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EXAMINING THE BEHAVIOURAL ATTITUDE OF CITIZEN TOWARDS SOLID WASTE MANAGEMENT: CASE STUDY FROM SHEIKH SARAI DDA FLATS, DELHI

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ABSTRACT :

Solid waste has become a threat for our environment. One can easily find the heaps of solid waste in the nook and corner of almost all the cities. The lack of solid waste management has become a giant problem, especially in the megapolis cities as it has started spreading pollution in the forms of land pollution, ground water pollution and air pollution. The solid waste management (SWM) system comprises four activities: waste generation, collection, transportation, and disposal (Sharholy et al., 2007a). SWM therefore, requires adequate infrastructure provision and maintenance for all four activities. When not managed adequately, solid waste generates several public health and environmental hazards Increasing volume and complexity of solid waste pose the greatest challenges to large cities in developing countries, where the organization and planning of solid waste collection and disposal services tend to be rudimentary. Due to budget and infrastructure constraints, public authorities in these cities are often unable to manage large amounts of solid waste generated. This fact is reflected in the unknown volume and types of solid wastes collected; the amount recovered and recycled; the inadequacy of disposal sites, as well as inefficient reutilization and recycling programs (Buenrostro et al., 2003). Developing countries have similar patterns of SWM services which are characterised by lack of planning, poor or no segregation of waste at source, and unscientific and informal disposal systems. Lack of sufficient public and private funds and corrupt public sector are considered among the major bottlenecks to the improvement of the SWM services (Adedibu, 1985; Diallo and Coulibaly, 1991; Gupta et al., 1998; Buenrostro et al., 2001).

KEYWORDS : *solid waste management (SWM) , waste generation, collection, transportation.*

1.INTRODUCTION :

The situation of municipal solid waste (MSW) management in India is no less different. Currently, per capita MSW generated ranges from 0.2 to 0.5 kg per day per capita and is estimated to increase at a rate of 1 to1.33% annually (Pappu et al., 2007). The total MSW generated by 217 million people living in urban areas was calculated at 39 million ton in 2001, 63% higher than the 1991 figure of 23.86 million ton. The amount of MSW generated is expected to increase significantly in the near future as the country strives to attain an industrialized nation status by 2020 (Shekdar et al., 1992; CPCB, 2004; Sharma and Shah, 2005). Similarly to other developing countries, suitable facilities to treat and dispose of MSW are lacking in metropolitan areas of India. MSW is often disposed of unscientifically and unsystematically, causing adverse impacts on the environment and public health (Kansal et al., 1998; Kansal, 2002; Sharholy et al., 2005; Rathi., 2006; Sharholy et al., 2007). Lack of financial resources, institutional weaknesses and improper choice of technology and

public apathy towards MSW are listed amongst the bottlenecks to provision of efficient and effective MSW management in India.

Delhi is not an exception. According to one survey conducted by National Delhi Municipal Corporation (NDMC), Delhi produces almost nine thousand tonnes of garbage every day. Growing by heaps and mounds, Delhi's garbage crisis may soon reach its breaking point. Delhi has four landfills site in its fringe area, which has now transformed into stinking waste mountains and causing severe health issues in the surroundings. These landfills are long overdue for closure and there are no fresh landfills available to take in the current daily discard of 9000 tonnes of solid waste. By 2020, the capital needs an additional area of 28 sq. km, more than the entire spread of Lutyen's Bungalow Zone, to dump 15,000 tonnes of garbage daily.

2.STUDY AREA:

DDA flats of Sheikh Sarai have been chosen to conduct this behavioural study of the resident on solid waste management. Sheikh Sarai is a posh area of south Delhi near Saket and Malviya Nagar. It has three premier colleges of University of Delhi, i.e. Shaheed Bhagat Singh College, Shaheed Bhagat Singh (Evening) College and College of Vocational Studies. Besides that it has also more than 500 MIG flats developed by Delhi Development Authority.

3.DATABASE AND RESEARCH METHODOLOGY:

The study is primarily based on primary data which has been collected through primary survey with the help of questionnaire, interviews, group discussions and observation.

Surveys are used to obtain data from individuals about themselves, their households, or about larger social institutions (school boards). Sample surveys are an important tool for collecting and analyzing information from selected individuals. They are widely accepted as a key tool for conducting and applying basic social science research methodology (Rossi, Wright, and Anderson, 1983). After collecting informations through primary survey; mean t-test has done with the result of the primary survey to see that whether the sample size of the respondents is truly representing the whole population or not.

3.1 Mean t-test:

In social science research it is very important to examine that whatever the results produced by interpreting secondary data is right or wrong. Because secondary data can be biased or manipulated sometimes. Thus it is always advisable to validate the out comings of secondary data. – Validation is establishing documented evidence that provides a high degree of assurance that a specific process will consistently produce a product meeting its predetermined specifications and quality attributes. Analytical Methods Validation is the process by which it is established, by laboratory studies, that the performance characteristics of the method meet the requirements for the intended analytical applications. For validation of the results of secondary data here we have used T-test which tests the significance between sample mean and population mean (when population standard deviation is known or unknown). Given a sample of size n drawn from a population with its mean and standard deviation known, we can test the null hypothesis that the mean value of a given sample could have been drawn randomly from a population.

