerator □ 4. Air Conditioner □ 5. Electric/Gas Oven □ 4. Washing machine	□ 5. Electric fan □ 6. CD/VCD Player □ 7. Computer □ 8. Others (pls. specify) _____ _____
2.6 Do you own any of the following modes of transport? (multiple answers acceptable)	
□ 1. Car □ 2. Jeep □ 3. Microbus □ 4. Motorcycle	□ 5. Bicycle □ 6. Others _____

3. WASTE STORAGE AND PRIMARY COLLECTION

3.1 Do you have any space to store waste in your house?	□ 1. Yes □ 2. No
3.2 If yes, a. Where do you store the waste?	□ 1. in the house □ 2. in the garden □ 3. others (pls. specify)_____
b. What is the capacity of the waste storage at your house? How many days can you store your waste?	□ 1. sufficient for one day □ 2. sufficient for two days □ 3. sufficient for three day □ 4. sufficient for four days to one week □ 5. sufficient for more than one week
c. Do you have any problems on waste storage at your house? (multiple answers acceptable)	□ 1. Yes, bad smell □ 2. Yes, insects such as flies □ 3. Yes, dirtiness in look □ 4. Yes, (pls. specify)_____ □ 5. No problem
3.3 Who is in charge of waste disposal in your household?	
□ 1. Member of household (Relation with HH head:) _____	□ 2. Servant/maid □ 3. Others (pls. specify) _____
3.4 How does your household dispose of wastes it generates? (Avcbvi cwiev‡i eR¨© wKfv‡e wb®‹vwkZ nq ?)	
□1. Door-to-door collection □2. Dispose to waste bin/container □3. Dumped in vacant land/ river/ marsh	□4. Others (pls. specify) _____

3.5 If your answer to the above is 1, who collects waste?	
□ 1. NGO □ 2. Small Local Association /Organized Community □ 3. Youth Club □ 4. Private Company □ 5. Government Staff Association	□ 6. DCC Sweeper □ 7. Individual person □ 8. Other (pls. specify) _____ □ 9. I don't know
3.6 Are you satisfied with the waste collection?	□ 1. Yes □ 2. No
3.7 If you are not satisfied, what are the reasons? (multiple answers acceptable)	
□ 1. Does not collect everyday □ 2. Collection time is not fixed □ 3. No door-to-door collection service	□ 4. Other (pls. specify) _____
3.8 Do you pay any waste collection fee?	□ 1. Yes □ 2. No
3.9 If yes, how much do you pay monthly?	
□ 1. 1 – 10 taka □ 2. 11 –20 taka □ 3. 21 –50 taka □ 4. 51 –100 taka	□ 5. 100+ taka □ 6. Other gift (pls. specify) _____
3.10 If no, are you willing to pay a waste collection fee?	□ 1. Yes □ 2. No
a. If your answer to the above is yes, how much are you willing to pay?	
□ 1. 1 – 10 taka □ 2. 11 -20 taka □ 3. 21 -50 taka □ 4. 51 -100 taka	□ 5. 100+ taka □ 6. Others gift (pls. specify) _____
b. If your answer to the above is no, why? (hw` Avcbvi DËi bv nq Z‡e †Kb ?)	
□ 1. Time schedule of garbage collection is not good □ 2. Not satisfied with their work	□ 3. Already paid tax to DCC for these works □ 4. Others (pls. specify) _____

4. DCC/PRIVATE COMPANY SERVICES (ZONE 9 AND 10)

4.1 How far is the collection bin from the house?	
□ 1. Less than 70 ft □ 2. Less than 150 ft □ 3. Less than 300 ft	□ 4. more than 300 ft □ 5. I don't know
4.2 Are you satisfied with the waste collection service from bins/containers provided by DCC? (or private company in Zone 9 and 10)	□ 1. Yes □ 2. No
4.3 If you are not satisfied with the waste collection service, what are your reasons? (multiple answers acceptable)	
□ 1. Bins/containers are too far from the household □ 2. Waste are scattered around bins/containers □ 3. Time schedule of collection is not suitable (Present collection : to : , prefer to : to :)	□ 4. Other (pls. specify) _____
4.4 Are you satisfied with the street sweeping service in your area?	□ 1. Yes □ 2. No
4.5 If you are not satisfied with the street sweeping service, what are your reasons? (multiple answers acceptable)	
□ 1. Does not do a good job of sweeping □ 2. Does not sweep regularly □ 3. Time of sweeping is not suitable (Present Sweeping : to : , prefer to : to :)	□ 4. Street sweeping is not provided in my area □ 5. Drainage is clogged □6. Others (pls. specify)_____
4.6 Have you complained to DCC or others?	□ 1. Yes □ 2. No

4.7 If yes, a. to whom did you complain?	□ 1. DCC ward Inspector □ 2. DCC zone office □ 3. DCC central office □ 4. Private company (in Zone 9 and 10) □ 5. Ward Commissioner □ 6. Community leader □ 7. Others (pls. specify) _____
b. What did you complain?	
□ 1. Does not do a good job of sweeping/garbage collecting □ 2. Does not sweep/ collect garbage regularly □ 3. Time of sweeping/collecting is not suitable (Present collection : to : , prefer to : to :)	□ 4. Street sweeping is not provided in my area □ 5. Drainage is clogged □ 6. Location of bin/container to be changed □ 7. Others (pls. specify) _____
c. What was the response? How did the problem improved?	
□ 1. The problem was improved □ 2. The problem was partially improved □ 3. There was no response/ the problem was not improved	□ 4. The problem/situation got worse □ 5. Received complaints from DCC sweepers □ 6. Others (pls. specify) _____
4.8 (*Question only in Zone 9 and 10)* How do you rate the service provided by private company compared to DCC after privatization	□ 1. The service is improved after privatization □ 2. The service is worse than DCC □ 3. Others (pls. specify) _____

5. WASTE SEGREGATION, REUSING, RECYCLING AND COMPOSTING

5.1 Do you segregate your waste?	□ 1. Yes □ 2.No
5.2 If yes, how do you segregate your waste?	Specify_____
5.3 Do you give or sell recyclable waste?	□ 1. Yes □ 2.No

5.4. If yes what type of wastes do you give or sell for recycling?

<recyclable wastes>	<collectors>	<frequency (times/week)>
□ a. Newspaper	_____	_____
□ b. Cardboard	_____	_____
□ c. Drinking glass bottle	_____	_____
□ d. Other glasses	_____	_____
□ e. Steel can	_____	_____
□ f. Aluminum can	_____	_____
□ g. Metals	_____	_____
□ h. Kitchen waste	_____	_____
□ i. Bone	_____	_____
□ j. Plastic bags	_____	_____
□ k. Cloth	_____	_____
□ l. leathers	_____	_____
□ m. rubbers	_____	_____
□ n. ceramics	_____	_____
□ o. thers	_____	_____

collectors: 1:waste picker, 2: itinerant buyer ("Street hawkers"), 3:Rickshaw van-driver (door to door collection), 4: middle-scale buyer, 5: junkshop/recycle products dealer, 6:others (pls. specify)

5.5 Does your household perform composting?	
□ 1. Yes, at my house □ 2. Yes, I give waste to NGO/Others for composting	□ 3. No □ 4. Others_____

5.6 Are you willing to participate in the following activities?		
a. Waste Segregation	□ 1. Yes	□ 2. No
What can you do in this regard ?		
b. Recycling	□ 1. Yes	□ 2. No
What can you do in this regard ?		
c. Composting	□ 1. Yes	□ 2. No
What can you do in this regard ?		

6. OVERALL ENVIRONMENT

6.1 Which of the items do you rate as the most pressing problem in your area?	□ 1. Water supply □ 2. Sewage disposal □ 3. Garbage collection □ 4. Air pollution □ 5. Others (pls. specify)_____

7. OPINIONS ON SWM, IMPROVEMENT OF LIVING ENVIRONMENT, PRIVATIZATION OF WASTE COLLECTION & STREET SWEEPING

7.1What is your opinion on the different ways to manage and minimize wastes such as waste segregation, reusing, recycling, and composting?

_____
___

7.2 Can you think of other ways to manage solid waste and improve your living environment?

_____
___

8. COMMUNITY-BASED ACTIVITIES ON SOLID WASTE MANAGEMENT

8.1. Do you participate in any community-based activities? (note: community is small local residential association)	□ 1. Yes □ 2. No
8.2 If yes, what are the activities you participate in? (e.g. waste collection, night guard, sports, improvement of living environment etc.)	
8.3 If you participate in community based activity related to solid waste management, what are you doing?	
□ 1. Clean narrow road/drain by community group □ 2. Pay some cost to CBO/private for clean narrow road/drain □ 3. Clean park by community group	□ 4. Community managed rally for clean campaign □ 5. Others (pls. specify) _____
8.4 If no community-based activities on SWM exist at present, would you be willing to participate in future activities on SWM in the community?	□ 1. Yes □ 2. No
8.5 If yes, what kind of activities on SWM are you willing to participate?	
□ 1. Clean narrow road/drain by community group □ 2. Pay some cost to CBO/private for clean narrow road/drain	□ 3. Clean park by community group □ 4. Community managed rally for clean campaign □ 5. Others (pls. specify) _____

Name of Supervisor : Signature:

9. Survey on Waste Pickers

9. Survey on Waste Pickers

9.1 Survey Objectives

The objective of the Survey is to understand present situations of waste picker. Waste pickers are defined as persons who pick up recyclable waste from solid waste. There are two types of waste pickers in Dhaka City. One is mainly working at disposal sites and the other is working around waste bins and containers on roads.

9.2 Survey Period

From February to March, 2004.

9.3 Methodology of the Survey

This survey consists of two parts as follows:

- Disposal site waste picker survey
- Container waste picker survey

Interview survey with questionnaire was carried out. Survey areas, target interviewees, number of samples are shown below. The questionnaire is attached at the end of this chapter.

(1) Disposal Site Waste Picker Survey

The following disposal sites were covered by the survey:

- Matuail disposal site
- Barri Band disposal site

Waste pickers who work at disposal sites were interviewed. Interviewees were selected from variety of types of waste pickers in terms of age and sex. Number of samples for disposal site waste picker survey is shown as follows:

- Matuail disposal site : 30 samples
- Barri Band disposal site : 15 samples

(2) Container Waste Picker Survey

Interview survey with questionnaire was carried out targeting waste pickers who work around waste bins and containers. Interviewees were selected from variety of types of waste pickers in terms of age and sex. Survey areas and number of samples are shown in Table 9.3-1.

Table 9.3-1 Survey Areas and Number of Samples

Type of Survey	Disposal Site		Container Site																		
			Container Located on Main Roads						Northern Area of DCC								Southern Area of DCC				
Major Area/ Location	Matuail	Berri Band	Motijheel-Farmgate			Farmgate-Mirpur-1			Farmgate-Gulshan			Mirpur			Gulshan		Old Dahaka			Kamlapur	
Container Location	--	--	Farmgate	Motijheel	Karwanbazar	Asadgate	Kalyanpur	Mirpur	Mohakhali	Banani	Gulshan	Mirpur 10	Gabtoli	Mirpur 12	Badda	Baridhara	Palashi	Shahidnagar	Hazaribag	Kamlapur	Wari
No. of Sample	30	15	2	2	1	1	1	3	2	2	1	1	1	1	1	1	1	1	1	1	1
Total	45		5			5			5			3			2		3			2	
Grand Total	**70 (Seventy Questionnaire for Waste Pickers at Dumping and Container Site)**																				

9.4 Survey Results

(1) Disposal Site Waste Picker Survey

1. PERSONAL INFORMATION

Male Female Distribution

Sex	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Male	16	53.3	14	93.3	30	66.7
Female	14	46.7	1	6.7	15	33.3
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table: Age Structure:

Age Range	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
< 10	0	0.0	0	0.0	0	0.0
11-20	9	30.0	12	80.0	21	46.7
21-30	6	20.0	1	6.7	7	15.6
31-40	9	30.0	0	0.0	9	20.0
41-50	5	16.7	1	6.7	6	13.3
51+	1	3.3	1	6.7	2	4.4
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table : Level of Education:

Literacy Level	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Illiterate	23	76.7	9	60.0	32	71.1
Can sign Only	1	3.3	2	13.3	3	6.7
Primary	4	13.6	4	26.67	8	17.8
Secondary	2	6.6	0	0.0	2	4.4
Total	**30**	**100.2**	**15**	**99.97**	**45**	**100**

2. DURATION OF STAY IN DHAKA

Table : 2 Duration of Stay:

Duration of Stay (in yrs.)	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Below 5 Year	11	36.7	6	40.0	17	37.8
6 to 10 Year	5	16.7	6	40.0	11	24.4
11 to 15 Year	7	23.3	3	20.0	10	22.2
16 to 20 Year	4	13.3	0	0.0	4	8.9
20 +	3	10.0	0	0.0	3	6.7
Total	**30**	**100**	**15**	**100**	**45**	**100**

3. DURATION OF WORK AS WASTE PICKER

Table:3 Duration of Work as a Waste Picker:

Duration of Work (in yrs.)	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
< 5 Year	16	53.3	11	73.3	27	60.0
6 to 10 Year	8	26.7	4	26.7	12	26.6
11 to 15 Year	3	10.0	0	0.0	3	6.7
16 to 20 Year	3	10.0	0	0.0	3	6.7
20 +	0	0.0	0	0.0	0	0.0
Total	**30**	**100**	**15**	**100**	**45**	**100**

4. WORKING INFORMATION

4.1 Why started to work as a Waste Picker:

Table:4.1 Reasons for Working as Waste Picker:

Reasons	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
No Other Job	10	33.3	8	53.3	18	40.0
Easy Money	7	23.3	3	20.0	10	22.2
Self Employed	9	30.1	3	20. 0	11	24.5
Sickness of Family Member	4	13.3	1	6.7	5	11.1
Others	0	0.00	0	0.0	1	2.2
Total	**30**	**100**	**15**	**6.7**	**45**	**100**

4.2 Working Days per Week

Table:4.2 Working Days in a Week:

Working Days	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
7 days	19	63.3	7	46.7	26	57.8
6 days	9	30.0	5	33.3	14	31.1
5 days	2	6.7	3	20.0	5	11.1
4 days	0	0.0	0	0.0	0	0.0
3 days	0	0.0	0	0.0	0	0.0
2 days	0	0.0	0	0.0	0	0.0
1 days	0	0.0	0	0.0	0	0.0
Total	**30**	**100**	**15**	**100**	**45**	**100**

4.3 Working Hour

Table:4.3 When do you start and end your work ?

Working Time	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
5.30a.m.-12.00 p.m.	15	50.0	10	66.7	25	55.6
12.30p.m.-3.30 p.m.	6	20.0	3	20.0	9	20.0
4.00p.m.-6.00 p.m.	8	26.7	2	13.3	10	22.2
6.30p.m.-10.00 p.m.	1	3.3	0	0.0	1	2.2
Total	**30**	**100**	**15**	**100**	**45**	**100**

4.4 Area Coverage and Selection of Time

Table:4.4 Work place, Time and Reasons: (Matuail Disposal Site)

Sl. No.	Area Covered	From	To	Reason	Frequency	%
1.	Matuail Dumping Site	6:00 am	3:00 pm	Near to the Residence	6	20.0
2.	Matuail Dumping Site	6:00 am	4:00 pm	Nearest Area	1	3.4
3.	Matuail Dumping Site	7:00 am	5:00 pm	Collect more waste in same place	1	3.4
4.	Matuail Dumping Site	6:00 am	6:00 pm	More waste available	10	33.3
5.	Matuail Dumping Site	7:00 am	6:00 pm	More waste available in same place	4	13.3
6.	Matuail Dumping Site	6:00 am	5:00 pm	To get huge waste	1	3.4
7.	Matuail Dumping Site	7:00 am	3:00 pm	Huge waste available	1	3.4
8.	Matuail Dumping Site	6:00 am	5:00 pm	More waste available & near to residence	3	10.0
9.	Matuail Dumping Site	6:00 am	6:00 pm	Available recycle material in morning to noon	1	3.4
10.	Matuail Dumping Site	6:00 am	4:00 pm	Available recycle material in morning	1	3.4
11.	Matuail Dumping Site	6:00 am	2:00 pm	More waste in morning	1	3.4
Total					**30**	

Table:4.4 Work place, Time and Reasons (Berri band Disposal Site)

Sl. No.	Area Covered	From	To	Reason	Frequency	%
1.	Gabtali Beribandh	6:00 am	2:00 pm	Near to the Residence	1	6.7
2.	Gabtali Beribandh	6:00 am	4:00 pm	More waste available at a time	2	13.3
3.	Gabtali Beribandh	6:00 am	3:00 pm	More waste available	5	33.3
4.	Gabtali Beribandh	9:00 am	4:00 pm	Many trucks dispose waste	2	13.3
5.	Gabtali Beribandh	6:00 am	3:00 pm	Free to work, no obstruction from anyone	1	6.7
6.	Gabtali Beribandh	6:00 am	4:00 pm	More waste available in morning	1	6.7
7.	Gabtali Beribandh	6:00 am	3:00 pm	Area is too large	1	6.7
8.	Gabtali Beribandh	7:00 am	3:00 pm	Available recyclable material in this area	1	6.7
9.	Gabtali Beribandh	6:00 am	3:00 pm	Huge useful/Recyclable waste collection in this time	1	6.7
Total					**15**	**100**

4.5 Special Dress and Tools

Table: 4.5 Use of Tools in Waste Picking:

Use of Tools	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	18	60.0	9	60.0	27	60.0
No	12	40.0	6	40.0	18	40.0
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table: 4.6 Name of Tools

