

AN ASSESSMENT OF URBAN SOLID WASTE MANAGEMENT: A CASE STUDY IN AGARGAON AREA OF DHAKA NORTH CITY CORPORATION

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Abstract

Urban solid waste is a serious environmental hazard and social problem in Bangladesh. At present a massive quantity of solid waste is produced every day in the urban areas and unluckily solid waste management is being declined day by day. The paper illustrates that, solid waste remains unmanageable in the urban areas. To understand the solid waste management, Agargaon area of Dhaka North City Corporation was selected as study area. The research conducted through primary and secondary sources. Primary data was collected by field survey, questionnaire survey, focus group discussion, participatory observation etc method to identify the present status of urban solid waste management of study area. Secondary information was collected through survey of literature and relevant published and unpublished material. The present solid waste collection system of the study area is insufficient and unproductive. By extensive data collection it has been observed that only 70% to 80% of the total generated waste is collected and disposed of per day by Dhaka North City Corporation (DNCC). The rest of the wastes remain on the roadside bins and curbside creating harmful environment. The integration of public and private waste management can ensure a sustainable living environment for the residence of urban area.

Keywords: Urban, solid waste, management, Dhaka city.

Introduction

Bangladesh is a small, highly populated Country. Population is increasing day by day, as a result the amount of different type waste is also increase. It is believed that urbanization is the result of industrialization. Rapid urbanization in Bangladesh is a recent phenomenon. It is a marked tendency that the people concentrate more in large cities and towns. Urbanization between developed and developing country are not same. In the west, urbanization is the result of industrialization. People are attracted to the cities due to the demand for the labor in the industries located in the urban area for searching job and other facilities. Although the cities of Bangladesh are experiencing huge population

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influx from the rural areas, the level of urbanization is very low. Only about 23.5 percent of the total population live in the urban center's (BBC, 2013). More than four thousand metric ton waste is produced daily in Dhaka city. The sources of waste in the city are industry, market, shopping mall, household, dust from road etc. Among this the amount of household waste is the most. Agargaon is mainly a residential area of Dhaka. Some offices are also located here. Mainly household type of waste is seen here. It is important to know about the type, amount and management of waste in residential area to save the people and environment from the bad effect of the waste. To know about the waste management, type of waste, and its bad effects this research work have been done in Agargaon. In countries like Bangladesh Urban solid wastes creates an incredible environmental hazard and social problem in city lives. A massive volume of solid waste is generated every day in the city areas and unfortunately solid waste management is being deteriorated day by day due to the limited resources in handling the increasing rate of generated waste (Enayetullah and Hashmi, 2006). Here in Bangladesh, in most cases wastes are disposed of only by land filling, a few resource recovery plants available in the country (Bhuiyan, 2010). The study was specially conduct-to identify the various sources and special pattern of solid wastes, to identify the existing problems in solid waste management, to explore a sustainable solution for solid waste management and to identify the activity this is taken for waste management by the DNCC and the people living there. The objective of research was to assessment of solid waste management: i) to identify the various sources and spatial pattern of solid wastes ii) to identify the existing problems in solid waste management, iii) to explore a sustainable solution for solid waste management, and iv) to identify the activity this is taken for waste management by the DNCC and the people living there.

Materials and Methods

Study Area

The research study area is Agargaon (ward No: 28). The official name of Agargaon is Shere Bangla Nagar. The ward number of Agargaon is 40 and postal coed is 1207. It is situated under Mohammadpur than of Dhaka North City Corporation (DNCC).

Data Collection and Analysis

In this research work the necessary data and information were collected from two sources such as: (A) Primary and (B) Secondary Sources. The Methodology of the research study includes empirical field observation and field level data collection through the interview, questionnaire survey, field survey. A series of survey were conducted in order to collect information from the primary sources. The field level data are collected by questionnaire survey (50 participators), field observation and interview. Statistical techniques was performed by computer based programmed to show the chart, graphs and table. After

collecting, data a various techniques was processed manually and by using computer to manipulate data.