The procedure for this test is to use the normal curve with the mean μ to represent the sampling distribution of x. in employing the normal curve any value for x corresponds to a particular normal deviate given by the relation. Now, the test is to compare the absolute difference between the sample mean x and the population means u with the standard error of the sample mean e at a particular level of significance. If the difference of x –u is less than 2.58x, it is said to be insignificant at 1% level of significance and sample mean can be considered equal to population mean μ. On the other hand, if x-u is greater than or equal to 2.58, is rejected and the sample mean cannot be considered equal to the population mean.

4. SELECTION OF SAMPLE

Choosing respondent sample for doing field survey is a critical task in research. There are around 500 MIG flats developed by Delhi Development Authority in Sheikh Sarai residential society which are divided in 6 different blocks namely A,B,C,D,E & F.

Here 10 household from each blocks have been selected with the help of purposive random sample. Thus in total sixty households have been selected for the primary survey for knowing their behavioural attitude regarding solid waste management in their locality. The questionnaire has total 12 questions which deal with the views of the residents about the need and the role of government and citizen for solid waste management. .

5. EXAMINING THE BEHAVIOURAL ATTITUDE OF THE RESIDENTS FOR SOLID WASTE MANAGEMENT

For examining the behavioural attitude for solid waste management, two set of questions has been framed with different indicators to look into consideration. First question ask the respondent to share their views on the responsibility of the government authority regarding solid waste management. The questions with their options are mentioned below:

i. Who is responsible for Solid waste management in your area?
- Government
- Citizen

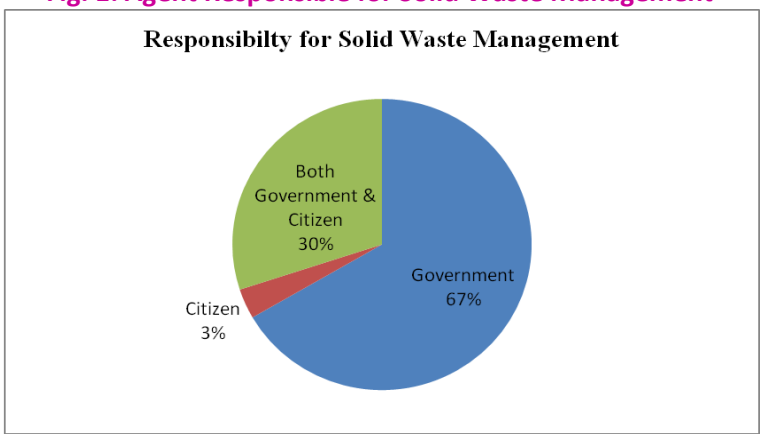
ii. What government has to do for Solid Waste Management in your area?
– Door to Door Collection of Solid Waste
– Proper Disposal of Recycling of Solid Waste
– Awareness and Sensitisation Campaign for Solid Waste Management
– Training of Solid Waste Management Staff
– Installation of Separate Dustbins for different wastes

iii. What Citizen has to do for Solid Waste Management?
– Segregate household waste in two different dustbins as green waste and other waste at home
– Dispose Electronic waste properly
– Avoid single use plastics like disposable of plastic and thermocol and polythene
– Carrying Cotton or Jute bag for shopping
– Make compost of kitchen waste to reduce the percentage of household waste

5.1 Agent responsible for Solid Waste Management

During survey, it was found that 67 percent of resident /citizen think that it is the responsibility of the government who has to do the solid waste management, whereas 30 percent thinks that both government and citizen must work together for solid waste management. Meanwhile it was really disheartening to know from the survey that residents don't want to take their responsibility in this case. Only 3 percent of the resident says that citizen must also take responsibility for managing solid waste in residential societies.