Tools	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Achara & Bag	8	44.4	3	33.3	7	36.8
Achara, Belcha & Bag	2	11.1	0	0.0	1	5.3
Achara, Bag & Shoe	1	5.6	1	11.1	1	5.3
Rod, Basket & Bag	3	16.7	0	0.0	0	0.0
Belcha & Sack	1	5.6	1	11.1	1	5.3
Iron Rod & Bag	3	16.7	4	44.4	9	47.4
Total	**18**	**100**	**9**	**100**	**19**	**100**

5. WASTE PICKING ITEMS

Table: 5.1.a Organic Waste

Name of Waste	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Bone	30	100	15	100	45	100
Animal Remains	9	30.0	4	26.7	13	28.8
Food Items	1	3.3	0	0.0	1	2.2

Table: 5.1.b Inorganic Waste

Name of Waste	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Glass Bottles	30	100	15	100	45	100
Clothing	8	26.7	0	0.0	8	17.8
Plastic Bottles	24	80.0	15	100	39	86.7
Paper	30	100	15	100	45	100
Carton	28	93.3	11	73.3	39	86.7
Can	30	100	15	100	45	100
Glass	28	93.3	13	86.7	31	68.9
Plastic	28	93.3	10	66.7	38	84.4
Iron	27	90.0	11	73.3	38	84.4
Polythene	1	3.3	0	0.0	1	2.2
Brass Plate	1	3.3	1	6.7	2	4.4
Plastic Shoe	0	0.0	1	6.7	1	2.2

Table: 5.2 Collection of Medical Wastes

Collection of medical waste	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	29	96.7	11	73.3	40	88.9
No	1	3.3	4	26.7	5	11.1
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table: 5.3 Medical Waste

Name of Waste	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Saline Tube	29	96.7	11	73.3	40	100
Bandage	7	23.3	3	20.0	10	25.0
Cotton	7	23.3	1	6.7	8	20.0
Syringe	29	96.7	12	80.0	39	97.5
Sanitary Waste	1	3.3	0	0.0	1	2.5
Medicine Bottle	0	0.0	3	20.0	3	7.5
Medicine Box	0	0.0	1	6.7	1	2.5

5.4 Hazardous Waste Collect

Table: 5.4 Collection of Hazardous wastes

Collection of Hazardous waste	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	11	36.7	7	46.7	18	40.0
No	19	63.3	8	53.3	27	60.0
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table: 5.5 Type of Hazardous Waste

Name of Hazardous Waste	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Carbon Battery	10	33.3	6	40.0	16	100
Expired Medicine Bottle	7	23.3	4	26.7	11	68.8
Explosive Related	0	0.0	3	20.0	3	18.8
Others	0	0.0	0	0.0	0	0.0

6. SALE OF WASTE

Table:6.1.a Waste Purchased by:

Purchased by	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Fixed Buyer	24	80	13	86.7	37	82.2
Buyer on Spot	0	0.0	0	0.0	0	0.0
Bhangri Purchaser	6	20.0	0	0.0	6	13.3
Recyclable Material Buyer	0	0.0	2	13.3	2	4.5
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table:6.1.b List of Wastes and Weight Price:

Matuail:

Name Of Sellable Items	Price per kg (in Tk.)			
	<3.0	3.5-6.0	6.5-10.0	10.50-15.0
Glass Bottles	0	30	0	0
Paper	0	0	30	0
Clothing	1	0	0	0
Containers	0	0	0	13
Plastic Bottles	0	0	30	0
Plastic	0	0	29	0
Bone	0	0	29	0
Can	0	0	30	0
Iron	0	0	0	30
Others	0	30	0	0

Barri Band:

Name of Sellable Items	Price per kg (in Tk.)			
	<3.0	3.5-6.0	6.5-10.0	10.50-15.0
Glass Bottles	15	0	0	0
Paper	15	0	0	0
Clothing	0	0	0	0
Containers	0	0	7	0
Plastic Bottles	0	0	15	0
Plastic	0	0	15	0
Bone	0	14	0	0
Can	0	14	0	0
Iron	0	0	0	9
Others	0	0	0	0

6.2 Income and Expenditure of Waste Pickers

Table :6.2 Monthly Income and Expenditure

Amount (Tk.)	Disposal Site								Total			
	Matuail				Barri Band							
	Income		Expenditure		Income		Expenditure		Income		Expenditure	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
< 500	3	10.0	9	30.0	0	0.0	2	13.3	3	6.7	11	24.4
501 – 1000	4	13.3	8	26.7	3	20.0	8	53.3	7	15.6	16	35.6
1001 – 1500	3	10.0	6	20.0	2	13.3	0	0.0	5	11.1	6	13.3
1501 – 2000	3	10.0	1	3.3	3	20.0	1	6.7	6	13.3	2	4.5
2001 – 2500	8	26.7	6	20.0	2	13.3	4	26.7	10	22.2	10	22.2
2501 – 3000	6	20.0	0	0.0	4	26.7	0	0.0	10	22.2	0	0.0
3001 +	3	10.0	0	0.0	1	6.7	0	0.0	4	8.9	0	0.0
Total	**30**	**100**	**30**	**100**	**15**	**100**	**15**	**100**	45	**100**	**45**	**100**

Table :6.3 Per Month Savings by Waste Pickers:

Amount (Tk.)	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Up to 500	0	0.0	0	0.0	0	0.0
501-1000	3	10.0	3	20.0	6	13.3
1001-1500	12	40.0	6	40.0	18	40.0
1501-2000	4	13.3	2	13.3	6	13.3
2001+	4	13.3	2	13.3	6	13.3
Nil	7	23.3	2	13.3	9	20.0
Total	**30**	**100**	**15**	**100**	**45**	**100**

7. MODE OF TRANSPORTATION

Table :7.1 Mode of Transportation

Mode of Transportation	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
By Truck	1	3.3	0	0.0	1	2.2
By Bus	11	36.7	4	26.7	15	33.3
By Tempu	2	6.6	3	20.0	5	11.1
On Foot	10	33.3	3	20.0	13	28.9
By Rickshaw	1	3.3	2	13.3	3	6.7
Didn't give any answer	5	16.7	3	20.0	8	17.8
Total	**30**	**100**	**15**	**100**	**45**	**100**

Cost of Transportation

Cost of Transportation	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
No Cost	15	50.0	3	20.0	18	40.0
1 to 5 tk.	7	23.3	0	0.0	7	15.6
6 to 10 tk.	5	16.7	9	60.0	14	31.1
11 to 15 tk	2	6.7	0	0.0	2	4.4
More than 15	1	3.3	3	20.0	4	8.9
Total	**30**	**100**	**15**	**100**	**45**	**100**

8. ACCIDENT HISTORY/RECORD

Table :8.1 Record of Accident or Sickness in Past Two Years:

Accident/Disease occurred	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	17	56.7	7	46.7	24	53.3
No	13	43.3	8	53.3	21	46.7
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table :8.2 Type of Disease/Accident

Type of Accident	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Road Accident	0	0.0	1	14.9	1	4.1
Low Blood Pressure	0	0.0	0	0.0	0	0.0
Chest Pain	1	5.9	0	0.0	1	4.6
Diarrhoea	0	0.0	0	0.0	0	0.0
Cut Injury/Infection	8	47.5	4	57.4	12	50.0
Dysentery	1	5.9	2	28.7	3	12.5
Fever	6	35.9	0	0.0	6	25.0
Asthma	1	5.9	0	0.0	1	4.1
Total	17	100	7	100	24	100

Table :8.3 Taking Treatment & Place of Treatment

Treatment	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	16	94.2	5	71.3	21	87.5
No	0	0.0	2	28.7	2	8.4
Not Answered	1	5.8	0	0.0	1	4.1
Total	**17**	**100**	**7**	**100**	**24**	**100**

Table :8.4 Place of Treatment Taken

Treatment Taken from	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Govt. Hospital	2	11.6	1	14.9	3	12.5
Hospital	1	5.8	0	0.0	1	4.1
Not Mentioned	11	64.1	5	71.3	16	66.6
Quack Doctor	1	5.8	0	0.0	1	4.1
Rural Medical Practitioner (RMP)	1	5.8	1	14.9	2	8.3
Medicine Shop	1	5.8	0	0.0	1	4.1
Private Clinic	0	0.0	0	0.0	0	0.0
Total :	**17**	**100**	**7**	**100**	**24**	**100**

Treatment Cost:

Cost of Treatment (Tk.)	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Less than 50	6	35.0	2	28.7	8	33.3
51 to 100	2	11.6	1	14.9	3	12.5
101 to 150	1	5.8	0	0.0	1	4.1
151 to 200	2	11.6	0	0.0	2	8.3
201 to 500	1	5.8	2	28.7	3	12.5
501 to 1000	1	5.8	1	14.9	2	8.3
1001 to 1500	0	0.0	0	0.0	0	0.0
1501 to 2000	2	11.6	0	0.0	2	8.3
Not mentioned	2	11.6	1	14.9	3	12.5
Total	**17**	**100**	**7**	**100**	**24**	**100**

Table :8.5 Recovery Time from Disease

Time of Recovery	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
2 days	0	0.0	0	0.0	0	0.0
5 days	0	0.0	1	14.9	1	4.1
7 days	4	23.3	3	42.6	7	29.1
15 days	3	17.5	1	14.9	4	16.6
More than a month	2	11.6	0	0.0	2	8.3
Still Suffering	0	0.0	0	0.0	0	0.0
Not Answered	8	47.6	2	28.7	10	41.6
Total	**17**	**100**	**7**	**100**	**24**	**100**

9. LIVING CONDITION

Table:9.1 Living Place of Waste Pickers at Matuail Disposal Site:

Sl. No.	Area Located	Location	Frequency	%
1.	Near Disposal Site	Mridha Bari	8	26.7
		Matuail	1	3.3
		Mridha Bari Graveyard, Matuail	1	3.3
2.	Residential Area	Kazirgaon, Boat Press	1	3.3
3.	Slum Area	Mirhazaribahg, Gandaria	1	3.3
		Pora Slum, Mirpur-14	1	3.3
		14 No. Dalpur, Golapbagh	2	6.8
		Dhalpur, Mirpur-14	3	10.0
		Dhalpur, Golapbag, Saidabad	1	3.3
		Mirzabari Kabarstan, Matuail	1	3.3
		Dhalpur Slum, Golapbagh, Saidabad	3	10.0
		14 No. Dalpur, Jatrabari	1	3.3
		14 No. Dalpur, Nobu Slum	1	3.3
		Matuail West Para, Jatrabari	1	3.3
		Matuail Mazia Bari	1	3.3
		14 No. Dalpur Slum	2	6.8
		Mridha Bari, Matuail	1	3.3
Total			**30**	**100**

Living Place of Waste Pickers at Beribandh Disposal Site:

Sl. No.	Area Located	Location	Frequency	%
1.	Near Disposal Site	Gabtali Beribandh	2	13.4
2.	Slum Area	Bashantek, Mirpur	1	6.7
		3 No. Kazirtek, Mirpur	11	73.3
		Police Camp, Sluice gate	1	6.6
Total			**15**	**100**

Service Available

Table:9.2 Utility Services Available:

Service	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Water Supply	24	80.0	14	93.3	38	84.4
Toilet Facility	30	100	15	100	45	100
Electricity	29	96.7	12	80.0	41	91.1
Gas available	8	26.7	0	0.0	8	17.8

9.3 Information of Family Members of Waste Pickers

Table: Age Structure:

Age Range	Matuail					
	Male		Female		Total	
	Frequency	%	Frequency	%	Frequency	%
<9	14	19.18	6	8.22	20	16.95
10-14	9	12.33	5	6.85	14	11.86
15-24	15	20.55	9	12.33	24	20.34
25-34	9	12.33	8	10.96	17	14.41
35-44	10	13.70	15	20.55	25	21.19
45-54	13	17.81	2	2.74	15	12.71
55-64	3	4.11	0	0.00	3	2.54
65+	0	0.00	0	0.00	0	0.00
	73	100	**73**	100	**118**	100

Age Range	Barri Band					
	Male		Female		Total	
	Frequency	%	Frequency	%	Frequency	%
<9	14	27.45	4	17.39	18	24.32
10-14	14	27.45	5	21.74	19	25.68
15-24	10	19.61	2	8.70	12	16.22
25-34	4	7.84	3	13.04	7	9.46
35-44	2	3.92	4	17.39	6	8.11
45-54	3	5.88	5	21.74	8	10.81
55-64	4	7.84	0	0.00	4	5.41
65+	0	0.00	0	0.00	0	0.00
Total	**51**	100	**23**	100	**74**	100

Table : Occupation of Family Members of Waste Pickers (Matuail)

Occupation	Frequency	%
1. Rickshaw Puller	10	8.33
2. Student	23	19.17
3. Waste Picker	46	38.33
4. N/A	22	18.33
5. House Wife	4	3.33
6. Labour	5	4.17
7. House Made	2	1.67
8. Hawker	1	0.82
9. Service	2	1.67
10. Unable to Work	3	2.50
11. Job Less	1	0.83
12. Tailor	1	0.83
Total	**120**	100.00

Table : Occupation of Family Members of Waste Pickers (Barri Band)

Occupation	Frequency	%
1. Waste Picker	21	31.34
2. Fisherman	2	2.99
3. No Job	9	13.43
4. Rickshaw Puller	5	7.46
5. House Maid	4	5.97
6. Student	5	7.46
7. N/A	10	14.93
8. Garment Worker	2	0.82
9. Housewife	4	5.97
10. Service	1	1.49
11. Driver	4	5.97
Total	**67**	100.00

Note : *N/A refers to those family members who are children, minor aged or doing nothing as an occupation.*

Table :9.4 & 9.5 Monthly Family Income & Expenditure

Amount (Tk.)	Disposal Site								Total			
	Matuail				Barri Band							
	Income		Expenditure		Income		Expenditure		Income		Expenditure	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Up to 2000	1	3.3	2	6.7	0	0.0	2	13.3	1	2.2	4	8.9
2001 – 3000	3	10.0	2	6.7	1	6.67	2	13.3	4	8.9	4	8.9
3001 – 4000	6	20.0	6	20.0	5	33.4	5	33.3	11	24.4	11	24.4
4001 – 5000	8	26.7	15	50.0	2	13.3	2	13.3	10	22.2	17	37.8
5001 – 6000	5	16.7	2	6.7	2	13.3	1	6.7	7	15.6	3	6.7
6001 +	7	23.3	3	10.0	5	33.3	3	13.3	12	26.7	6	13.3
Total	**30**	**100**	**30**	**100**	**15**	**100**	**15**	**100**	**45**	**100**	**45**	**100**

Table:9.6 Property Owned

Name of Property	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
TV	8	26.7	3	20.0	11	24.4
Radio	4	13.3	3	20.0	7	15.6
Rickshaw	1	3.3	2	13.3	3	6.7
Not available	17	56.7	7	46.7	24	53.3
Total :	**30**	**100**	**15**	**100**	**45**	**100**

Table:9.7 Family Member working as Waste Picker

Family members as Waste Picker	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	17	56.7	6	40.0	23	51.1
No	13	43.3	9	60.0	22	48.9
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table:9.8 Relation of the Family Member to the Respondents
MATUAIL

Relation with Respondent	Period of Employment	Frequency	%
Daughter	2 Years	1	6.3
	10 Years	1	6.3
Father	10 Years	1	6.3
Husband	2 Years	2	12.5
Mother	20 to 25 years	1	6.3
Mother & Brother	10 & 8 years respectively	1	6.3
Sister	6 months	1	6.3
Son	5 Years	1	6.3
	1 year	1	6.3
Wife	5 yr	1	6.3
	2 yr.	1	6.3
	10 yr.	2	12.5
Wife & Daughter	3 yr & 2 yr.	1	6.3
Wife & Son	1 yr	1	6.3
Total		**16**	**100**

BERRI BAND

Relation with Respondent	Period of Employment	Frequency	%
Brother	35 days	1	16.7
	1 yr	1	16.7
Sister in Law	3 yr	1	16.7
Father & Brother	1 yr	1	16.7
Sister	2 yr	1	16.7
Son	1 yr	1	16.7
Total		**6**	**100**

10. QUESTIONS RELATED TO THE JOB

Table:10.1 Facing Obstruction

Facing Obstruction	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	0	0	0	0	0	0.0
No	30	100	15	100	45	100
Total	**30**	**100**	**15**	**100**	**45**	**100**

10.1.1 Way of Obstruction and Obstruction made by

Table:10.2 Do you pay money to anyone for your job ?

Paying Money	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	0	0.0	0	0.0	0	0.00
No	30	100	15	100	45	100
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table:10.3 Paying Amount:

Paying Amount/Month	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
0 –100 Tk.	0	0	0	0	0	0.0
Total	**0.0**	**0.0**	**0**	**0.0**	**0**	**0.0**

Getting Help from Others

Table:10.4 Receive Any Cooperation

Getting help	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	11	36.7	7	46.7	18	
No	19	63.3	8	53.3	27	
Total	**30**	**100**	**15**	**100**	**45**	

Table:10.4.1 Cooperation taken from and its Types

Help taken from	Type of Help	Disposal Site				Total	
		Matuail		Barri Band			
		Frequency	%	Frequency	%	Frequency	%
Driver	Transport Facility	6	54.5	4	57.1	10	55.5
DCC Truck Driver	Transport Facility	1	9.1	1	14.3	2	11.1
	Helps to find important waste by their machine	3	27.3	1	14.3	4	22.2
	Inform about valuable waste in the vehicle	**0**	0.0	1	14.3	1	11.1
	To collect waste	**0**	0.0	0	0.0	0	0.00
Not mentioned		1	9.1	0	0.0	1	11.1
Total		**11**	**100**	**7**	**100**	**18**	100

10.5: Companion of Waste Picking (Matuail)

Companion	Frequency	%
None	13	43.3
Daughter	2	6.7
Son	2	6.7
Local Friend	2	6.7
Husband	2	6.7
Neighbour	2	6.7
Wife	5	16.6
Father	1	3.3
Mother & Brother	1	3.3
TOTAL	30	100

10.5: Companion of Waste Picking (Beribandh)

Companion	Frequency	%
None	11	73.3
Friend	1	6.7
Sister	1	6.7
Youngest Brother	1	6.7
Son	1	6.7
Total	15	100

Cleaning Surrounding Bin/Container

Table :10.6 Cleaning After Waste Collection:

Cleaning After Waste Collection	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	0	0.0	0	0.0	0	0.0
No	30	100	15	10	45	100
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table: 10.6.1 When Cleaning is done?