Results and Discussion

In the urban area most of the solid waste comes from household, industry, market and hospital sources. But the amount of household wastes is high from the other sources of solid wastes because the research area is mainly residential area. That’s why wastes of this area mostly come from household. After observation it is seen that different types of wastes produce in house and the amount of wastes are deepened on the number of family member. By observing dissimilar types and amount of household waste, waste management of the research area has been done in this research.

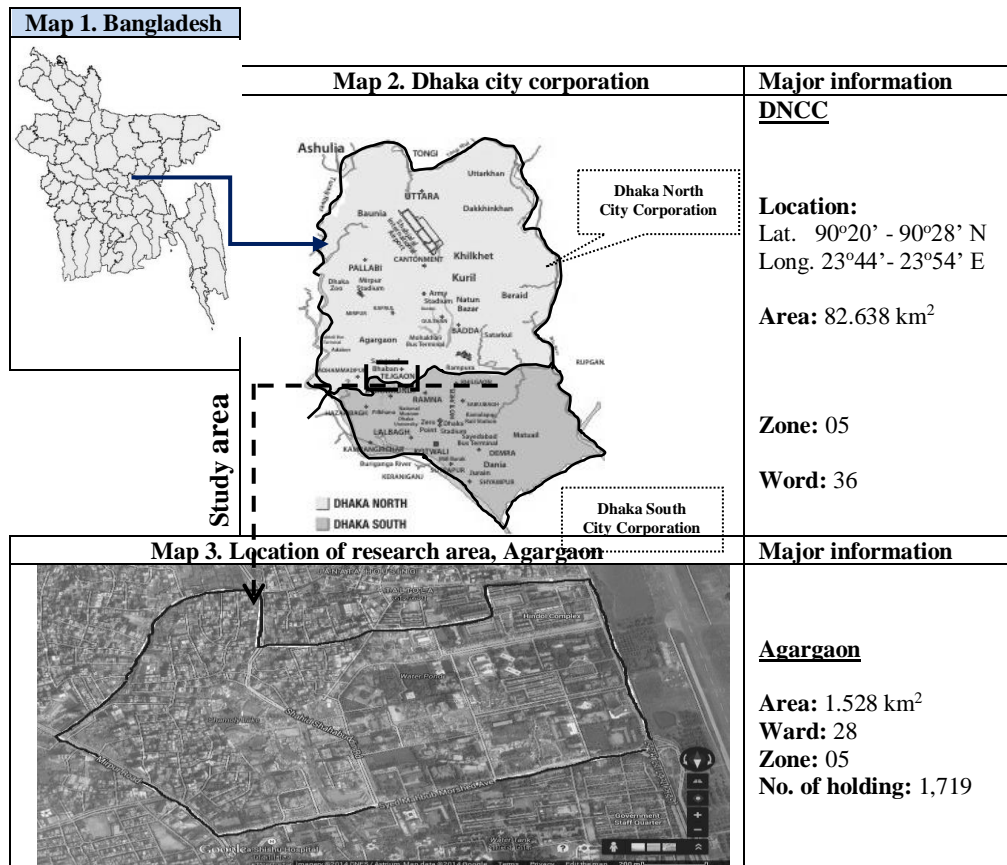


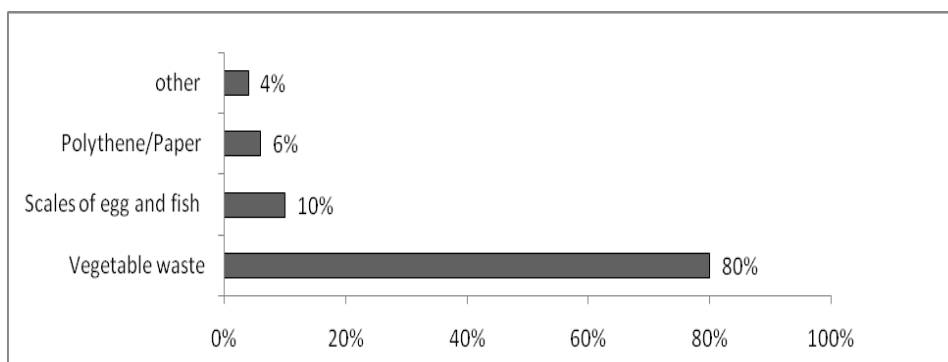
Fig. 1. Location of study area in Dhaka north city corporation.

