



Study on source separation of wastage and its management on the households in some selected wards of Mymensingh municipality

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Abstract: The Present study was conducted in selected wards in Mymensingh municipality during the period of March- October, 2009 to know the existing condition of waste separation and its management ensuring better waste management practices. The study was performed with 100 respondents from 4, 6, 8 no. of wards in the Mymensingh municipality. Data related to characteristics of respondents as well as waste separation were collected using a questionnaire after testing and finalizing. The respondents involved in the study were maximum in middle aged (21-50 year) having the educational qualification in HSC level. The study also revealed that maximum respondents were with TK 10001-20000 as annual income having the family size within 5-7 members. Maximum respondents in the study area were also involving the profession as business. The waste generation was higher with the increasing with the family members. In the study area waste separation approaches showed that among the separated waste, vegetable & fruit waste measured in the highest in case of solid kitchen waste having percentage as 64.80% compared to other types of wastes. The knowledge of waste separation was studied where it was observed that 20% respondent was well known with the facilities of waste separation. Most of The respondents also opinioned that they kept waste in containers and daily collection of waste preferably onto personal organization may be ensured better waste management.

Key words: Municipality, wastage, Waste management.

Introduction

Bangladesh is one of the most densely populated (over 158 millions) countries of the world with population growth rate of 1.48% per annum (BBS, 2003). Mymensingh is one of the largest districts of this country. It is located at the latitudes of 24°15'-25°15'N and longitudes of 90°08'-90°50'E covering an area of 4363.48 km². The district consists of 8 municipalities namely Mymensingh sadar, Bhaluka, Gaffargaon, Gouripur, Ishwarganj, Muktagacha, Nandial and Trishal. However, the municipal area consists by 226 thousand populations, from them a huge amount of waste is generated daily. The overall huge waste generation rate/person for our country is 18.25 kg/year. These wastes create severe environmental pollution which affects human and entire component of ecology. Uncontrolled wastes, mixed with human and animal excreta, dumped indiscriminately on the road side in the streets and in drains, contributing for flooding, breeding of insect and rodent vectors and to spread disease. Peoples in the community suffering from various diseases created by air and water pollution.

On the other hand wastes may be termed as beneficial material, when it is decomposed, recycled and properly managed. About 80% of solid waste is organic in nature and easily decomposable. These organic sources may add organic matter in soils which may be regarded as the life of soil as well as the store house of plant nutrients. Organic matter decomposition provides plant nutrient in soil which in turn increases crop productivity. However better waste management practices insuring reduce reuse

and recycling of waste which insuring sufficient organic source and safe economic cost against problems caused by environmental pollution.

Hence, the study was conducted with following objectives:

- ❖ To identify the existing waste management practice in urban areas.
- ❖ To know the amount of daily waste generation from different family category.
- ❖ To find out the problems occurring with the present disposal and management practice and probable solutions.

Materials and Methods

The study was under taken in Mymensingh municipal area during March-October, 2009 to know the waste generation phenomena and suggested against better waste management approaches. The study was conducted from three selected wards no. 4, 6, 8 and the area are namely Sankipara, Senbari, Aqua Madrasha Quarter, Shawdeshi bazaar, Kalibari and Amla para road area. The data were collected through pre tested interview schedule from the member of family. Data were collected on waste generation in house from the study area. General characteristics of the interviewed person were also investigated for clear justification of the study. Data on waste disposal and management approaches were also collected.

Result and Discussion

Waste generation from household area

The waste generations from small, medium and large family are presented in Table 1, which indicated the fruits and vegetables waste generation possessed in

first ranked with the value, ranged 0.322-0.512 kg/day/family. The overall waste generation ranked fruits and vegetables>animal, waste>fish, waste>poultry, waste>paper, poly bag and plastic>others.

Table 1. Average waste generation (kg/days/family) in the study area

Categories of family	Fruits and vegetables	Animal waste	Fish waste	Poultry waste	Paper, poly bag and plastic	Others	Mean	SD
Small	.322	0.118	0.11	0.22	0.05	0.02		
Medium	.451	0.154	0.12	0.26	0.028	0.016	0.6025	.163
Large	.512	0.18	0.15	0.32	0.016	0.011		

Disposal place of waste by household respondents

About 17% people support Municipality for solid waste collection, 22% supports NGO, 20% supports

club, and 24% supports different personal activities for solid waste collection. Again 17% supports they are self-dependent for waste collection. (Table 2)

Table 2. Disposal place of waste by household respondents

Organization	% Respondents	Waste Collection System Prefer
Municipality	17	Dustbin to Dustbin Collection
NGO	22	House to House Collection
Club	20	House to House Collection
Person	24	House to House Collection
Own	17	House to House Collection
Total	100	

Time of waste Disposal

From the study it was clear that people were disposing there solid waste at various times. There

were 11.43% respondents disposed their waste at the morning, 48.68% at noon and 24.46% at in the evening while the rest of 15.43% have no fixed time (Table 3).