The findings are absent as none clean their work place after waste picking.

11. OTHERS

Table :11.1 Improvement of Living Condition:

Living Condition Improved	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	29	96.7	15	100	44	97.8
No	1	3.3	0	0	1	2.2
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table:11.2 Increase of Income:

Increase of Income	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	29	96.7	14	93.3	43	95.6
No	1	3.3	1	6.7	2	4.4
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table:11.3 Benefits the City:

Benefits Society	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	12	40.0	4	26.7	16	35.6
No	1	3.3	1	6.7	2	4.4
Not Sure	17	56.7	10	66.6	27	60.0
Others	0	0.0	0	0.0	0	0.0
Total	**30**	**100**	**15**	**100**	**45**	**100**

11.3.1: How the Service Benefits the Society (Matuail)

Comments	Frequency	%
Cleaning the Town	3	25.0
Picking from this site and help people.	1	8.3
Supplying waste for recyclable industry.	1	8.3
Waste is used for various purposes.	2	16.7
N/A	5	41.7
Total	12	100.00

11.3.1: How the Service Benefits the Society (Beribandh)

Comments	Frequency	%
Cleaning the City	2	50.0
Keep environment clean by waste picking	2	50.0
Total	4	100.00

Table:11.4 Continuation of Waste Picking Job:

Job Continue	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	6	20.0	0	0.0	6	13.3
No	23	76.7	15	100	38	84.5
N/A	1	3.3	0	0.0	1	2.2
Total	**30**	**100**	**15**	**100**	**45**	**100**

11.4.1: How long to Continue the Job (Matuail)

How long	Frequency	%
3 Years	1	16.7
5 years	1	16.7
Not Sure	4	66.7
Total	6	100.00

11.4.1: How long to Continue the Job (Beribandh)

*No data was found in this category of waste pickers.

Table :11.5 Engagement of Own Child:

Income Increased	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Yes	1	3.3	0	0.0	1	2.2
No	15	50.0	2	13.3	17	37.8
N/A	14	46.7	13	86.7	27	60.0
Total	**30**	**100**	**15**	**100**	**45**	**100**

Table :11.6 Steps for Betterment of Their Children

Steps Taken	Disposal Site				Total	
	Matuail		Barri Band			
	Frequency	%	Frequency	%	Frequency	%
Admitted in to School	13	86.7	1	50.0	14	82.3
Nothing	2	13.3	0	0.00	2	11.8
Engaged as a helper in a hotel	0	0.00	1	50.0	1	5.9
Total	**15**	**100**	**2**	**100**	**17**	**100**

11.7.a: Existing Problem of Waste Picking at *Matuail* Disposal Site

Sl. No.	Problems	Frequency	%
1.	Lack of sufficient tools and dress.	8	26.7
2.	Lack of Tools.	3	10.0
3.	Lack of tools, Often infected due to Glass and Syringe.	3	10.0
4.	Sometimes the waste buyers pay poor amount.	2	6.7
5.	Waste pickers engaged in this area, so income decreased.	1	3.3
6.	Lack of knowledge about the personal cleanliness.	1	3.3
7.	Need of collecting equipment like gloves, special shoe etc.	1	3.3
8.	Bad smell, leg-hand infection at the time of waste picking.	1	3.3
9.	Leg and hand injury due to Glass.	4	13.4
10.	Bad smell is the major problem.	1	3.3
11.	No problem	5	16.7
	Total :	**30**	**100**

11.7.b: Existing Problem of Waste Picking at at *Beribandh* Disposal Site

Sl. No.	Problems	Frequency	%
1.	Dress problem & no necessary tools.	5	33.2
2.	Lack of picking tools and often get injury by Glass or Syringe.	1	6.7
3.	No tools and no place for taking rest.	1	6.7
4.	No space for taking rest, also no tools and dress in working place.	1	6.7
5.	Lack of special dress and gloves.	1	6.7
6.	Lack of Special dress and tools.	2	13.2
7.	Become infected during waste picking.	1	6.7
8.	Leg and hand injury due to Glass.	1	6.7
9.	Syringe and Glass infect leg and hands.	1	6.7
10.	When they get leg injury due to Glass, they become unable to do anything.	1	6.7
	Total :	**15**	**100**

(2) Container Waste Picker Survey

1. PERSONAL INFORMATION OF THE ROAD WASTE PICKERS

Male Female Distribution

Sex	Frequency	%
Male	17	68.0
Female	8	32.0
Total	**25**	**100**

Age Structure of the Respondent

Age Range	Frequency	%
< 10	0	0.0
11-20	6	24.0
21-30	6	24.0
31-40	5	20.0
41-50	6	24.0
51+	2	8.0
Total	**25**	**100**

Level of Education

Literacy Level	Frequency	%
Illiterate	19	76.0
Can sign Only	0	0.0
Primary	5	20.0
Secondary	1	4.0
Total	**25**	**100**

2. DURATION OF STAY IN DHAKA

Table :2 Duration of Stay:

Duration of Stay (in yrs.)	Frequency	%
Below 5 Year	7	28.0
6 to 10 Year	6	24.0
11 to 15 Year	5	20.0
16 to 20 Year	6	24.0
20 +	1	4.0
Total	**25**	**100**

3. DURATION OF WORK AS WASTE PICKER

Table:3 Duration of Work as a Waste Picker:

Duration of Work (in yrs.)	Frequency	%
< 5 Year	13	52.0
6 to 10 Year	3	12.0
11 to 15 Year	4	16.0
16 to 20 Year	5	20.0
20 +	0	0.0
Total	**25**	**100**

4. WORKING INFORMATION

4.1 Why Started to Work as a Waste Picker:

Reasons of Work	Frequency	%
No Other Job	11	44.0
Easy Money	5	16.0
Self Employed	9	36.0
Sickness of Family Member	0	0.0
Others	0	4.0
Total	**25**	**100**

4.2 Working Days per Week

Number of Working Days/Week	Frequency	%
7 days	21	84.0
6 days	3	12.0
5 days	1	4.0
4 days	0	0.0
3 days	0	0.0
2 days	0	0.0
1 days	0	0.0
Total	**25**	**100**

4.3 Working Hour

Working Hour	Frequency	%
5.30a.m.-12.00 p.m.	5	20.0
12.30p.m.-3.30 p.m.	7	28.0
4.00p.m.-6.00 p.m.	9	36.0
6.30p.m.-10.00 p.m.	4	16.0
Total	**25**	**100**

4.4 Area Coverage and Selection of Time

Sl. No.	Area Covered	From	To	Reason	Frequency	%
12.	Monipuri Para, Farmgate	8:00 am	3:00 pm	Residing this area & this time is suitable	1	4.0
13.	Farmgate	6:00 am	4:00 pm	More waste is available in morning	1	4.0
14.	Motijheel	8:00 am	5:00 pm	Residing near the container	2	8.0
15.	Kawran Bazar	6:00 am	2:00 pm	House beside the container	1	4.0
16.	Asadgate	7:00 am	2:00 pm	Few waste pickers working here	1	4.0
17.	Kallyanpur	6:00 am	3:00 pm	Known area	1	4.0
		9:00 am	4:00 pm	More waste available	1	4.0
18.	Mirpur-1	8:00 am	5:00 pm	Near to Slum	1	4.0
		8:00 pm	6:00 pm	More waste available	1	4.0
19.	Mirpur-12	10:00 pm	4:00 pm	Getting more waste	1	4.0
20.	Pallabi, Mirpur-12	10:00 am	4:00 pm	Near to residence, More waste available	1	4.0
21.	Mohakhali	8:00 pm	5:00 pm	More waste available this time	2	8.0
22.	Gulshan	7:00 am	5:00 pm	Beside container	1	4.0
				Nearest Area	1	4.0
23.	Banani Bazar	7:00 am	5:00 pm	Near to residence	1	4.0
24.	Baridhara	9:00 am	6:00 pm	More waste available this time	1	4.0
25.	Sultanganj, Rayer Bazar	1:00 pm	6:30 pm	Near to residence	1	4.0
26.	Badda	6:00 am	2:00 pm	Near to Slum	1	4.0
27.	Palashi Mor	6:00 am	7:00 pm	Near to residence, More waste available	1	4.0
28.	Shaheed Nagar	8:00 pm	5:00 pm	Peak time of waste collection	1	4.0
29.	Hazaribag, Samata-2 Tannery	9:00 am	3:00 pm	Near to residence	1	4.0
30.	Kamlapur, Motijheel	6 am & 3 pm	11 am & 5 pm	Near to residence	1	4.0
31.	Wari	6 am & 3 pm	10 am & 7 pm	Near to residence	1	4.0
				Total :	**25**	**100**

4.5 Special Dress and Tools

Table: 4.5 Use of Tools in Waste Picking:

Special Tools Used	Frequency	%
Yes	19	76.0
No	6	24.0
Total	**25**	**100**

Table: 4.6 Name of Tools

Tools Used	Frequency	%
Achara & Bag	7	36.8
Achara, Belcha & Bag	1	5.3
Achara, Bag & Shoe	1	5.3
Rod, Basket & Bag	1	5.3
Belcha & Sack	0	0.0
Iron Rod & Bag	9	47.3
Total	**19**	**100**

5. WASTE PICKING ITEMS

Table: 5.1.a Organic Waste

Name of Waste	Frequency	%
Bone	13	52.0
Animal Remains	0	0.0
Food Items	0	0.0

Table: 5.1.b Inorganic Waste

Name of Waste	Frequency	%
Glass Bottles	25	100
Clothing	1	4.0
Plastic Bottles	25	100
Paper	23	92.0
Carton	23	92.0
Can	21	84.0
Glass	20	80.0
Plastic	25	100
Iron	13	52.0
Polythene	0	0.0
Brass Plate	0	0.0
Plastic Shoe	0	0.0

Table: 5.2 Collection of Medical Wastes

Collect medical waste	Frequency	%
Yes	17	68.0
No	8	32.0
Total	**25**	**100**

Table: 5.3 Medical Waste

Name of Waste	Frequency	%
Saline Tube	17	100
Bandage	0	0.0
Cotton	0	0.0
Syringe	17	100
Sanitary Waste	0	0.0
Medicine Bottle	0	0.0
Medicine Box	0	0.0

5.4 Hazardous Waste Collection

Hazardous waste	Frequency	%
Yes	7	28.0
No	18	72.0
Total	**25**	**100**

Table: 5.5 Hazardous Waste

Name of Waste	Frequency	%
Carbon Battery	7	28.0
Expired Medicine Bottle	6	24.0
Explosive Related	0	0.0
Others	0	0.0

6. SALE OF WASTE

Table:6.1.a Wastes Purchased by:

Purchased by	Frequency	%
Fixed Buyer	22	88.0
Buyer on Spot	0	0.0
Bhangri Purchaser	3	12.0
Recyclable Material Buyer	0	0.0
Total	**25**	**100**

Table:6.1.b Wastes Purchased by:

Name Of Sellable Items	Price per kg (in Tk.)			
	<3.0	3.5-6.0	6.5-10.0	10.50-15.0
Glass Bottles	25	0	0	0
Paper	0	25	0	0
Clothing	0	0	0	0
Containers	0	2	2	2
Plastic Bottles	7	6	6	6
Plastic	8	8	8	0
Bone	12	0	0	0
Can	4	3	3	0
Iron	6	6	6	0
Others	0	0	0	0

6.2 Income and Expenditure of Waste Pickers

Table :6.2/6.4 Monthly Income and Expenditure

Amount (Tk.)	Income		Expenditure	
	Frequency	%	Frequency	%
< 500	7	28.0	4	16.0
501 – 1000	3	12.0	6	24.0
1001 – 1500	4	16.0	6	24.0
1501 – 2000	2	8.0	5	20.0
2001 – 2500	2	8.0	4	16.0
2501 – 3000	5	20.0	0	0.0
3001 +	2	8.0	0	0.0
Total	**25**	**100**	**25**	**100**

6.3 Savings of Waste Pickers

Table :6.3 Per Month Savings by Waste Pickers:

Range of Savings (Tk.)	Frequency	%
Up to 500	0	0.0
501-1000	8	32.0
1001-1500	6	24.0
1501-2000	2	8.0
2001+	1	4.0
Nil	8	32.0
Total	**25**	**100**

7. MODE OF TRANSPORTATION

7.1 Mode of Transport

Table :7.1 Mode of Transportation

Mode Of Transport	Frequency	%
By Truck	0	0.0
By Bus	2	8.0
By Tempoo	2	8.0
On Foot	17	68.0
By Rickshaw	1	4.0
Didn't give any answer	3	12.0
Total	**25**	**100**

7.2 Cost of Transportation

Cost of Transportation	Frequency	%
No Cost	20	80.00
1 to 5 tk.	5	20.00
6 to 10 tk.	0	0.00
11 to 15 tk	0	0.00
More than 15	0	0.00
Total	**25**	**100.00**

8. ACCIDENT HISTORY/RECORD

Table :8.1 Record of Accident or Sickness in Past Two Years:

Accident/Disease occurred	Frequency	%
Yes	10	40.0
No	15	60.0
Total	**25**	**100**

Table :8.2 Type of Disease/Accident

Accident/Disease Occurred	Frequency	%
Road Accident		
Low Blood Pressure	1	10.0
Chest Pain		
Diarrhoea	2	20.0
Cut Injury/Infection	2	20.0
Dysentery		
Fever	4	40.0
Asthma	1	10.0
Total	**10**	**100**

Table :8.3 Treatment for Accident/Sickness

Taking Treatment	Frequency	%
Yes	5	50.0
No	2	20.0
Not Answered	3	30.0
Total	**10**	**100**

Table :8.4 Place of Treatment Taken

Treatment Taken from	Frequency	%
Govt. Hospital	0	0.0
Hospital	0	0.0
Not Mentioned	7	70.0
Quack Doctor	0	0.0
Rural Medical Practitioner (RMP)	0	0.0
Medicine Shop	1	10.0
Private Clinic	2	20.0
Total	**10**	**100**

Table :8.5 Days for Complete Recovery

Duration	Frequency	%
2 days	1	10.0
5 days	0	0.0
7 days	2	20.0
15 days	3	30.0
More than a month	1	10.0
Still Suffering	1	10.0
Not Answered	2	20.0
Total	**10**	**100**

Treatment Cost:

Treatment Cost (Tk.)	Frequency	%
Less than 50	2	20.0
51 to 100	1	10.0
101 to 150	1	10.0
151 to 200	1	10.0
201 to 500	0	0.0
501 to 1000	1	10.0
1001 to 1500	1	10.0
1501 to 2000	0	0.0
Not mentioned	3	30.0
Total	**10**	**100**

9. LIVING CONDITION

Location of Residence

Table:9.1 Location of Residence:

Sl. No.	Residential Area	Location	Frequency	%
1.	Footpath	Kawran Bazar	3	12.0
		Palashi Mor	1	4.0
2.	Slum Area	Motijheel Slum (Opp. to Prime Bank)	1	4.0
		Balur Mat, Motijheel	1	4.0
		Amena Slum, Rayer Bazar	1	4.0
		Kallyanpur Pora Slum	2	8.0
		Hashem Slum, Mirpur	2	8.0
		Sattala, Mohakhali	1	4.0
		Taltala, Gulshan-1	1	4.0
		Uttar Shajadpur, Badda	1	4.0
		Noia Nagar, Badda	1	4.0
		Noia Nagar, Noton Bazar, Badda	1	4.0
		Mirpur, Barabagh	1	4.0
		Sultanganj, Rayer Bazar	1	4.0
		Pallabi, Mirpur	1	4.0
		1 No. Kakrail, Bou Bazar, Badda	1	4.0
		Nayanagar, Badda	1	4.0
		5 no. Shaheed Nagar	1	4.0
3.	Char Area	Jowchar	1	4.0
4.	Near to Container	Kamlapur	1	4.0
		Wari	1	4.0
Total :			**25**	**100**

Service Available

Table:9.2 Utility Services Available:

Monthly Income Total (Tk.)	Frequency	%
Water Supply	19	76.0
Toilet Facility	20	80.0
Electricity	21	84.0
Gas available	2	8.0
Total	**62**	**248**

9.3 Information of Family Members of Waste Pickers

Table: Age Structure:

Age Range	ROADSIDE					
	Male		Female		Total	
	Frequency	%	Frequency	%	Frequency	%
<9	14	25.93	5	16.13	19	22.35
10-14	6	11.11	5	16.13	11	12.94
15-24	11	20.37	3	9.68	14	16.47
25-34	6	11.11	8	25.81	14	16.47
35-44	9	16.67	4	12.90	13	15.29
45-54	5	9.26	4	12.90	9	10.59
55-64	2	3.70	2	6.45	4	4.71
65+	1	1.85	0	0.00	1	1.18
Total	**54**	**100**	**31**	**100**	**85**	**100**

Table : Occupation of Family Members of Waste Pickers

Occupation	Frequency	%
1. Waste Picker	32	39.02
2. Rickshaw Puller	7	8.54
3. Housewife	6	7.32
4. Garments Worker	1	1.22
5. Labour	6	7.32
6. Student	3	3.66
7. Hawker	1	1.22
8. N/A	26	31.71
Total	**82**	**100**

Note : *N/A refers to those family members who are children, minor aged or doing nothing as an occupation.*

Table :9.4 & 9.5 Monthly Family Income & Expenditure

Amount (Tk.)	Income		Expenditure	
	Frequency	%	Frequency	%
Up to 2000 Tk.	2	8.0	2	8.0
2001 – 3000 Tk.	7	28.0	9	36.0
3001 – 4000 Tk.	5	20.0	6	24.0
4001 – 5000 Tk.	7	28.0	3	12.0
5001 – 6000 Tk.	1	4.0	2	8.0
6001 + Tk.	3	12.0	3	12.0
Total	**25**	**100**	**25**	**100**

Table:9.6 Property Owned

Name of Property	Frequency	%
TV	5	20.0
Radio	1	4.0
Rickshaw	1	4.0
Not available	18	72.0
Total	**25**	**100**

Table:9.7 Family Member working as Waste Picker:

Other family member Working the same	Frequency	%
Yes	5	20.0
No	20	80.0
Total	**25**	**100**

Table:9.8 Relation with the Family Members

Relation with Respondent	Period of Employment	Frequency	%
Husband	10 yr	1	20.0
Daughter & Son	2 yr & 1 yr respectively	1	20.0
Son & Husband	2 yr & 3 yr	1	20.0
Two sons	6 & 4 yr	1	20.0
Grand Son	3 yr	1	20.0
Total		**5**	**100**

10. QUESTIONS RELATED TO THE JOB

Table:10.1 Facing Obstruction

Facing Obstruction	Frequency	%
Yes	0	0
No	25	100
Total	25	100

10.1.1 Way of Obstruction and Obstruction made by

Table:10.2 Do you pay money to anyone for your job ?