Sources of solid wastes: Varieties of solid wastes are produced from various sources. The main sources are given in Table 1.

Table 1. Sources of solid wastes

Sources	Wastes type
Household	Food waste, paper, grass, polythene bags, cloths, tin pots etc.
Industrial	Chemical, tin, wood, plastic, paper, rubber etc.
Commercial	Paper, polythene bags, food wastes etc.
Agricultural	Garden wastes, poultry wastes, dairy wastes etc.
Construction	Bricks, road, tin, glass, wood, hardboard, broken buildings materials etc.
Transportation	Residues of transported materials, dirt, dust, food waste etc.
Medical	Cotton, paper, bottle, bandage, saline bags, needle etc.
Recreational	Paper, food waste, grass, boxes etc.
Educational	Polythene, paper, food waste, ball pen, garden wastes etc.
Institutional	Polythene, paper food waste, waste from laboratories etc.

Patterns of solid waste: From the Fig.1, we can see that the amount of vegetable waste is greater than other. Vegetable waste contains 80%, scales of egg and fish contain 10%. Polythene/paper contains 6%, and other contains 4% of the total production of the wastes. This type of waste comes from kitchen. These wastes are produced regularly, because man uses this products every day to fulfill their needs.

**Fig. 2.** Different patterns of solid waste uses.

Determining waste amount: Everyday each family produces some wastes. It depends on number of family member. Each Family does not produce same types of wastes. By research it is seen that every family produce waste more than half kg. The amount of wastes produced by 50 families is given below:

Table 2. Amount of solid wastes of study area

Class	500-1000g	1000-1500g	1500-2000g	2000-2500g	2500-3000g	3000-3500g
Family No.	20	11	9	5	3	2
Percentage	40%	22%	18%	10%	6%	4%

From the table-02 it is seen that every family daily produce a fixed amount of wastes. Among them 40% family's wastes amount is 500-1000 gram. They are mainly small family. Their number of family member is 2-4. 22% family daily produces 1000-1500 gram wastes. 18% family daily produces 1500-2000 gram wastes. 10% family daily produces 2000-2500 gram wastes. 6% family daily produces 2500-3000 gram wastes. 4% family produces 3000-3500 gram wastes daily. The amount of wastes is high when family member is more and low when family member is less. From the table it is seen that the number of small family is more in the research area.