Fig. 1: Agent Responsible for Solid Waste Management

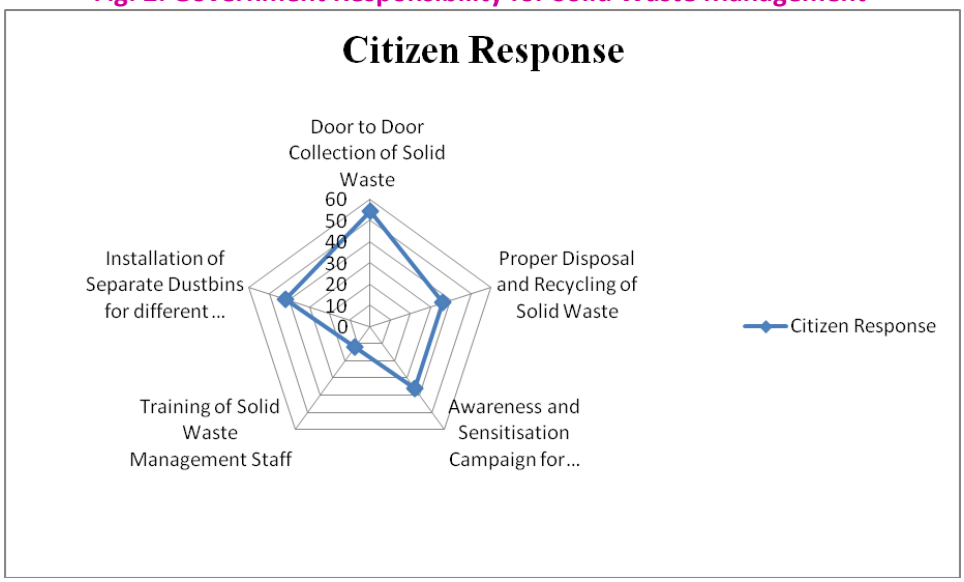


Source: Compiled by Author based on Primary Survey

5.2 What government has to do for Solid Waste Management in your area?

It has to come to know that in the view of the most of the citizen, government must gives more emphasis on door to door collection of solid waste for its management followed by installation of separate dustbins for different wastes, proper disposal and recycling of solid waste, awareness and sensitisation campaign for solid waste management and training of solid waste management staffs. Residents say that they are paying taxes but still in the society no van or "kuddawala" comes from Municipal Corporation of Delhi (MCD) to collect household waste- kitchen waste and other waste. There is only two "dhalaos-", place to throw household garbage, in Sheikh Sarai area which mostly remains full and filthy. There is paucity of MCD staffs, vans and rickshaw thus management of solid waste from household remain thrown in the residential area for a longer time period and causing lots of environmental and health issues. Infact staffs are also not well trained which is further adding problem issues in solid waste management. South Delhi Municipal Corporation (SDMC), no doubt is creating awareness programs for the same but they need to do it regularly especially in all the schools, colleges and Residential Welfare Society (RAWs) of the area.

Fig. 2: Government Responsibility for Solid Waste Management

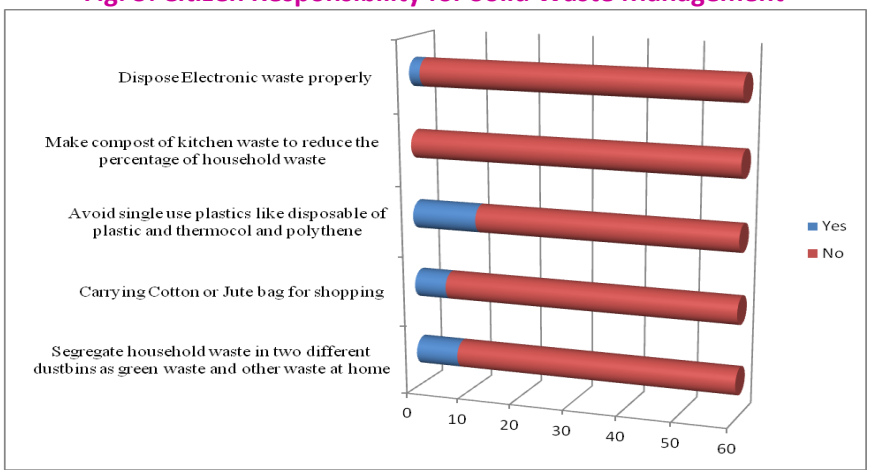


Source: Compiled by Author based on Primary Survey

5.3 What Citizen has to do for Solid Waste Management?

There is no doubt that its "we" the citizen who are getting most negative impact of all the garbage dumping which is related to solid waste which includes kitchen waste and other household wastes. But in the contrary its "we" the citizen are creating all the mess and not taking responsibility for solid waste management. It is so disheartening to know through the primary survey that very few residents are segregating household waste in two dustbins. We all know that its our kitchen waste which contributes almost 60 percent of our garbage. But when these kitchen wastes gets mixed with other waste and gets dumped in landfills then its segregation becomes almost impossible and later on becomes an environmental menance by polluting land, air and underground water. Out of 60 respondents only 8 respondents are segregating household waste as kitchen waste and other waste for solid waste management at house itself. Only 6 respondents are using carrying jute or cotton bags for shopping purpose while rest are still using single use plastics for the same. Only 12 respondents are avoiding the use of disposable of plastic, thermocol and polythene to reduce the amount of waste generation. Only 2 respondents are disposing electronic waste properly while rest are disposing it carelessly which is not good for our environment. Very strangely, out of 60 respondents, not even a single respondent is trying to make compost of kitchen waste or green waste which is getting generated in household and constitute almost 60 percent of our total waste generation.

Fig. 3: Citizen Responsibility for Solid Waste Management



Source: Compiled by Author based on Primary Survey

CONCLUSION:

Solid waste is becoming a big threat for our environment and health. Managing household waste properly is essential for a sustainable and livable city, but it remains a challenge for many growing cities and towns. Effective waste management is expensive, often comprising almost 30-40 percent of municipal budgets. No doubt government is doing its work but we as citizen has also some responsibility towards our environment and society. We citizens has to follows certain things only for solid waste management like using two dustbins for segregating kitchen waste and other waste as its source, using jute and cotton bag for shopping thus minimizing the use of single use plastics for sustainable environment and making compost of the kitchen waste which will certainly reduce the amount of garbage or waste generation.

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