Comments	Frequency	%
Yes	2	8.0
No	23	92.0
Total	**25**	**100**

Table:10.3 Paying Amount:

Paying Amount/Month	Frequency	%
0 –100 Tk.	2	100
Total	**2**	**100**

Table:10.4 Receive Any Cooperation

Getting help	Frequency	%
Yes	3	12.00
No	22	88.00
Total	**25**	**100.00**

Table:10.4.1 Cooperation taken from and its Types

Help taken from	Type of Help	Frequency	%
Driver	Transport Facility	1	33.3
DCC Truck Driver	Transport Facility	0	0.0
	Helps to find important waste by their machine	0	0.0
	Inform about valuable waste in the vehicle	1	33.3
	To collect waste	1	33.3
Did not mention	-	0	0.0
Total		**3**	**100**

Table:10.5 Who is your companion in waste picking ?

Companion	Frequency	%
Daughter	1	4.0
Grand Son	1	4.0
Husband	1	4.0
Son & Wife	1	4.0
Two sons	1	4.0
None	20	80.0
Total	**25**	**100**

Cleaning Surrounding Bin/Container

Table :10.6 Cleaning After Waste Collection:

Cleaning After Waste Collection	Frequency	%
Yes	7	28.0
No	18	72.0
Total	**25**	**100**

Table :10.6.1 When Cleaning is Done ?

	Frequency	%
Every day	7	100
Total	**7**	**100**

11. OTHERS

Table :11.1 Improvement of Living Condition:

Living Condition Improved	Frequency	%
Yes	7	28.0
No	18	72.0
Total	**25**	**100**

Table:11.2 Increase of Income:

Increase of Income	Frequency	%
Yes	8	32.0
No	17	68.0
Total	**25**	**100**

Table:11.3 Benefits for the City:

Get Benefit	Frequency	%
Yes	8	32.0
No	0	0.0
Not Sure	16	64.0
No Answer	1	4.0
Total	**25**	**100**

Table:11.3.1 How They Benefit the City

Comments	Frequency	%
Cleaning the City and make it neat	7	87.5
Never bother about this	1	12.5
Total	**8**	**100**

Table:11.4 Continuation of Waste Picking Job:

Job Continue	Frequency	%
Yes	8	32.0
No	17	68.0
Total	**25**	**100**

Table:11.4.1 How Long to Continue the Profession

Duration	Frequency	%
Not sure	8	100
Total	**8**	**100**

Table :11.5 Engagement of Own Child:

Willing to engage own child	Frequency	%
Yes	3	12.0
No	14	56.0
N/A	8	32.0
Total	**25**	**100**

Table :11.6 Steps for Betterment of Their Children

Steps Taken	Frequency	%
Admitted to School	9	64.2
Taught Rickshaw Driving	1	7.1
Nothing	4	28.5
Total	**14**	**100**

11.7 Existing Problem of Waste Picking at Road Site

Sl. No.	Problems	Frequency	%
11.	Leg and hand injury due to broken Glass.	2	8.0
12.	Want of Necessary dress and tools.	8	32.0
13.	Leg and hand injury during waste collection.	1	4.0
14.	Syringe and Glass infect leg and hands.	2	8.0
15.	Want of picking tools.	2	8.0
16.	Want of tools.	3	12.0
17.	Lack of tools. Leg and hands are infected by Syringe and Glass	2	8.0
18.	No problem in waste picking but sometimes it causes health problem.	1	4.0
19.	Infection due to waste picking	1	4.0
20.	Facing health problem due to waste picking	1	4.0
21.	No problem	2	8.0
Total		**25**	**100**

STUDY ON SOLID WASTE MANAGEMENT IN DHAKA CITY

WASTE PICKER SURVEY

Disposal Site Waste Picker Survey

Location: _____ Date: _____ Time: _____

Name of Interviewer : _____

1. PERSONAL INFORMATION:

Name	Address	Age	Sex	Level of Literacy	Original Home Town

2. When did you come to Dhaka

☐ 0 - 5 years ago
☐ 5 - 10 years ago
☐ 10 - 15 years ago
☐ 15 - 20 years ago
☐ < 20 years
☐ Others : _____

3. How long you are working as Waste Picker ?

☐ 0 - 5 years ago
☐ 5 - 10 years ago
☐ 10 - 15 years ago
☐ 15 - 20 years ago
☐ < 20 years
☐ Others : _____

4. WORKING INFORMATION

4.1 Why did you start to work as waste picker?

☐ No other job
☐ Easy money
☐ Self employment
☐ Sick in family member
☐ Others: _____

4.2 Working days in a week

Type of Job (Kv‡Ri aib)	Working Days/Week (Kvh©w`em/mßvn)
Waste Picking (eR©¨msMÖn)	
Other Job(Specify) Ab¨vb¨ (we¯—vwiZ)	

4.3 When do you start and end your work ?

Type of Job	Place	Start	End
i. Waste Picking	_____ _____ _____ _____	_____ _____ _____	_____ _____ _____
ii. Other Job/Type of Job	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____

4.4 Area coverage of waste picking and reasons for selection of time and place

Name of the Area Covered	Time		Reasons
	From	To	

4.5 Do you have any special dress and tools for your work?

☐ Yes ☐ No

4.6 If yes, answer the following

Name of Dress	**Name of Tools**	**Uses**

5. WASTE PICKING ITEMS

5.1 Name the items you usually collect

Organic	**Inorganic**
☐ Bone	☐ Glass Bottles
☐ Animal Remains	☐ Clothing
☐ Food Item	☐ Plastic Bottles
	☐ Paper
	☐ Carton
	☐ Can
	☐ Glass
	☐ Plastic
	☐ Other Materials (specify) ☐ ☐ ☐ ☐

5.2 Do you collect medical wastes ? ☐ Yes ☐ No

5.3 If yes, what are the wastes ?

Inorganic
☐ Saline tube
☐ Bandage
☐ Cotton
☐ Syringe
☐ Sanitary waste
☐ Other (Specify) _____

5.4 Do you collect any hazardous wastes items?

☐ Yes ☐ No

5.5 If yes, what are the wastes?

☐ Carbon Battery
☐ Expired Medicine Bottle
☐ Explosive related waste
☐ Others (specify) _____

6. SALE OF WASTES

6.1 Weight price and purchaser of collected wastes

Name of Wastes Collected	Price per Kg	Purchased by					
		Waste Picker	* Fixed Buyer	Buyers on spot	Bhangri Purchaser	Recyclable Material Buyer	Others **
Glass Bottles							
Papers							
Clothing							
Containers (K‡›UBbvi)							
Plastic Bottles							
Plastic							
Bone							
Can							
Iron							
Others (specify)							

* Fixed Buyer : A buyer to whom waste picker always sell his collected waste materials (¯’vqx

** Others must include details

6.2 Income of Waste Pickers

Source of Income	Daily Income
1. Waste Picking	
2. Other Jobs (Specify)	
Total	

6.3 Amount of savings per month:: .....

6.4 Expenditure: Daily..... Monthly.....

7. MODE OF TRANSPORTATION

7.1 Transportation from Residence to site (evm¯'vb †_‡K Kg©¯'j ch©š— cwienb)

Mode	Cost	Starts for site	Reached at site

8. ACCIDENT HISTORY/RECORD

8.1 Any Sickness during past few months? ☐ Yes ☐ No

8.2 If yes, how it was caused & when?

_____

—

_____

—

8.3 Are you taking any treatment? ☐ Yes ☐ No

8.4 Where are you getting the treatment and what is the cost of the treatment?

Place of Treatment	Kind of Treatment	Cost already paid	Payable cost
Clinic			
Hospital Govt./Private			
Others (Specify) _____			

8.5 How many days it took for complete recovery?

☐ 7 days
☐ 15 days
☐ 1 month
☐ More than 1month
☐ Others _____

9. LIVING CONDITION

9.1 Where are you living

Name of the Area	Location
☐ Near disposal site	
☐ Slum area	
☐ Residential area	
☐ Footpath	
☐ Others: _____	

9.2 Facilities in the house?

☐ Water supply
☐ Toilet
☐ Electricity
☐ Gas
☐ Others: _____

9.3 Family members

Sex	Age	Type of Job	Income Monthly

9.4 Total Family Income_____

9.5 Total Family expenditure_____

9.6 Properties owned

☐ Bicycle
☐ Rickshaw
☐ TV
☐ Radio
☐ Others (Specify) _____

9.7 If anybody of the family member is working as waste pickers? ☐ Yes ☐ No

9.8 If yes, mention the following

Relation to Respondent	Period of employment as waste picker	Location: where s/he collects wastes

10. QUESTIONS RELATED TO THE JOB

10.1 Any obstruction faced in work as a waste picker? ☐ Yes ☐ No

10.1.1 If yes, by whom & how you were obstructed

Organization/Job	How?

10.2 Do you pay money to anyone for your work? ☐ Yes ☐ No

10.3 If yes, how much ?

☐ 0-100 Tk. Per/month
☐ 101-200 Tk. Per/month
☐ 201-300 Tk. Per/month
☐ 301-500 Tk. Per/month
☐ Others _____

10.4 Do you receive any cooperation from anyone in the SWM services like driver, road cleaner, others, etc.? ☐ Yes ☐ No

10.4.1 If yes, who & how they help you ?

Male/Female (Job)	How?

10.5 Who is your companion in waste picking (Specify)?

.....

10.6 Do you clean surrounding bin, container , place etc. after collecting waste?

☐ Yes ☐ No

10.7 If yes, when?

☐ Yes everyday
☐ Some day
☐ Never
☐ Others_____

11. OTHERS

11.1 Do you feel your living condition has improved compared to 5 years ago ?

☐ Yes ☐ No

11.2 Do you feel your income by waste picking has increased compared to 5 years ago

☐ Yes ☐ No

11.3 Do you think your work is beneficial for the city?

☐ Yes
☐ No
☐ Not sure
☐ Others_____

11.3.1 If yes, How ?

_____

11.4 Will you continue the job in future? ☐ Yes ☐ No

11.5 If yes, how long?

☐ 2 years
☐ 3 years
☐ 4 years
☐ 5 years
☐ Not sure
☐ Others_____

11.5 Do you like your children to be engaged in waste picking? ☐ Yes ☐ No

11.6 If no, what have you done for their betterment?

☐ Nothing
☐ Admitted into school
☐ Engaged as helper in hotel/restaurant/residents
☐ Others (Specify) _____

11.7 What are the problems existing in the job of waste picking?

Specify: _____

_____

Observation made by the Interviewer :

Ground	Comments
Skill for Segregation, etc. if any ;	
Sale of Waste	
Territory	
Careful mind to infection by waste	
Careful mind to keep clear the place near bin containers	
Others	

10. Survey on Cleaners and Drivers

10. Survey on Cleaners and Drivers

10.1 Survey Objectives

The objective of the Survey is to collect information on the situation of present working circumstances, living environment and working motivation of Cleaning Service Workers in Dhaka city in order to identify immediate needs and measures to improve working environment and living conditions, and strategy for encouraging cleaning workers.

10.2 Survey Period

From February to March, 2004.

10.3 Methodology of the Survey

Interview survey with questionnaire was carried out. The questionnaire for road cleaners is attached at the end of this chapter.

The targeted interviewees of the Survey included DCC workers and workers who work for private companies in privatized wards in Dhaka City. Targeted interviewees and sample numbers are shown in Table 10.3-1.

Table 10.3-1 List of Interviewees and Number of Samples

Interviewee (worker)	Number of Samples	
	Workers in DCC	Workers in Private Company
Road Cleaner	140	30
Deep Drain Cleaner	60	20
Truck Cleaner	30	10
Container Cleaner	15	―
Truck Driver and Container Driver	50	10
Heavy Equipment Driver at Dumping site	5	―
Total	**300**	**70**

10.4 Survey Results

ROAD CLEANER

PART I:

1. General Information

Age Range (Years)	DCC		Private		Total	
	Frequency		Frequency		Frequency	
1. 0-9	0	0.00	0	00.00	0	00.00
2. 10 – 14	0	0.00	0	00.00	0	00.00
3. 15 – 25	17	12.14	2	6.25	19	11.04
4. 25 – 34	42	30.00	17	53.13	59	34.30
5. 35 – 44	43	30.71	12	37.50	55	31.98
6. 45 – 54	31	22.14	1	3.13	32	18.62
7. 55 – 64	5	3.57	0	00.00	5	2.90
8. 65+	2	1.43	0	00.00	2	1.16
Total	140	100.00	32	100.00	172	100

Sex Distribution:

Sex	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Male	68	48.57	3	9.38	71	41.28
2. Female	72	51.43	29	90.63	101	58.72
Total	140	100.00	32	100	172	100

Monthly Income:

Monthly Income (Tk.)	DCC		PRIVATE		Total	
	Frequency	%	Frequency	%	Frequency	%
1. < 1000	0	0.00	00	00.00	0	0.00
2. 1001 – 1500	0	0.00	20	62.50	20	11.62
3. 1501 – 2000	3	2.14	10	31.25	13	7.55
4. 2001 – 2500	52	37.14	2	6.25	54	31.39
5. 2501 – 3000	46	32.85	00	00.00	46	26.75
6. 3000+	39	27.86	00	00.00	39	22.69
Total	140	100.00	32	100.00	172	100

Education Level/Literacy:

Education Level/Literacy	DCC		PRIVATE		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Never Studied in any educational institutions	99	70.71	27	84.38	126	73.26
2. Primary Education (Grade 1-5)	26	18.57	5	15.63	31	18.02
3. Junior Education (Grade 6-8)	13	9.28	0	00.00	13	7.56
4. Secondary (Grade 9-10)	2	1.42	0	00.00	2	1.16
5. Higher Secondary Education (Grade 11- 12)	0	0.00	0	00.00	0	0.00
6. Bachelors Degree	0	0.00	0	00.00	0	0.00
7. Others	0	0.00	0	00.00	0	0.00
Total	140	100	32	100	172	100

1.1 Ethnic Group, Religion and Language: DCC

Ethnic Group	Religion	Mother Tongue	Frequency
Horizon	Hindu	Bangla	3
Madraji	Hindu	Madraji	3
		Telegu	2
Total			8

Caste	Religion	Mother Tongue	Frequency
Dome	Hindu	Telegu	1
Sweeper (*Mathor*)	Hindu	Bangla	3
		Madraji	1
		Urdu	1
Total			6

**Dome refers to the profession who dissects dead body at hospital or morgue. Dome is a Hindu caste having the assigned duty of burning the dead and looking after the crematorium. '*Mathor*'(Night soil cleaner) is the local dialect, which refers to the profession of cleaning drainage and sewerage line of households.

1.2 Employment Information:

Employment Information	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Permanent Status	106	75.71	27	84.38	133	77.32
2. Daily Basis	34	24.29	5	15.62	39	22.68
Total	140	100.00	32	100.00	172	100

1.3 Duration of Work:

Work Duration	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. 0 – 5 years	38	27.14	29	90.63	67	38.95
2. 5 – 10 years	21	15.00	**3***	9.37	24	13.95
3. 10 – 15 years	32	22.86	0	0.00	32	15.63
4. 15 – 20 years	25	17.86	0	0.00	25	14.29
5. < 20 years	24	17.14	0	0.00	24	17.18
Total	140	100.00	32	100.00	172	100

1.4 Previous Employment Record:

Previous Employment	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
Cleaner	1	0.71	0	0.00	1	0.28
Hospital Staff	1	0.71	0	0.00	1	0.58
Guard	2	1.43	0	0.00	2	1.16
Rickshaw Puller	6	4.29	2	6.25	8	4.65
Labour	15	10.71	5	15.63	20	11.75
Maid Servant	15	10.71	12	37.50	27	15.79
N/A	100	71.43	13	40.62	113	65.79
Total	140	100	32	100.00	172	100

N/A – means they never worked any job previously.