Table 3. Disposal time of waste according to respondents

Disposal time	% Respondents
Morning	11.43
Noon	48.68
Evening	24.46
No fixed time	15.43
Total	

Solid waste storing site

The respondents stored there wastes in various sites, from which 48 % on the dustbin, 10% on the drain

sides and 8% on the open place and 26% on the riverside 8% don't know where the waste is dumped (Table 4)

Table 4. Place where the waste is dumped\

Place	% Respondents
Container/dustbin	48
Open place	8
River side	26
Drainage	10
Don't know	8

Category of solid waste

The highest portion of solid waste generated in the study area was kitchen waste and this

proportion was 64.80%, and lowest portion of 16.76% rubbish (Table 5).

Table 5. Category of solid waste according to respondents

Category of solid waste	Percent (%)	Ranking
Kitchen waste	64.80	1
Garbage	18.44	2
Rubbish	16.76	3
Total	100	

Source separation of wastes

After taking the primary information we get entered to the main topic “Source separation of wastes”. Among them 67% of respondents do not obey any

specific method of source separation of wastes. Eighteen percent people do not separate their waste, and 15% people don’t know about this (Table 6).

Table 6. Source separation of wastes

Categories	Frequency	% Respondents
Yes	67	95
No	18	68
Don’t know	15	40
Total	100	

Some other important information about knowledge and awareness about waste management:

100% people think that waste is a problem (Table 7). Knowledge about uses of decomposable waste in making organic fertilizer is very low among the

respondents. Only 27% of people know about it.85% people sell their solid waste. 70% people said that waste create health problem. 37% people agree to make community based organization. 30% people want utilize solid waste in a proper way.

Table 7. Ranking of the respondents’ opinion about Environmental Awareness of Household Waste Management

Topics	Agree	Disagree	Ranking
House hold waste is a problem	100	0	1
Sell of solid waste (Glass, Plastic, Paper, Bottles) to the Hawker	85	15	2
Health problem occurring by stored waste in household	70	30	3
Drainage system beside homestead	67	33	4
Separation of different types of waste	60	40	5
Making community based organization	37	63	6
Utilization of different types of waste	30	40	7
Making organic fertilizer with household waste	27	73	8
Knowledge of source separation	20	80	9
Pet animals in homesteads	15	85	10

Waste generation according to status of family

Here in the table shows that high class family produce greater amount of waste in every category due to their level of income and it is average .226 kg/day. The medium class families produce .1875 kg/day and the

lower class families produce .083 kg/day. And finally the slum dweller produces the lowest amount of waste (.028 kg/day) due to their low level of income. (Table 8)

Table 8. Average waste generation (kg/days/family) in the study area according to status of family

Categories of Family	Fruits and Vegetables	Animal Waste	Fish waste	Poultry Waste	Paper, Poly bag and Plastic	Others	Average waste (kg/day)	Mean	SD
High class family	0.435	0.228	0.133	0.189	0.256	0.116	0.226		
Medium class family	0.412	0.156	0.114	0.118	0.220	0.105	0.1875	0.131	0.092
Lower class family	0.193	0.096	0.056	0.019	0.115	0.019	0.083		
Slum dweller	0.026	0.013	0.009	0.006	0.109	0.005	0.028		

Table 9. Correlation matrix showing Intercorrelation among the variables (n=100)

		1	2	3	4	5
		X ₁	X ₂	X ₃	X ₄	X ₅
1	X ₁	1				
2	X ₂	0.30682*	1			
3	X ₃	0.428474***	0.153957	1		
4	X ₄	-0.07794	-0.18894	-0.10618	1	
5	X ₅	-0.03371	0.180756	-0.0586	0.293849*	1

* Correlation is significant at 0.05 level of probability

*** Correlation is significant at 0.001 level of probability

X₁=Age

X₂=Education

X₃=Income

X₄=Family size

X₅=Waste generation

Conclusion

Waste management is a crucial feature for the aesthetic view, safety of the public and to maintain pollution free environment of a municipality. Sometimes overall living standard can be the improper waste management system. It can be conclude that the present system of waste management of the area is neither satisfactory nor adequate. Insufficient vehicle, lack of manpower and complex maintenance procedures obstruct proper waste management. So management body should take prime role for the management of waste. Another issue that must be considered to the involvement and participation community and creation of public awareness about adverse effect of environment and health due to the improper storage of waste. Municipal and community based organization's participation need for better waste management and overall environment improve in the study area. So, the government and non government authorities should take proper steps to establish waste management system which can develop outstanding aesthetic beauty and glorious image for the study area as well as in the Mymensingh municipality and at the time will upgrade the living standard of the people of the municipality. So, a sound and balance waste

management system is need for sustainable basis and integrated participation of govt., non-govt. and community based organization and the communities as each and every people.

References

- Banglapedia, 2003. Edited by S. Islam, published by Asiatic Society of Bangladesh, Dhaka, Volume 1-10.
- BBS (Bangladesh Bureau of Statistics). 2001. Statistical Year Book of 2002. Stat. Div. Min. Planning, Govt. people's, Repub., Bangladesh, Dhaka.
- BBS (Bangladesh Bureau of Statistics). 2003. Statistical Year Book of 2002. Stat. Div. Min. Planning, Govt. people's, Repub., Bangladesh, Dhaka.