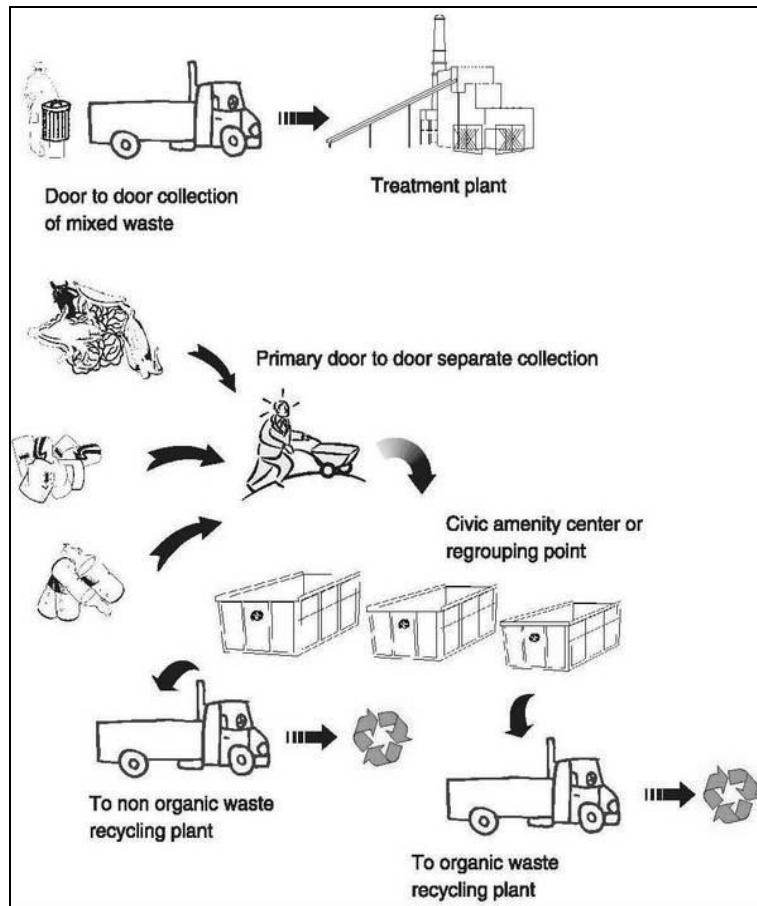


Fig. 3. Urban solid waste collection and management process.

Solid waste management: To keep an area especially residential area healthy and clean waste management is important. Healthy environment depends on proper waste system. The waste management of the research area is not well. Personal irresponsibility, lack of dustbins, lack of drains, lack of municipality attention etc. are responsible for this. Some people through their wastes side of road and wall, some through their wastes in front of dustbin or blank spaces in front of their house. These wastes create and spared bad smell

and polluted the environment. The number of dustbin is not sufficient. As a result the dust bins are over filled. Some people deposit their wastes beside the dustbin. They scattered here and there. Not cleaning the dustbin in time also responsible for it.

Number of family members: From Table - 03it is seen that 10% families have 0-2 family members, 20% have 2-4 members, 46% have 4-6 members, 18% have 6-8 members, and 4% have 8-10 members. Small families are more in the research area.

Table 3. Numbers of family members

Class	0-2	2-4	4-6	6-8	8-10
Number	5	10	23	9	2
Percentage (%)	10%	20%	46%	18%	4%

Ownership of the house: From Fig. 4, it is clear that most of the house (70%) of the research area is govt. quarter. Mainly govt. employs are lived there with their family. Some other families also live there by giving rent to the quarter holder.

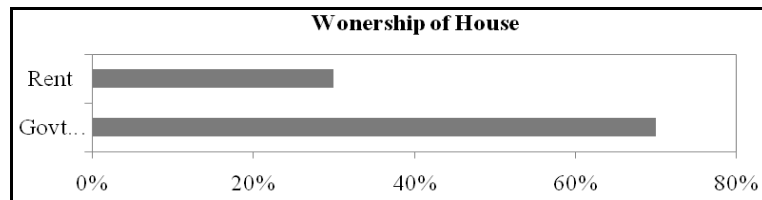


Fig. 4. Ownership of the house.

Waste throwing place: From the Fig. 5, it is seen that 26% people throw their wastes in open places, 24% in road sides, and 40% in wastes collecting van, only 10% in dustbins. By observing the field it is seen that most of tllle people through their wastes beside dustbins. Some wastes are throw comer of the house, some are beside the walls.

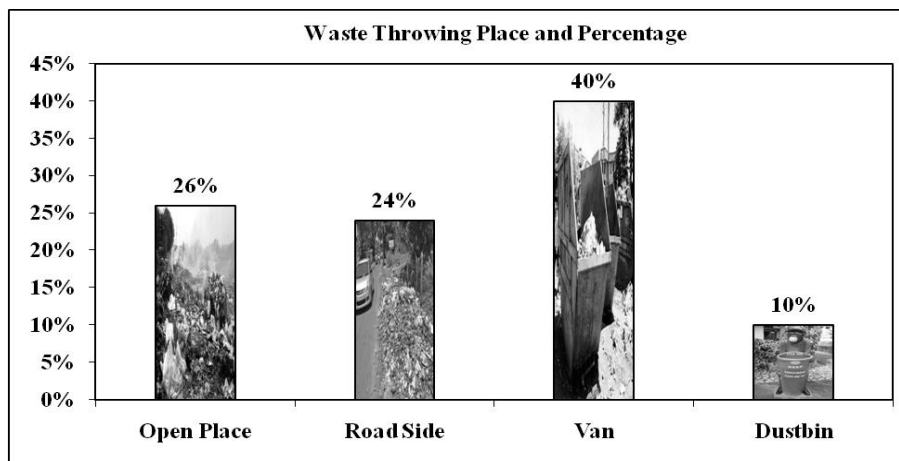


Fig. 5. Waste throwing place.