2. WORKING INFORMATION:

2.1 Job Getting History:

Procedure	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Descent	60	42.86	4	12.50	64	37.20
2. Official Test for Employment	80	57.14	28	87.50	408	62.80
3. Others	0	0.00	0	0.00	0	0.00
Total	140	100.00	32	100	172	100

2.2 Working Days per Week:

Type of Job	Working Days	Frequency	%	Total	Frequency Not found	%	Total
DCC							
Road Cleaner	7 days	140	100.00	140	0	0.00	140
Other Job: Maid Servant	7 days	1	0.71	140	139	99.29	140
Private							
Road Cleaner	7 days	32	100.00	32	0	0.00	32

2.3 Interest to shift job in other ward:

Interested to shift	DCC		Private		Total	
	Frequency	%	Frequency		Frequency	
1. Yes	71	50.71	21	65.63	92	53.49
2. No	69	49.29	11	34.37	80	46.51
Total	140	100	32	100	172	100

Reason for Not Shifting:

Reason	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
▪ This ward is suitable for children education	4	5.80	1	9.09	5	6.25
▪ Easy Transportation and staying long time in this area	3	4.35	0	0.00	3	3.75
▪ Working here for a long time	12	17.39	0	0.00	12	15.00
▪ Familiar With this area	5	7.24	0	0.00	5	6.25
▪ Reading in permanent house	1	1.45	0	0.00	1	1.25
▪ Workplace is near to residence	44	63.77	8	72.73	52	65.00
▪ Husband also work in this ward	0	0.00	1	9.09	1	1.25
▪ Did no t provide any answer	0	0.00	1	9.09	1	1.25
Total	69	100	11	100	80	100

2.4 Finding Hazardous Waste:

Finding Hazardous Waste	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Yes	66	47.14	11	34.37	77	44.77
2. No	74	52.86	21	65.63	95	55.23
Total	140	100	32	100	172	100

2.4a Type of Hazardous Wastes:

Types	DCC		Private	
	Frequency	%	Frequency	%
1. Carbon Battery	54	38.57	8	25.00
2. Expired Medicine Bottle	63	45	10	31.25
3. Explosive Related Waste	5	3.57	3	9.38
4. Others	10	7.14	2	6.25

** Others mean broken glass, can, dead animals etc.*

2.4 –b Place Where Hazardous Wastes is Found:

Place of Finding Hazardous Waste	DCC		Private	
	Frequency	%	Frequency	%
Beside the Road	58	12.12	11	100.00
Beside Container	1	1.51	0	0.00
Beside Road or Dustbin	4	6.06	0	0.00
Beside the Dustbin	1	1.51	0	0.00
In Drain	1	1.51	0	0.00
On the Road or in the Waste	1	1.51	0	0.00
Total	66	100	11	100

3. ACCIDENT HISTORY/RECORD:

3.1 Accident/Sickness:

Accident/Sickness	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Yes	110	78.57	21	65.63	131	76.16
2. No	30	21.43	11	34.37	41	23.84
Total	140	100	32	100	172	100

3.2 Accident or Sickness History

Types of Accident/Sickness	DCC	Private
	Frequency	Frequency
Accident	6	1
Acidity, Asthma & Itching	1	3
Chest pain	2	-
Dengue	2	-
Diarrhea	2	1
Dysentery	1	-
Fever	49	12
Viral Fever	11	1
Typhoid	8	-
Heart Disease	1	-
Injured by a bomb	1	-
Left hand injury by a hidden bomb in the waste	1	-
Jaundice	12	2
Jaundice & Respiratory problem	1	-
Jaundice & Fever	2	-
Leg injury by glass	1	-
Liver Pain	1	-
Malaria	4	-
Sick but Not mentioned any disease	1	-
Eye Operation	1	-
Stomach Pain	2	-
Toothache	-	1
Total	110	21

3.3 Treatment Taken:

Treatment Taken	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Yes	96	82.27	19	90.47	115	87.78
2. No	14	12.73	2	9.52	16	12.21
Total	110	100.00	21	100	131	99.99

3.4 Getting any subsidy:

Subsidy Taken	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Yes	13	13.54	1	5.28	14	12.17
2. No	83	86.45	18	94.73	101	87.82
Total	96	100.00	19	100	115	100

3.5 Subsidy Given By & Amount of Subsidy:

Subsidy Given By	DCC				Private			
	Purpose	Amount (Tk).	Frequency	%	Purpose	Amount (Tk).	Frequency	%
DCC	Treatment	800 – 1000	2	15.38	-	0.00	0	0.00
Dhaka Medical College Hospital	Treatment	500, 800 & 2000	3	23.08	-	0.00	0	0.00
A person by donation	Treatment	1000	1	7.69	-	0.00	0	0.00
Respondent's Father	Treatment	1,000 & 20,000	2	15.38	-	0.00	0	0.00
Husband	Treatment	30,000	1	7.69	Treatment	1,000	1	100.00
Relative	Treatment	400 & 700	2	15.38	-	0.00	0	0.00
Unknown Person	Treatment	100 & 1,000	2	15.38	-	0.00	0	0.00
Total			13	100	-		1	100

3.6 Got Subsidy For the Death Relatives who Worked for Waste Management:

Subsidy Taken	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Yes	38	27.14	3	9.37	41	26.45
2. No	102	72.86	29	90.63	114	73.55
Total	140	100.00	32	100	155	100

3.6.1 Subsidy Amount for the Dead Workers:

Subsidy Amount (Tk.)	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1000	2	5.26	0	0.00	2	4.87
1001 – 1500	10	26.32	0	0.00	10	24.39
1501 – 2000	4	10.53	1	33.33	5	12.19
2001 – 2500	2	5.26	0	0.00	2	4.87
2501 – 3000	4	10.53	2	66.67	6	14.65
3001 – 3500	0	0.00	0	0.00	0	0.00
3501 – 4000	6	15.79	0	0.00	6	14.65
4001 – 4500	1	2.63	0	0.00	1	2.45
4501 – 5000	2	5.26	0	0.00	2	4.87
5001 +	2	5.26	0	0.00	2	4.87
N/A	5	13.16	0	0.00	5	12.19
Total	38	100.00	3	100	41	100

3.6.2 Type of occupation :

Occupation	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Road Cleaner	20	52.63	2	66.67	22	53.65
2. Deep Drain Cleaner	1	2.63	0	0.00	1	2.43
3. Truck Cleaner	8	21.05	0	0.00	8	19.52
4. Container Cleaner	0	0.00	0	0.00	0	0.00
5. Truck/Container Driver	5	13.16	0	0.00	5	12.19
6. Heavy Equipment Operator	2	5.26	1	33.33	3	7.31
7. Others	0	0.00	0	0.00	0	0.00
8. I don't know	2	5.26	0	0.00	2	4.88
Total	38	100.00	3	100	41	99.98

4. QUESTION RELATED TO THE JOB:

4.1 Any obstruction faced:

Obstruction faced	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Yes	2	1.43	2	6.25	4	2.32
2. No	138	98.57	30	93.75	168	97.68
Total	140	100.00	32	100	172	100

4.1.1 Obstruction Made By:

Obstruction Made By	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
Dwellers	1	50.00	2	100	3	75.00
Waste Picker	1	50.00	-	-	1	25.00
Others	0	0.00	0	0.00	0	0.00
Total	2	100	2	100	4	100

4.2 Number of Cleaners Engaged in Wards:

Working Area	DCC		Private		Total	
Ward Number	Frequency	%	Frequency	%	Frequency	%
47	23	16.43	-	-	23	13.37
49	23	16.43	-	-	23	13.37
52	24	17.14	-	-	24	13.95
60	23	16.43	-	-	23	13.37
74	24	17.14	-	-	24	13.95
84	23	16.43	-	-	23	13.39
1	-	-	8	25.00	8	4.65
17	-	-	8	25.00	8	4.65
19	-	-	8	25.00	8	4.65
38	-	-	8	25.00	8	4.65
Total	140	100	32	100	172	100

4.3 Working Responsibilities:

Responsibilities	DCC		Private	
	Found	%	Found	%
1. Road Sweeping	130	92.86	30	93.75
2. Collecting garbage from roads and put into handcart	128	91.43	29	90.63
3. Surface drain cleaning	1	0.71	0	0.00
4. Bring collected garbage to bin/containers	1	0.71	0	0.00
5. Cleaning around bins/containers	0	0.00	1	3.13
6. Others	0	0.00	0	0.00

4.4 Working Time: DCC Workers:

DCC

Work Duration	Frequency
4 am to 8 am	30
4 am to 9 am	10
4 am to 10 am	6
5 am to 11 am	3
5 am to 9 am	11
5 am to 10 am	3
5 am to 7 am	1
5 am to 11 am	3
5 am to 8:30 am	6
5 am to 11 am	3
5 am to 7:30 am	1
5:30 am to 10 am	3
5 am to 7:30 am	1
5 am to 9 am	20
5 am to 8 am	16
5:30 am to 8:30 am	2
6 am to 12 pm	3
6 am to 9 am	5
6 am to 9 am	3
6 am to 12 pm	3
6 am to 8 am	1
6 am to 2 pm	1
6 am to 8:30 am	4
7 am to 9 am	1
Total	140

Private

Work Duration	Frequency
6.30 am to 12 pm	1
6 am to 10 am	1
6 am to 12 pm	9
7 am to 12 pm	1
5 am to12 pm	2
5 am to 1 pm	1
5.30 am to 12 pm	1
5 am to 9.30 am	1
5 am to 10 am	5
4 am to 10 am	3
6 am to 11am; 2 pm to 5 pm	5
5 am to 11 am	2
Total	32

4.4.3 Time Sufficiency for Completing Work:

Time Sufficiency	DCC		Private	
	Frequency	Percentage	Frequency	Percentage
1. Yes	128	91.43	30	93.75
2. No	12	8.57	2	6.25
Total	140	100.00	32	100.00

4.4.4 Reason of Not Sufficiency of Time:

Reason	DCC		Private	
	Frequency	%	Frequency	%
Much Work Load	5	41.67	-	-
Too many streets to work	1	8.33	-	-
Didn't give any reason	6	50.00	2	100.00
Total	12	100.00	2	100.00

4.5a Creating the Surrounding Side of Container/Bin Dirty:

Making the Place Dirty by	DCC				Private			
	Found	%	%	Total	Found	%	%	Total
1. Waste Picker	19	13.57	86.43	140	10	31.25	68.75	32
2. Animal	23	16.43	83.57	140	9	28.13	71.87	32
3. Dweller	23	16.43	83.57	140	0	0.00	100	32
4. Others	1	0.71	99.29	140	6	18.75	81.25	32

4.5b Making the Street Dirty:

Making the Street Dirty by	DCC					Private				
	Found	%	Not Found	%	Total	Found	%	Not Found	%	Total
1. Waste Pickers	67	47.86	73	52.14	140	6	18.75	26	81.25	32
2. Dwellers	83	59.29	57	40.71	140	24	75.00	8	25.00	32
3. Driver	64	45.71	76	54.29	140	12	37.50	20	62.50	32
4. Worker in Market	117	83.57	23	16.43	140	28	87.50	4	12.50	32
5. Others	**86**	61.43	54	38.57	140	**20**	62.50	12	37.50	32
Pedestrians	**67**	**77.91***	-	-	-	14	70.00*	-	-	-
Uprooted Men	3	3.49*	-	-	-	-	-	-	-	-
Pedestrians & Uprooted Men	15	17.44*	-	-	-	6	30.00*	-	-	-
Vegetable Grocers	1	1.16*	-	-	-	-	-	-	-	-

5. EXPENDITURE AND SAVINGS

Expenditure on Housing:

Expenditure (Tk.)	DCC		Private	
	Frequency	%	Frequency	%
No Expense	46	32.85	4	12.50
100 – 300	49	35.00	0	0.00
301 – 600	17	12.14	11	34.37
601 – 900	13	9.28	5	15.62
901 – 1200	12	8.57	11	34.37
1201 – 1500	2	1.42	1	3.15
More than 1500	1	0.71	0	0.00
Total	140	100	32	100

Expenditure on Health:

Expenditure (Tk.)	DCC		Private	
	Frequency	%	Frequency	%
No Expense	2	1.42	2	6.25
1 – 100	18	12.85	11	34.37
101 – 200	57	40.71	10	31.25
201 – 300	33	23.57	5	15.62
301 – 400	8	5.71	1	3.15
401 – 500	16	11.42	2	6.25
More than 500	6	4.28	1	3.15
Total	140	100	32	100

Expenditure on Education:

Expenditure (Tk.)	DCC		Private	
	Frequency	%	Frequency	%
No Expense	38	27.14	11	34.37
1 – 100	6	4.28	6	18.75
101 – 200	24	17.14	8	25.00
201 – 300	19	13.57	2	6.25
301 – 400	15	10.71	0	0.00
401 – 500	26	18.57	1	3.15
More than 500	12	8.57	4	12.50
Total	140	100	32	100

Expenditure on Food:

Expenditure (Tk.)	DCC		Private	
	Frequency	Percentage	Frequency	Percentage
No Expense	1	0.71	0	0.00
Up to 1000	19	13.57	6	18.75
1001 – 1500	43	30.71	14	43.75
1501 – 2000	32	22.85	7	21.87
2001 – 2500	19	13.57	4	12.50
2501 – 3000	15	10.71	0	0.00
3001 – 3500	2	1.42	0	0.00
3501 – 4000	4	2.85	1	3.15
More than 4000	5	3.57	0	0.00
Total	140	100	32	100

Expenditure on Transport

Expenditure (Tk.)	DCC		Private	
	Frequency	%	Frequency	%
No Expense	24	17.14	10	31.25
1 – 100	8	5.71	2	6.25
101 – 200	34	24.28	13	40.62
201 – 300	34	24.28	5	15.62
301 – 400	14	10.00	0	0.00
401 – 500	17	12.14	2	6.25
More than 500	9	6.42	0	0.00
Total	140	100	32	100

Monthly Expenditure on Others

Expenditure (Tk.)	DCC		Private	
	Frequency	Percentage	Frequency	Percentage
No Expense	46	32.85	20	62.50
1 – 100	3	2.14	0	0.00
101 – 200	12	8.57	1	3.12
201 – 300	5	3.57	0	0.00
301 – 400	2	1.42	0	0.00
401 – 500	11	7.85	4	12.50
More than 500	61	43.57	7	21.87
Total	140	100	32	100

Total Monthly Expenditure of Family:

Expenditure (Tk.)	DCC		Private	
	Frequency	Percentage	Frequency	Percentage
Up to 2000	8	5.71	4	12.50
2001 – 3000	38	27.14	9	28.12
3001 – 4000	51	36.42	15	46.87
4001 – 5000	28	20.00	3	9.37
More than 5000	15	10.71	1	3.12
Total	140	100	32	100

Monthly savings by Family:

Amount (Tk.)	DCC		Private	
	Frequency	Percentage	Frequency	Percentage
No Savings	44	31.43	10	31.25
Up to 200	14	10	3	9.37
201 to 500	45	32.14	7	21.87
501 to 1000	21	15	5	15.62
1001 to 1500	10	7.14	5	15.62
1501 to 2000.	4	2.86	1	3.13
2001 to 2500	1	0.71	1	3.13
More Than 2500	1	0.71	0	0.00
Total	140	100	32	100

6. LIVING CONDITION:

6.1 Living Place:

Place	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Quarter of DCC Colony	66	47.14	0	0.00	66	38.37
2. Self Made House in DCC Colony/Land	39	27.86	0	0.00	39	22.67
3. Own House	0	0.00	0	0.00	0	0.00
4. Rental House	25	17.86	18	56.25	43	25.00
5. Slum	8	5.71	11	34.37	19	11.05
6. Others	1	0.71	3	9.38	4	2.32
Did not Mention	1	0.71	0	0.00	1	0.59
Total	140	100	32	100	172	100

6.2 Utility Service Available:

Utility Service Available	DCC					Private				
	Available	%	Not Available	%	Total	Available	%	Not Available	%	Total
1. Electricity	140	100	0.00	0.00	140	32	100.00	0	0.00	32
2. Water Supply	126	90.00	14	10.00	140	31	96.88	1	3.12	32
3. Gas	26	18.57	114	81.43	140	11	34.37	21	65.60	32
4. Toilet	138	98.57	2	1.43	140	29	90.63	3	9.37	32
5. Sewerage	45	32.14	95	67.85	140	7	21.86	25	78.14	32
6. Solid Waste Collection System	12	8.57	128	91.43	140	0	0.00	32	100.00	32
7. Others	0	0.00	140	100.00	140	0	0.00	32	100.00	32

6.3 Rental Cost Per Month:

Per Month Rental Cost (Tk.)	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. No Rent	90	64.29	3	9.36	93	54.07
2. Up to 500	14	10.00	9	28.13	23	13.38
3. 501 to 1000	24	17.14	17	53.13	41	23.83
4. 1001 to 1500	9	6.43	1	3.13	10	5.81
5. 1501 to 2000	1	0.71	0	0.00	1	0.59
6. More than 2000	0	0.00	0	0.00	0	0.00
No Information Given	2	1.42	2	6.25	4	2.32
Total	140	100	32	100	172	100

6.4 Difficulties in Home & Family:

DCC Workers:

Types of Difficulties	1st	%	2nd	%	3rd	%	4th	%
1. Lack of Job Opportunity	**47**	**33.57**	3	2.14	1	0.71	6	4.28
2. Less Salary & Facilities	88	62.85	41	29.28	2	1.42	0	0
3. Lack of Social Acceptance	2	1.42	23	16.42	9	6.42	13	9.28
4. Lack of education for Kids	1	0.71	36	25.71	24	17.14	7	5
5. High cost of treatment	0	0	24	17.14	36	25.71	8	5.71
6. Space problem in The House	0	0	6	4.28	12	8.57	6	4.28
8. Lack of Safe Water	0	0	4	2.85	32	22.85	12	8.57
8. Lack of Toilet Facilities	2	1.42	3	2.14	19	13.57	61	43.57
9. Lack of Electricity	0	0	0	0	0	0	2	1.42
Bad Sanitary Condition	0	0	0	0	3	2.14	13	9.28
Others (Gas Problem)	0	0	0	0	2	1.42	4	2.85
Total	140	100	140	100	140	100	140	100

Private Workers:

Difficulties	1st	%	2nd	%	3rd	%	4th	%
1. Lack of Job Opportunity	11	34.38	2	6.25	2	6.25	3	9.37
2. Less Salary & Facilities	20	62.5	11	34.38	0	0	0	0.00
3. Lack of Social Acceptance	0	0	5	15.63	3	9.38	5	15.62
4. Lack of education for Kids	0	0	3	9.38	5	15.63	2	6.25
5. High cost of treatment	0	0	3	9.38	5	15.63	6	18.75
6. Space problem in The House	0	0	2	6.25	2	6.25	0	0.00
8. Lack of Safe Water	0	0	0	0	0	0	0	0.00
8. Lack of Toilet Facilities	0	0	5	15.65	3	9.38	3	9.37
9. Lack of Electricity	0	0	0	0	8	25	0	0.00
Bad Sanitary Condition	0	0	0	0	1	3.15	2	6.25
Others	0	0	0	0	2	9.31	10	31.25
No Answer provided by respondents	1	3.15	1	3.15	1	3.15	1	3.12
Total	32	100	32	100	32	100	32	100

7. Commuting

7.1 Commute/Transport Cost:

Commute/Transport Cost/Day	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. By Walk	105	75.00	31	96.87	136	79.06
2. By Cycle	2	1.42	0	0.00	2	1.16
3. 1 to 10 Tk. Per day	30	21.43	1	3.13	31	18.02
4. 11 to 20 Tk. Per day	3	2.14	0	0.00	3	1.74
5. More than 20 Tk.	0	0.00	0	0.00	0	0.00
6. Others	0	0.00	0	0.00	0	0.00
Total	140	100	32	100	172	100

7.2 Time Needed to Come Workplace:

Time	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. 30 Minutes	99	70.71	30	93.75	129	75.00
2. 31 to 60 Minutes	41	29.29	2	6.25	43	25.00
3. More than 60 Minutes	0	0.00	0	0.00	0	0.00
Total	140	100.00	32	100.00	172	100

8. Others

8.1 Living Condition Improved in Last 5 years:

Living Condition Improved	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Yes	78	55.71	21	65.63	99	57.56
2. No	62	44.28	11	34.37	73	42.44
Total	140	100.00	32	100.00	172	100

8.2 Income Increased:

Income Increased	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Yes	97	69.29	18	56.25	115	66.86
2. No	43	30.71	14	43.75	57	33.13
Total	140	100.00	32	100.00	172	100

8.3 Continuing Road Cleaning Job in Future:

Continuing Job	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Yes	126	90.00	26	81.25	152	88.38
2. No	14	10.00	6	18.75	20	11.62
Total	140	100.00	32	100.00	172	100

8.3.1 How Long to Continue:

How Long to Continue	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. 5 Y ears	1	0.71	0	0.00	1	0.58
2. 10 Years	1	0.71	1	3.13	2	1.16
3. 15 Years	0	0.00	0	0.00	0	0.00
4. As much as possible	67	47.86	20	62.50	87	50.58
5. Not Sure	59	42.14	9	28.15	68	39.53
6. Others	0	0.00	0	0.00	0	0.00
N/A	12	8.57	2	6.25	14	8.13
Total	140	100.00	32	100.00	172	100

N/A- means that they did not mention anything.

8.4 Liking this Job:

Liking the job	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Yes	92	65.71	20	62.50	112	65.11
2. Not	42	30	11	34.37	53	30.81
No Answer	6	4.29	1	3.13	7	4.08
Total	140	100	32	100	172	100

Reason why liking the job

DCC Workers	Private Workers
• Colony facilities & short duration of work time • Time is available to do other job • We get space facilities • We get colony facilities • Short duration of work time • We get residence facilities • Short duration of work hour • Scope is available to do other job	• Work time is short • Salary has been increased in last 5 year • Short duration of work hours

8.4.1 Reason for not liking the job

DCC Workers	Private Workers
• Salary is not increased • Lack of facilities & Social acceptance • Lack of better facilities • No future in this job • Heavy work load • We don't get residence facilities • Our living condition is not developed • We don't get any better job • Low Income • Work time is not suitable • Never develops our living condition • People don't respect us • Poor amount of overtime allowances • Duration of work is short.	• Lack facility • Private company do not give any facilities • No residential facility • Lack of social acceptance • No future in this job • Lack of social acceptance.

8.5 Steps for Betterment of Children:

Steps taken for Children	DCC		Private		Total	
	Frequency	%	Frequency	%	Frequency	%
1. Nothing	16	11.42	5	15.63	21	12.20
2. Admitted to School but did not continue	9	6.43	6	18.75	15	8.75
3. Admitted to School	95	67.86	16	50.00	111	64.53
4. Others	4	2.86	0	0.00	4	2.32
No Answer	16	11.43	5	15.63	21	12.20
Total	140	100	32	100.00	172	100

Level of Education of the School Going Children:

Level of Education	DCC					Private				
	Going	%	Not Available	%	Total	Available	%	Not Available	%	Total
1. Primary	80	84.21	15	15.78	95	10	62.50	6	37.50	16
2. Junior Secondary	33	34.73	62	65.26	95	4	25.00	12	75.00	16
3. Secondary	10	10.52	85	89.47	95	2	12.50	14	12.50	16
4. Higher Secondary	1	1.05	94	98.94	95	-	-	-	-	-
5. Bachelor's Degree	-	-	-	-	-	-	-	-	-	-
6. Master's Degree	-	-	-	-	-	-	-	-	-	-
7. Doctor's Degree	-	-	-	-	-	-	-	-	-	-
Others	1	1.05	94	98.94	95	-	-	-	-	-

PART II:
Difficulties in Working

DCC Workers:

Types Difficulties	1st	%	2nd	%	3rd	%	4th	%	Frequency	%
1. Danger by Medical or Industrial Waste	10	7.14	7	5	2	1.42	6	4.28	25	17.85
2. Working without Proper Uniform	108	77.14	10	7.14	1	0.71	1	0.71	120	85.71
3. Lack of equipment	1	0.71	9	6.42	1	0.71	0	0	11	7.85
4. Working with old Handcart	0	0	21	15	3	2.14	2	1.42	26	18.57
5. Equipment is not suitable	2	1.42	46	32.85	9	6.42	3	2.14	60	42.85
6. Insufficient number of Road Cleaners	5	3.57	9	6.42	20	14.28	3	2.14	37	26.42
7. Short time to complete work	0	0	0	0	1	0.71	0	0	1	0.71
8. People are not cooperative	8	5.71	6	4.28	27	19.28	11	7.85	52	37.14
9. People do not respect cleaners	3	2.14	7	5	25	17.85	19	13.57	54	38.57
10. People don't dispose waste timely	0	0	3	2.14	2	1.42	6	4.28	11	7.85
11. Waste Pickers make the place dirty	2	1.42	2	1.42	8	5.71	10	7.14	22	15.71
12. Construction materials on Road	1	0.71	6	4.28	7	5	10	7.14	24	17.14
13. Parked cars on Road	0	0	3	2.14	5	3.57	11	7.85	19	13.57
14. Danger for coming to the work & leave	0	0	6	4.28	21	15	28	20	55	39.28
15. Facing Health Problem	0	0	5	3.57	8	5.71	30	21.40	43	30.71
Total	140	100	140	100	140	100	140	100	560	100

Private Workers:

Types of Difficulties	1st	%	2nd	%	3rd	%	4th	%	Frequency	%
1. Danger by Medical or Industrial Waste	2	6.25	3	9.37	0	0	0	0	5	3.90
2. Working without Proper Uniform	23	71.87	4	12.50	0	0	0	0	27	21.09
3. Lack of equipment	1	3.12	0	0	0	0	0	0	1	0.78
4. Working with old Handcart	0	0	0	0	0	0	0	0	0	0
5. Equipment is not suitable	0	0	14	43.75	0	0	1	3.12	15	11.72
6. Insufficient number of Road Cleaners	4	12.50	5	15.62	4	12.50	0	0	13	10.15
7. Short time to complete work	0	0	0	0	0	0	0	0	0	0
8. People are not cooperative	0	0	1	3.12	1	3.12	6	18.75	8	6.25
9. People do not respect cleaners	1	3.12	2	6.25	3	9.37	7	21.87	13	10.15
10. People don't dispose waste timely	0	0	1	3.12	0	0	0	0	1	0.78
11. Waste Pickers make the place dirty	0	0	1	3.12	1	3.12	3	9.37	5	3.90
12. Construction materials on Road	0	0	0	0	7	21.87	0	0	7	5.46
13. Parked cars on Road	0	0	0	0	0	0	1	3.12	1	0.78
14. Danger for coming to the work & leave	0	0	0	0	13	40.62	5	15.62	18	14.06
15. Facing Health Problem	0	0	0	0	2	6.25	8	25	10	7.81
No Answer	1	3.12	1	3.12	1	3.12	1	3.12	4	3.12
Total	32	100	32	100	32	100	32	100	128	100

STUDY ON SOLID WASTE MANAGEMENT IN DHAKA CITY

SURVEY FOR ROAD CLEANERS

DCC-JICA Joint Study Team

PART - I

☐ **DCC** ☐ **Private**

Location: _____ Ward No:_____ Zone No.: _____

Date: _____ Time: _____

Name of Interviewer : _____

1. GENERAL INFORMATION

Sl. No.	Personal Category	Household Status	Age	Sex	Type of Occupation/Job	Monthly Income	Education level/Literacy
01	Respondent						
02.	**Other Family Members**						

Age Group:	**Educational Level:**	**Sex**	**Occupation**
1. 0-9	1. Never Studied in any educational institutions	1. Male	
2. 10-14	2. Primary Education (Grade 1-5)	2. Female	1. Housewife
3. 15-25	3. Junior Education(Grade 6-8)	**Monthly Income**	2. Student
4. 25-34	4. Secondary (Grade 9-10)	1. < 1000	3. Rickshaw Puller
5. 35-44	5. Higher Secondary Education (Grade 11-12)	2. 1000-1500	4. Business
6. 45-54	6. Bachelors Degree	3. 1500-2000	5. Daily labour
7. 55-64	7. Others:.....	4. 2000-2500	6. Unemployed
8. 65+	.....	5. 2500-3000	7. Others.....
		6. 3000+	.....

1.1 For any ethnic group/caste

Name of caste/group	Religion	Mother Tongue/Language

1.2 Employment Information

☐ 1. Permanent Status
☐ 2. Daily Base Status

1.3 How long are you working in present job as road cleaner ?

☐ 1. 0 - 5 years ago
☐ 2. 5 - 10 years ago
☐ 3. 10 - 15 years ago
☐ 4. 15 - 20 years ago
☐ 5. < 20 years

1.4 Previous Employment

Record_____

2. WORKING INFORMATION

2.1 How did you get this job ?

☐ 1. Descent
☐ 2. Official test for DCC employment
☐ 3. Others : please specify

_____

2.2 Working days in a week

Type of Job	Working Days/Week
Road Cleaner	
Other Job(Specify)	
i.	
ii.	
iii.	

2.3 Do you accept if you have to shift to others Ward/Zone ☐ 1. Yes ☐ 2. No
If no, what is the reason

_____

2.4 When you work, did you find any hazardous waste ☐ 1. Yes ☐ 2. No
If yes, what are the wastes?

Item	**Where**
☐ 1. Carbon Battery	
☐ 2. Expired Medicine Bottle	
☐ 3. Explosive related waste	
☐ 4. Others (specify) i) _____ ii) _____ iii) _____	

3. ACCIDENT HISTORY/RECORD

3.1 Any sickness/accident during last two years ? ☐ 1. Yes ☐ 2. No
3.2 If yes, how it was caused & when?

_____

3.3 Did you take any treatment? ☐ 1. Yes ☐ 2. No
3.4 Did you get any subsidy? ☐ 1. Yes ☐ 2. No
3.5 If yes, in what case : _____
by whom : _____
how much ? : _____
3.6 Did your family/relatives/friends working as DCC cleaner/drivers get any subsidy from DCC due to death ? ☐ 1. Yes ☐ 2. No
3.6.1 If yes, How much? : _____
3.6.2 What is his/her occupation ? _____
☐1. Road Cleaner
☐2. Deep Drain Cleaner
☐3. Truck Cleaner
☐4. Container Cleaner
☐5. Truck/Container Driver
☐6. Heavy Equipment Operator
☐7. Others : please specify_____
☐8. I do not know

4. QUESTIONS RELATED TO THE JOB

4.1 Any obstruction faced in work as a Road Cleaner ? ☐ 1. Yes ☐ 2. No
4.1.1 If yes, by whom & how you were obstructed

Organization/Job	**How?**
☐ 1. Dwellers	
☐ 2. Waste Pickers	
☐ 3. Others (specify)	
i.	
ii.	
iii.	

4.2 Working Area

a. Ward Number	b. Name of Street

4.3 What are your responsibilities as a road cleaner ? (multiple answers acceptable)

☐ 1. Road Sweeping
☐ 2. Collecting garbage from roads and put into handcart
☐ 3. Surface drain cleaning
☐ 4. Bring collected garbage to bins/containers
☐ 5. Cleaning around bins/containers
☐ 7. Others : please specify_____

4.4 Working Time

☐ 4.4.1 Official Working Time : From _____ To _____
☐ 4.4.2 Actual Working Time : From _____ To _____
☐ 4.4.3. Is time sufficient for your work ☐ 1. Yes ☐ 2. No
☐ 4.4.4 If not, why ? _____

4.5 Who are going make dirty in your working place? (multiple answer acceptable)

A. Surrounding bin/Container
☐ 1. Waste Picker
☐ 2. Animal
☐ 3. Dwellers
☐ 4. Others, Specify _____

B. Street
☐ 1. Waste Picker
☐ 2. Dwellers
☐ 3. Driver
☐ 4. Worker in market
☐ 5. Others, Specify_____

5. Expenditure and Savings

Sl. No.	Monthly Expenditure Heads	Amount per month
A.	1. Housing	
	2. Health	
	3. Education	
	4. Food	
	5. Transport	
	6. Others, Specify	
B.	**Monthly Savings**	

6. LIVING CONDITION

6.1 Where are you living

☐ 1. Quarter of DCC Colony, Name of the Colony_____
☐ 2. Self made house in DCC Colony/DCC Land
Name of the place_____
☐ 3. Own House
☐ 4. Rental house
☐ 5. Slum
☐ 6. Others, Specify _____

6.2 Services available (Explain)
- ☐ 1. Electricity
- ☐ 2. Water supply
- ☐ 3. Gas
- ☐ 4. Toilet
- ☐ 5. Sewerage
- ☐ 6. Solid Waste collection System
- ☐ 7. Others, Specify_____

6.3 Rental cost per month
- ☐ 1. No rent
- ☐ 2. 01-500 Tk.
- ☐ 3. 501-1000 Tk.
- ☐ 4. 1001 – 1500 Tk.
- ☐ 5. 1501 – 2000 Tk.
- ☐ 6. More than 2000 Tk.

6.4 Which constraint/difficult do you feel in your home and family? Please choose four large constraints from following example and order of big 1,2,3,4?
- ☐ 1. Lack of job opportunity
- ☐ 2. Less salary and facilities
- ☐ 3. Lack of social acceptance
- ☐ 4. Lack of educational opportunity for kids
- ☐ 5. High expenditure for treatment
- ☐ 6. Insufficient space in colony/house
- ☐ 8. Lack of safe water
- ☐ 9. Lack of toilet facilities
- ☐ 10. Lack of electricity
- ☐ 11. Bad sanitation condition
- ☐ 12. Others, Specify_____

Note : *Select 4 problems and arrange them from high to low*.

7. Commute

7.1 How much are you paying for (commute) transport to come for work in a day (round trip)?
- ☐ 1. By walk
- ☐ 2. By cycle
- ☐ 3. 1-10 Tk per day
- ☐ 4. 11-20 Tk per day
- ☐ 5. Over 20 Tk
- ☐ 6. Others, Specify_____

7.2 How many minutes does it take to come (one way) from your house ?
- ☐ 1. 0 – 30 minutes
- ☐ 2. 31 – 60 minutes
- ☐ 3. More than 60 minutes

8. OTHERS

8.1 Do you feel your living condition has improved compared to last 5 years ago ?
☐ 1. Yes ☐ 2. No

8.2 Do you feel your income has increased as a road cleaner compared to last 5 years ago?
☐ 1. Yes ☐ 2. No

8.3 Will you continue the job in future? ☐ 1. Yes ☐ 2. No

8.3.1 If yes, how long?
- ☐ 1. 5 years
- ☐ 2. 10 years
- ☐ 3. 15 years
- ☐ 4. As much as possible
- ☐ 5. Not sure
- ☐ 6. Others_____

8.4 Do you like this job ? ☐ 1. Yes ☐ 2. No
8.4.1 If yes, why? _____

8.5 What are you doing for betterment for your children?)
☐ 1. Nothing
☐ 2. Admitted into school but not continue
☐ 3. Admitted into school
3.1. Primary education (Grade 1-5) _____
3.2 Junior secondary education (Grade 6-8) _____
3.3. Secondary education (Grade 9-10) _____
3.4. Higher secondary education (Grade 11-)_____
3.5. Bachelor's degree_____
3.6. Master's degree_____
3.7. Doctor's degree_____
☐ 4. Others (Specify) _____

PART - II SPECIFIC QUESTIONNAIRE FOR ROAD CLEANERS

ADD-1 Which constraint/difficult do you feel in your work ? Please choose four constraints from the following example and order of big 1,2,3,4 ?