Period of waste replacing: The 60% family of the research area replaced their wastes once in a day. Only 8% family replaced their waste twice in a week.

Table 4. Period of waste replacing

Period	Family Number	Percentage (%)
Once in a day	30	60%
Twice in a day	10	20%
Once in a week	6	12%
Twice in a week	4	8%

Problem Created by Solid Waste: Some problems are created by wastes. 44% people of the research area said that bad smell is created from wastes which are a problem for them. Some other problem also created by wastes.

Table 5. Problem created by solid waste

Problem	Number	Percentage (%)
Illness	10	20%
Bad Smell	22	44%
Moving Problem	18	36%
No Problem	0	0%
Total	50	100%

From the table 5 we can see that 20% people of the research area become ill because of wastes. 44% people face problem of bad smell, 36% moving problem for wastes. None a single person said that he/she does not face any problem for wastes. So it is clearer from the table that the waste management system of the research area is not good and acceptable.

Public response about solid waste management

The 76% people of the research area are not satisfied with the waste management of the area. So the solid waste management of the research area is not satisfactory.

Table 6. Public response about solid waste management

Response	Number	Percentage (%)
Satisfied	5	10%
Dissatisfied	38	76%
Medium Satisfied	7	14%
Total	50	100%

From the Table 6 we can see that 10% people of the research area are satisfied with the solid waste management of the area, 14% are medium satisfied, 76% are not satisfied. So the solid waste management of the research area is not good.

Effect of solid waste: Agargaon is a residential area. Only 10% people throw their waste in dustbin. But most of them not throw waste in dustbin, they throw beside the dustbin. The 50% people throw waste here and there. These wastes create bad smell and other problem. The 20% people face illness because of it. In the waste there is polythene in huge amount. They are not composing. As a result soil quality is affected. This waste also polluted the environment; especially it is responsible for air pollution. The number of drains in the research area is not enough. Sometimes because of waste throwing they get blocked. In rainy season this solid waste washed by rain and comes to the road. It created moving problem, and also polluted the environment. The 50% people of the research area throw their waste in open places, road side, beside the walls etc. It creates bad smell and spread diseases. The municipality didn't take steps for management of this waste. The number of dustbin is not enough. There are some waste collecting van arranged by the people of the area collecting the wastes from the house and throw them into fixed place. People using these vans pay money monthly. The 40% people throw their waste in these vans. The place where these vans deposit their waste is not cleaned regularly. So it also polluted environment and create problem for the people. The people of the research area are not concern about their waste management. The 74% people of the research area didn't know about the waste replacing of their area. Without the help of municipality it is not possible for the people of the research area to management these waste properly. As a result of this people and environment of the area are facing long and short term problems.

Conclusion

Different types of waste are produced in residential area. If these wastes are not managed properly it creates problems for both man and environment. Waste management should be developed by increasing the number of dustbins, manpower, financial support, help of municipality with more consciousness then the management of waste will good and the environment will also good which is better for all of us. From the survey of the research area it's clear that most of the people of this area are not conscious about wastes management and the effect of these wastes on man and environment. The main problem in the research area is lack of enough dustbins. As a result people through their waste outside of the dustbin, road side, open places which creates many health and environment problems. To make the waste management properly in the study area can be taken increase the number of dustbins, drainage system should be developed, municipality should be taken steps for waste management, man power should be increase for proper management of waste, place where the waste collecting vans throw their waste should be cleaned to concerned the people about the bad effect of waste.

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