☐ 1. Danger by medical/ industrial waste in cleaning the surrounding area of bin/container
☐ 2. Waste handling without proper dress (dress, shoe, gloves etc.)
☐ 3. Lack of cleaning equipment
☐ 4. Difficult to work due to old handcarts
☐ 5. Cleaning equipment is not suitable for the work
☐ 6. Insufficient number of Road Cleaners
☐ 7. Working time is too short to complete required work
☐ 8. Peoples are not cooperative
☐ 9. Peoples do not respect cleaners
☐ 10. Peoples do not dispose waste in proper time
☐ 11. Waste pickers make the surrounding places of bin/container dirty
☐ 12. Construction materials dumped on the road
☐ 13. Parked cars on road
☐ 14. Difficult/danger when coming to work place in early morning or going home in late at night
☐ 15. Facing health problem due to this work

ADD-2 Any request to DCC or Dwellers and others for improvement of your work condition?

☐ To DCC (Inspector/CCO/etc) or Private Company(zone 9 & 10)
_____
☐ To Dwellers_____
☐ To Ward Commissioner_____
☐ To Female Ward Commissioner_____
☐ To Others_____

ADD-3 Observation made by the Interviewer :

Ground	Comments
Specific Skill, if any	
Occupational hazards	
Zeal for job	
Number of blister in two hands	

Recommendation_____
__
_____
___

Name of Supervisor :		Signature:	

11. NGOs and CBOs Survey

11. NGOs and CBOs Survey

11.1 Survey Objectives

The objective of the survey is to obtain information on NGOs/CBOs involved in solid waste management in Dhaka City in order to identify roles of NGOs/CBOs, mechanism of NGOs/CBOs activities in the system of solid waste management in Dhaka City, and appropriate measures to promote the activities.

11.2 Survey Period：

From February to March, 2004.

11.3 Methodology of the Survey

This survey consists of four phases as follow:

- Listing up NGOs and CBOs
- Preparation of NGOs and CBOs profiles
- Case Studies on NGOs and CBOs
- Detailed surveys on NGOs and CBOs activities in selected 3 wards

(1) Listing up NGOs and CBOs

In order to list up NGOs and CBOs related to solid waste management in Dhaka City, the data and information were collected from the secondary sources including DCC, BIEDF (Bangladesh Integrated Environment Development Forum) and Zonal Offices of the Department of Social Welfare.

(2) Preparation of NGOs and CBOs profiles

All listed NGOs and CBOs with telephone number were contacted on phone to ascertain correct address and details of other activities. Following this, 20 organizations were visited to prepare profiles.

(3) Case Studies on NGOs and CBOs

The case study of the four organizations was conducted by visiting them and having interviews in order to learn from their experiences in detail. Follwoing four organizations were selected from the list of identified NGOs/CBOs for the detail case study..

- Social Environment Development Organization (SEDO): Ward 81
- Haq Bhai Bhai Cleaning Service (HBBCS): Ward 45
- Mirpur Somaj Kallyan O Sangskritik Ongon (MSKOSO): Ward 2
- Maloncho Somobai Samiti (MSS): Ward 24

(4) Detailed Survey on NGOs/CBOs Activities in Selected Four Wards

Survey to identify all NGOs and CBOs working in the selected wards was conducted. Not all organizations/persons providing door-to-door collection services and other activities are registered at government agencies. In order to grasp the situation of small scale activities initiated by various organizations/persons, existing NGOs/CBOs were identified and surveyed through field observations and interviews with ward commissioners, DCC ward inspectors, community key persons, residents and other related persons. The four Wards coverd by the survey were: Ward 68 and 69 in Old Dhaka, and Ward 11 and 24 in New Dhaka.

11.4 Survey Results

Throughout the survey, total 92 NGOs/CBOs involved in Solid Waste Management were listed including those identified by secondary soureces and detalied surveys in selected wards. The basic information is shown in Table 11.4-1.

Figure 11.4-1 List of NGOs and CBOs involved in Solid Waste Management and their Basic Information

SL. No.	Name of NGOs and CBOs	Address and Telephone	Ward and Thana	Year of Establishment/ Starting Date of SWM	Registration No. and Date			No. of General Members	No. of Executive Members	Main Activities	Source of Finance
					Social Welfare	DCC/ NGO Bureau	BIEDF				
1.	Social Environment Development Organization (SEDO)	43/A, Distilary Road, Gandaria, Dhaka	Ward-81 Thana: Sutrapur	1996	Dha-04535/1999 and Jubo Unnayan Odhidapter	-	-	276	21	Collection of Solid Waste Maintain Cleanliness Programme, Environmental Development, Cultural Programme, etc.	Membership fees, Monthly donation, Government & non-government donation, Income from the activities
2.	Moitry Samaj Kallayan Sanghtha	15, Haricharan Roy Road, Faridabadh, Dhaka-1204, Telephone: 7411019	Ward-82, 83 Thana: Demra	1980	Dha-01393 Date: 28.9.1983	-	NGO Bureau No. 520 Date: 10.8.91	280	25	Moitry Night School Computer Training Kendra, Library, Education Programme, Environmental Development, etc.	Membership fees, Monthly donation, Government & non-government donation income from the activities
3.	Porichanna Kalabagan	3, Kalabagan, North Dhanmondi, Dhaka-1205. Tele: 9117376, 018216003	Ward-51 Thana: Dhanmondi	1987	*	*	*	12	05	Solid Waste Management, Environmental Development, Cleanliness Programme	Income from NGO's activities
4.	Desh Kallyan Forum	House # 12, Road #1/A, Banani, Dhaka Telephone: 8810594	Ward 17 Thana: Cantonment	2003	SWF Dha-06694 & Date NA	*	BIEDF No. 14	28	05	Solid Waste Management, Cleanliness Programme, Tree Plantation, Cleanliness of drains	Income from activities of the organization
5.	Moonrise Kallyan Bohumkhi Samabay Samity	794/2, Suoth Shajahanpur, Dhaka-1217 Telephone: 9242772	Ward-34 Thana: Motijheel	1990	Dha-133/1990	*	*	06/05	-	Solid Waste Management	Membership fees, Local and National Aid
6.	Ramna JanaKallyan Sangstha	707, Boro Magbazar, Ramna, Dhaka Telephone: 83154270	Ward-54 Thana: Ramna	1996	Dha-03731/20.11.96 and Jubo Unnayan Odhidapear Dhaka 223/1961	*	BIEDF No. 38	23	11	Solid Waste Management, Cleanliness Programme, Health and Education Programme, Micro –credit Programme, Librari facilities, Vaccination Programme, Environmental Development	Membership fees, Government allowance, Income from organization's activities etc.
7.	Greenway Samaj Kallayan Society	15&20 Greenway, Moghbazar, Dhaka Tel: 9348281	Ward-54, 55 Thana: Ramna	1960	Dha-599/1961	*	*	60	15	Solid Waste Management, Cleanliness Programme, Facilitate night guard service	Fees from households
8.	Rural Health and Development Society (RHDS)	12/16, Azam Road, Block-D, Mohammadpur, Dhaka-1207 Tel:9115915, 0193508773	Ward-44 Thana: Mohammadpur	1992	*	*	Registered with NGO Bureau, Foreign Donation 674/1992	33	07	Solid Waste Management, Health, Education and Family Planning Environmental Improvement and Cleanliness Programme, Vaccination Programme (EPI), Poverty Alleviation, Family Planning and Family Welfare activities	Membership fees, donation, income from organization's activities
9.	Poribesh Porichanna Committee	298, Taly Office Road, Rayer Bazar Dhanmondi, Dhaka Telephone: 8150840	Ward-48 Thana: Dhanmindi	1996	*	-	-	200 (approximately)	20	Solid Waste Management, Health, Education and Cleanliness Programme, Sports & Religious Activities	Income from activities related to solid waste management
10.	Mirpur Samaj Kallayan Krira O Sangaskriti Angan	12-E/D, Bottola, Mirpur-12, Pallabi, Dhaka Telephone: 9007282	Ward-2 Thana: Mirpur	1981	Dha-04396/1995	*	*	84	12	Solid Waste Management, Environment Improvement, Cleanliness Programme, Health, Education and Vaccination (EPI) Programme, Sports and Religious activities	Income from organization's activities
11.	Bhai Bhai Cleaner's Service	Commissioner's Office, Babar Road, Mohammadpur, Dhaka-1207, Telephone: 9127484	Ward 45 Thana: Mohammadpur	2002	*	-	-	05	05	Solid Waste Management, Cleanliness Programme	Income from organization's activities

SL. No.	Name of NGOs and CBOs	Address and Telephone	Ward and Thana	Year of Establishment/ Starting Date of SWM	Registration No. and Date			No. of General Members	No. of Executive Members	Main Activities	Source of Finance
					Social Welfare	DCC/ NGO Bureau	BIEDF				
12.	Welfare Service Forum	43/14, Shamibagh Lane, Dhaka Telephone: 7120740	Ward-76 Thana: Sutrapur	2002	Ministry of Social Welfare Dha-07020	DCC	BIEDF No. 17	33	09	Solid Waste Management, Environmental Development, Cleanliness Programme, Cultural Activities, Poverty Alleviation, Facilities Employment Opportunity for Women	Membership fees, Income from organization's activities
13.	Welfare Association For Rootless	House #4/5, Block-1, Iqbal Road, Mohammadpur Dhaka-1207	Ward-37 (W/W)	1996	Dha-04626/1999	-	NGO Bureau No. 1060/2000	21	07	Solid Waste Management, Micro-credit Programme, Environment Development, Cleanliness Programme, Facilitate Job for Women, Poverty Alleviation	Membership fees, income from organization's activities
14.	Human Opportunity Programme for Enlightenment	66, Ulon Road, Rampura, Dhaka-1219	Ward-22 & 24	1997	Dha-03970/1997	-	34	90	11	Solid Waste Management, Health and Education Programme, Mosquito Eradication Programme	Membership fees, local donation, income from organization's activities and income from assets
15.	Sectoral kallayan Samity	House-58, Road-11,Sector-6, Uttara, Dhaka., Tel: 8916314 (Mr.Monowar Hossain)	Ward-1 (Part of the Ward) Thana: Uttara	1987	Dha-02994/Date not mentioned	-	-	147	19	Solid Waste Management, Environment Development, Cleanliness Activities, Cultural Activities, etc.	Membership fees, local donation, income from organization's activities and income from assets.
16.	Mission For Rural Urban Development (MRUD)	House # 18, Road # 9/B, Sector-5, Uttara Model Town, Dhaka Telephone: 8913957	Ward-1 Thana: Uttara	2003	-	Registered with DCC	*	100	08	Solid Waste Management, Environment Development, Cleanliness activities, Cultural activities, Health facilities, Mosquito eradication	Dhaka City Corporation
17.	Majeda Begum Welfare Foundation	37/4/A, Sah Alu Bug, Mirpur-1, Dhaka-1216 Telephone: 011051576	Ward-12 Thana: Mirpur	2002	Dha-07021/2002	-	Registered with BIEDF No. 9	21	07	Solid Waste Management, Environmental Improvement, Cleanliness Programme	Membership fees, Governmental allowance, Local and national allowance, Income from organization's activities and from assets
18.	DISHARI	House # 9 (1st Floor) Road # 10, Block-C, Mirpur-10 Dhaka Tele: 0189820550 (M)	Ward-5 Thana: Mirpur	1988	Dha-02466/1990	-	Registered with BIEDF No. 36	24	07	Solid Waste Management, Health Programme, Micro-credit Programme, Environmental Programme, Cleanliness Programme, Poverty Alleviation, Vaccination Programme (EPI).	Membership fees, Governmental allowance, income from organization's activities
19.	AID Bangladesh	8/3, Segun Bagicha Dhaka-1000 Telephone: 9559295	Ward-22 Thana: Ramna	1992	Ministry of Social Welfare Dha-02921/93	-	Registered With BIEDF No.2	27	09	Solid Waste Management, Education Programme, Micro-credit Programme	Membership fees, Governmental allowance, Income from organization's activities
20.	Society for Project Implementation Research Evaluation & Training (SOPIRET)	8/3, Segunbagicha, Ramna Dhaka-1000 Telephone: 9559295	Ward-56 Thana: Ranma	1985	Dha-01721/1985	NGO Bureau-195/1986	Registered with BIEDF No. 24	27	09	Solid Waste Management, Health Programme, Micro-credit Programme, Library Activities, Family Planning and Welfare, Poverty Alleviation, Vaccination Programme (EPI).	Membership fees, Donation (governmental and non-governmental), National and local allowance, Income from organization's activities and income from assets
21.	Kallyanpur Samaj Kallyan Parishad (West Zone)	House # 10, Road # 6, Kallyanpur, Dhaka Telephone: 8014106, 8021755	Ward-11, Thana: Mirpur	1988	-	-	-	113	23	Solid Waste Management, Cleanliness Programme, Environmental Development, Night Guard, Poverty Alleviation, Mosquito Eradication	Membership fee, Income from activities

SL. No.	Name of NGOs and CBOs	Address and Telephone	Ward and Thana	Year of Establishment/ Starting Date of SWM	Registration No. and Date			No. of General Members	No. of Executive Members	Main Activities	Source of Finance
					Social Welfare	DCC/ NGO Bureau	BIEDF				
22.	Paikpara Union Kallyan Samity Unnayan	House # 188/1, Jaj lane, Middle Paikpara, Mirpur, Dhaka Tel: 8015291, 0189214264	Ward-11 Tnana: Mirpur	1998	-	-	-	100	25	Solid Waste Management, Education, Health, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Religious Programme, Family Planning and Welfare, Skill Development and Training, Women Employment, Poverty Alleviation, EPI, Mosquito Eradiation	Membership fees, Income from activities
23.	Middle Paikpara Sha Sahab Nager Samaj Kallyan Organization	House # 17/1, Road # 11 Kallyanpur, Dhaka-1207 Phone: 8013287	Ward 11 Thana: Mirpur	1998	D-06585	-	-	130	9	Solid Waste Management, Health, Environmental Development, Cleanliness Programme, Mosquito Eradication, Night Police	Membership fees, Income from activities
24.	Agrodoth Sanshtha	House # 293/2, Road # 7, South Paikpara, Mirpur Dhaka Tel: 0171565163 (T&T)	Ward-11 Thana: Mirpur	1977	Dha-04092	*	*	210	21	Solid Waste Management, Cultural Programme, Sports Programme, Library, EPI Programme, Holding No. Plat Distribution	Membership fees, Income from activities
25.	Middle Paikpara Samaj Kallyan Parishad	Kallyanpur Noton Bagan More	Ward-11 Thana: Mirpur	1991	-	-	-	369	21	Solid Waste Management Programme, Sports Programme, Environmental Development Programme Cultural Programme, Religious Programme, EPI Programme	Membership fees, income from activities
26.	Kallyanpur Samaj Kallyan Parishad (East Zone)	House # 15, Road # 5, Kallyanpur, Dhaka-1207 Telephone: 8011340	Ward-11 Thana: Mirpur	1991	-	-	-	400	33	Solid Waste Management, Health, Environmental Development, Cleanliness Programme, Sports Programme, Religious Programme, Skill Development and Training, Poverty Alleviation, EPI Programme, Mosquito Eradication	Membership fees
27.	Kallyanpur Samaj Kallyan Parishad (South Zone)	House # 10, Road # 4, Kallyanpur, Dhaka-1207 Telephone: 9000955	Ward-11 Thana: Mirpur	1992	-	-	-	100	21	Solid Waste Management, Health, Environmental Development, Cleanliness Programme, Sports Programme, Religious Programme, Skill Development and Training, Poverty Alleviation, EPI Programme, Mosquito Eradication	Membership fees, income from activities
28.	Middle Kallyanpur Samaj Kallyan Foundation	House # 21, Road # 3, Kallyanpur, Dhaka-1207	Ward-11 Thana: Mirpur	1982	-	-	-	107	27	Solid Waste Management, Cleanliness Programme, Mosquito Eradication	Membership fees
29.	Anirban Society	188/2, Madha Paikpara, Taj Lane, Dhaka-1216 Telephone: 8015291	Ward-11 Thana: Mirpur	1998/Jan. 1999	Dha-03194/03	-	-	83	30	Solid Waste Management	Membership fees, Income from activities
30.	Amader Ka, Kha, Ga Club	243/A, Khilgoan, Tilpapara, Road # 1, Dhaka-1219 Telephone: 0172034316	Ward-24 Thana: Khilgaon	1968	Dha-04837	*	*	40	12	Solid Waste Management, Education, Health, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Family Planning and Welfare, Poverty Alleviation, EPI Programme	Membership fees, Income from activities

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					Social Welfare	DCC/ NGO Bureau	BIEDF				
31.	Jubo Welfare Project	293/C, Khilgaon, Chowdhury Para, Dhaka-1219	Ward-24 Thana: Khilgaon	1995	-	-	-	300	4	Solid Waste Management, Education, Health, Environmental Development, Cleanliness Programme, Cultural Programme, Mosquito Eradication	Membership fees, Income from activities
32.	Khilgaon Government Employee Residential Kallyan Samity	Khilgaon Government Residential Kallyan Samity, Chowdhury Para Dhaka-1219	Ward-24 Thana: Khilgaon	1966	Dha-1937/66	*	*	241	25	Solid Waste Management, Education, Health, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Family Planning and Welfare, Poverty Alleviation, EPI Programme, Mosquito Eradication	Membership fees
33.	Surjodoy Club	756/A, Khilgaon, (Beside Comilla Hotel) Dhaka-1219	Ward-24 Thana: Khilgaon	1969	Dha-0477	*	*	81	31	Solid Waste Management, Education, Health, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Family Planning and Welfare, Poverty Alleviation, EPI Programme, Mosquito Eradication, Anti Drug Campaign	Income from activities
34.	Khilgaon Eidgah Jame Masjid Committee	Block-A, Road # 22, Khilgaon Eidgah Jame Masjid	Ward-24 Thana: Khilgaon	1996	-	-	-	-	-	Solid Waste Management, Religious Programme	Membership fees
35.	Malancha Samabay Samity	540/C, Khilgaon Dhaka-1219	Ward-24 Thana: Khilgaon	1990	-	-	-	51	11	Solid Waste Management, Education, Health, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Family Planning and Welfare, Poverty Alleviation, EPI Programme, Mosquito Eradication, Drain Clean, Plantation Programme, Blood Donation Programme	Membership fees, Income from activities
36.	Diptomoy Unnayan Sangstha	8/3, Segunbagicha, Dhaka. Tel: 0172612020	Ward-24 (W/W) Thana: Ramna	-	-	-	-		-	Solid Waste Management	-
37.	K.P. Ghosh Panchayet Committee	60, Bangshal Road Dhaka Telephone: 7311196	Ward-68 Thana: Kotowali	2002	-	-	-	150	21	Solid Waste Management, Health Programme, Environmental Development, Cleanliness Programme, Cultural Programme, Religious Programme, Family Planning and Welfare, Poverty Alleviation	Membership fees, Income from activities
38.	Mahauthtolee Panchayet Committee	62/64, Mahauthtolee Dhaka Tel: 0173012195, 7310926	Ward-68 Thana: Kotowali	2004	-	-	-	700	15	Solid Waste Management, Education, Health, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Family Planning and Welfare, Poverty Alleviation, Religious Programme, Skill Development, Women Employment, Mosquito Eradication and Other Social Activities	Membership fees and Income from activities

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					Social Welfare	DCC/ NGO Bureau	BIEDF				
39.	Muslim Samaj Kallyan Sangstha	137, Bangshal Road Dhaka Tel: 7317409	Ward-68 Thana: Kotowali	1960	-	-	-	2100	52	Solid Waste Management, Education, Cultural Programme, Sports Programme, Religious Programme, Poverty Alleviation, EPI Programme, Other Social Activities	Membership fees
40.	Al-amin Samaj Kallyan Sangstha	57, Kashitolee Lane, Bangshal Dhaka Tel: 7312840	Ward-68 Thana: Kotowali	1972	-	-	-	150	41	Solid Waste Management, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Religious Programme, Poverty Alleviation, Mosquito Eradication	Membership fees and income from activities
41.	Onirban Jobo Sangstha	45, French Road, Haji Abdul Rashid Lane, Dhaka Tel: 7313667	Ward 68 Thana: Kotowali	1968	Dha-02490	*	*	105	16	Solid Waste Management, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Religious Programme, Poverty Alleviation, Mosquito Eradication and others social works	Membership fees, Government grant, Income from activities, Grant from club
42.	Shamsabad Panchayet Committee	13/1, Shamsabad, Kotowali, Dhaka-1100 Tel: 7317154	Ward-68 Thana: Kotowali	1982	Dha-0417	*	*	330	21	Solid Waste Management, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Religious Programme, Family Planning and Welfare, EPI Programme and other Social Activities	Membership fees
43.	Bagdasha Panchayet	45, Bagdasha Lane, Dhaka Tel: 7395840	Ward-68 Thana: Kotowali	1972	-	-	-	50	31	Solid Waste Management, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Religious Programme, EPI and other Social Activities	Membership fees and income from activities
44.	Zindha Bazar Panchayet	30, Zindha Bazar 2nd Lane, Dhaka	Ward-68 Thana: Kotowali	1996	-	-	-	-	-	At present this organization is not active on executive committee, one employee of DCC collect solid waste and collect money from households	-
45.	Zindha Bazar Samaj Kallyan Sangstha	4, Zindha Bazar 1st Lane, Dhaka Tel: 0171244494	Ward-68 Thana: Kotowali	1971	Dha-02036	*	*	20	20	Solid Waste Management, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Religious Programme, EPI Programme, Mosquito Eradication and other Social Activities	Membership fees and income from activities
46.	Abdul Hamid Lane Bohumukhi Samaj Kallyan Sangstha	17/2, Abdul Hamid Lane (Kayetola), Dhaka Tel: 7314723	Ward-69 Thana: Kotowali	2002	-	-	-	350	88	Solid Waste Management, Environmental Development, Cleanliness Programme, Religious Programme, EPI Programme, Mosquito Eradication and Social Welfare Activities	Membership fees

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					Social Welfare	DCC/ NGO Bureau	BIEDF				
47.	Ahsar Alo Samaj Kallyan Sangstha	106, Majad Sardar Road, Dhaka	Ward-69 Thana: Kotowali	1987	Dha-02611	*	*	600	53	Solid Waste Management, Environmental Development, Cleanliness Programme, Cultural Programme, Family Planning and Welfare, EPI Programme, Security and other Social Activities	Membership fees
48.	Agamachi Lane Panchayet Committee	62/1, Agamachi Lane, Dhaka Tel: 7318337	Ward-69 Tnana: Kotowali	1993	-	-	-	31	31	Solid Waste Management, Health, Micro-credit Programme, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Religious Programme, Library Activities, Skill Development and training, Women Employment, Poverty Alleviation, Mosquito Eradication, EPI Programme, and other Social Activities	Membership fees
49.	A.K.N. Mohallha Unnayan Panchayet Committee	25, Aghamashi Lane, Kayat Toly, Dhaka Tel: 0171346619	Ward-69 Thana: Kotowali	1977	-	-	-	40	31	Solid Waste Management, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Religious Programme, Poverty Alleviation, Mosquito Eradication, EPI Programme and other Social Activities	Membership fees
50.	Kanika Cultural Shangstha	182/1, Bangshal Road, Mokim Bazar, Dhaka Tel: 019489474	Ward-69 Thana: Kotowali	-	Dha-0597	*	*	150	25	Solid Waste Management, Skill Development, Cleanliness Programme, Sports Programme, Religious Programme, Library Activities, Women Employment, EPI Programme	Membership fees
51.	Chankhar Pool Lane Panchayet	House # 63, Chankhar Pool Lane, Jajimuddin Road, Dhaka-1000 Tel: 0171957122, 0171545071	Ward-69 Thana: Kotowali	1980	-	-	-	22	22	Solid Waste Management, Mosquito Eradication	Membership fees
52.	Nagarik Parishad	2, Majed Sardar Road, Dhaka	Ward-69 Thaka: Kotowali	2000	-	-	-	800	5	Solid Waste Management	From activities
53.	Alakabashi Alliance	C/O, Zakir Hossain 8 Agamachi Lane, Kotowali, Dhaka	Ward-69 Thana: Kotowali	2003	-	-	-	60	5	Solid Waste Management	From activities
54.	Muslim Jubo Sangha	52, Shikka Toli Road Lane, Dhaka	Ward-69 Thana: Kotowali	1979	Dha-01190	*	*	250	19	Solid Waste Management, Education, Health Programme, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Religious Programme, Poverty Alleviation, Family Planning and Welfare, Skill Development and Training, Women Employment, EPI Programme, Mosquito Eradication	Membership fees, Government Grant

SL. No.	Name of NGOs and CBOs	Address and Telephone	Ward and Thana	Year of Establishment/ Starting Date of SWM	Registration No. and Date			No. of General Members	No. of Executive Members	Main Activities	Source of Finance
					Social Welfare	DCC/ NGO Bureau	BIEDF				
55.	Ali Noki Dauri Panchayuet Committee	16, Najim Uddin Road, Dhaka Tel: 0189168581	Ward-69 Thana Kotowali	2002	-	-	-	21	7	Solid Waste Management, Health Programme, Environmental Development, Cleanliness Programme, Cultural Programme, Sports Programme, Religious Programme	Membership fees, and income from activities
56.	Angon	101, Agamosi Lane, Kotowali, Dhaka-1200	Ward-69 Thana: Kotowali	2002	-	-	-	20	10	Solid Waste Management	Membership fees and income from activities
57.	Dustbin	20/A, Aghasadaque Road, Kotowali, Dhaka	Ward-69 Thana: Kotowali	2003	-	-	-	6	6	Solid Waste Management	From activities
58.	Aga Nabab Dottori Social Welfare Society	Aga Nabab Dottori Road Tel: 7320997	Ward-67 Thana: Lalbagh	1965/1999	Dha-2331/75	-	-	202	27	Solid Waste Management, Social welfare activities	Membership fees, Income from activities
59.	Nur Box Social Welfare Society	Nur Box Road	Ward-67 Thana: Lalbagh	2003/2003	*	-	-	200	25	Solid Waste Management, Social Work, Health Programme	Membership fees, Income from activities
60.	Singtola Ponchayet Somity	5/2, Protapdas lane, Singtola Tel: 7172211	Ward-79 Thana: Sutrapur	-	Dha-04571/1998	-	-	110	27	Solid Waste Management, Social Work	Membership fees
61.	Taherbag Resident Welfare Union, Taherbag Model School	66/1, Taherbagh Lane Tel:	Ward-74 Thana: Sutrapur	2003/2003	*	-	-	35	35	Solid Waste Management, Social Development	Membership fees, Income from activities
62.	Avidhan Shongsod	32/4, Bonogram Road, Thatari Bazar, Dhaka	Ward-74 Thana: Stutrapur	1982/2003	*	-	-	100	10	Solid Waste Management, Social Work	Membership fees, Income from activities
63.	Tanjum Social Welfare Society	71245981/1 Mohajanpur Lane, Nawabpur, Dhaka-1100 Tel: 7112465	Ward-74 Thana: Sutrapur	2002/2002	*	-	-	101	21	Solid Waste Management, Social Work	Membership fees
64.	Chandra Mohon Bosak street Social Welfare Songsod	Chandra Mohon Bosak Street Tel: 0171560481	Ward-74 Thana: Sutrapur	2003/2003	*	-	-	26	26	Solid Waste Management	Membership fees, Income from activities
65.	Kagojitola Social Club	11/12 Shuklal Das Lane, Sutrapur, Dhka-1100	Ward-79 Thana: Sutrapur	Dha-03742 YDD-141/95-	-	-	-	250	31	Solid Waste Management, Social Work	Membership fees
66.	Commissioner, East Rampura Rampura Sahadath Sangsad	132/Gha, Rampura, Dhaka-1219	Ward-22 Thana: Khilgaon	1995/15 Dec. 1995	*	-	-	55	17	Solid Waste Management	Membership fees, Income from activities
67.	Environment Entry Drug Cleaning Project	15, Ring Road, Mohammadpur, Dhaka-1207 Tel: 011064674 Head of the Organization Md. Ataur Rahman	Ward-42 Thaka: Mohammadpur	1997	Dha-	-	-	-	-	Solid Waste Management, EPI Programme	Income from activities
68.	Baitul Aman Clinic Service	3/3, North Adabor, Mohammadpur Tel: 0172120416	Ward-43 Thana: Mohammadpur	2000/2002	-	-	-	1600	9	Solid Waste Management	Income from activities
69.	Farming Cooperative Society Ltd.	PC culture Mosque market, 2nd Floor, Road 10 and 11, Mohammadpur Tel: 9137647	Ward-43 Thana: Mohammadpur	1996/1996	Dha-409	-	-	765	39	Solid Waste Management	Income from activities

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					Social Welfare	DCC/ NGO Bureau	BIEDF				
70.	Sobuj Shongho Club	Nur Jahan Road, Mohammadpur Tel: 8157988	Ward-44 Thana: Mohammadpur	1987/1998	*	-	-	1000	51	Solid Waste Management	Membership fees, income from activities
71.	Ward Commissioner, Mohammad Ahsan Ullah Hasan	6/C, 15/12-1 Pallabi, Mirpur Dhaka Telephone: 8014440, 0171111137 (M)	Ward-6 Thana: Mirpur	-	-	-	-	-	-	Solid Waste Management	-
72.	Bangladesh Sammantito Paribesh Unnayan Forum	8/3, Segunbagicha, Dhaka.	Ward-1 (W/W) Thana: Ramna	2002/2002	Dha-07032/02	-	-	33	11	Solid Waste Management	Membership fees
73.	Mehonoti Manus	House # 40, Avenew-2, Block-A, Section-11, Pallabi, Dhaka Telephone: 9003906, 0171487548 (M)	Ward-2 (W/W) Thana: Pallabi	1997	Dha-06376	-	-	244	11	Solid Waste Management, Micro-credit, Social Work	Membership fees, Government Donation
74.	Fulbagan Samajik Sangstritik Sangstha	Section-10, block-A, Road-8, Mirpur, Dhaka Telephone: 011046511	Ward-3 (W/W) Thana: Mirpur	1981/2000	Dha-02488	-	-	39	9	Solid Waste Management	Membership fees
75.	Rojubunnessa welfare Foundation	8/3, Segunbagicha, Dhaka.	Ward-6 (W/W) Thana: Ramna	2002	Dha-06698	-	-	21	7	Solid Waste Management	Income from activities
76.	Ziaul Huq Foundation	6/B/8-9, Mirpur, Dhaka.	Ward-7 (W/W) Thana: Mirpur	-	-	-	-		-	Solid Waste Management	-
77.	Anarkoli Welfare Foundation	627, West Kazipara, Dhaka.	Ward-14 (W/W) Thana: Mirpur	-	-	-	-		-	Solid Waste Management	-
78.	Payera Samaj Kallan Sangstha	200, Santibug, Dhaka Telephone: 9560716	Ward-35 (W/W) Thana: Motijheel	1998/1999	Dha-08580/99	-	-	30	8	Solid Waste Management	Donation from members
79.	Tajmohol Noishaprohori O Clinic Service	8-1, Tajmohol Road, Mohammadpur, Dhaka Tel: 0171623131	Ward-42 (P/W) Thana: Mohammadpur	2003/2003	*	-	-	21	13	Solid Waste Management	Membership fees, Income from activities
80.	Environmental Cleanliness Illiteracy And Anti Drug Organization	Suchana Community Centre, Ring Road, Mohammadpur, Dhaka.	Ward-42 (P/W) Thana: Mohammadpur	-	-	-	-	-	-	Solid Waste Management	-
81.	Mohammadi Super Cleaners Private Limited	House-226, Road # 6, Mohammadia Housing Society, Dhaka Tel: 9121874	Ward-46 (W/W) Thana: Mohammadpur	1996	-	DCC	-	1800	7	Solid Waste Management	Income from activities
82.	Unity For Social Advancement	14, Chamelibug, Santinagar, Dhaka-1217 Tel: 9342319	Ward-53 (W/W) Thana: Motijheel	2002	Dha-03202	-	-	21	7	Solid Waste Management	Income from activities
83.	Ujirpur Welfare Foundation	103/2, North Mugda, Dhaka.	Ward-28 (W/W) Thana: Motijheel	2002	Dha-06697	-	-	27	9	Solid Waste Management	Membership fees
84.	Dhanmondi Samaj Kallan Parisad	House # 312, Road # 15(old), 8/A (New), Eid-Gaha Road, Dhanmondi, Dhaka Tel: 9119005	Ward-49 (W/W) Thana: Dhanmondi	1995/2000	-	DCC	-	10,000	21	Solid Waste Management	Income from activities

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					Social Welfare	DCC/ NGO Bureau	BIEDF				
85.	Mohammad Imam Hossain (Manjil)	23 Central Road, Dhaka Telephone: 8610205, 019486038 (M)	Ward-52 (P/W) Thana: Dhanmondi	1997/1997	-	DCC-103/CD	-	650	7	Solid Waste Management	Income from activities
86.	Mitul Bohumukhi Samabay Samiti	26/26, Ser- Sha- Suri Road, Mohammadpur, Dhaka Tel: 0171328042	Ward-44 (W/W) Thana: Mohammadpur	1999/2003	-	DCC-514		2000	11	Solid Waste Management	Income from activities
87.	Development of Poor Peoples and Advancement	Z-R Tower, 1st Floor, 5, Outer Circular Road, Dhaka.	Ward-55 (W/W)	-	-	-	-	-	-	Solid Waste Management	-
88.	Rural Development Society	RDB/ Badda Society	Ward-19 Thana: Gulshan	-	-	-	-	-	-	Solid Waste Management	-
89.	Samaj Kallayan O Unnayan Sangstha (Society Welfare And Development Organization)	111/1, Warless Get, Mohakhali, Dhaka-1212	Ward-20 Thana: Gulshan	2000/June 2000	-	-	-	3000	9	Solid Waste Management	Income from activities
90.	Jubo Unnayan Sangstha (Mass Development Organization)	1194/B Mohammad Ali Chowdhury Road, Chowdhury Para Khilgaon, Dhaka-1217 Tel: 0172858053	Ward-23 Thana: Khilgaon	1986/1995	-	-	-	31	12	Solid Waste Management	Membership fees, Income from activities
91.	Udoy Seba Sangstha	320, North Goran, Dhaka-1217	Ward-25 Thana: Khilgaon	2000/2000	-	-	-	30	9	Solid Waste Management	Membership fees, Income from activities
92.	Happy Hopes Shamoly Apartment Malik Kallyan Samiti	23/8, Khilgi Road, Mohammadpur, Dhaka	Ward-35 Thana: Mohammadpur	-	D-06518 03-02-02	*	*	-	-	Solid waste management, Cleaning activities, Sanitary latrine, Pure drinking water supply, Coastal green A forestation.	-