

A Survey on Awareness and Attitude of People towards Household Solid Waste Disposal

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Abstract:- The topic of environmental protection has attained importance in the present era globally but the simple practices like proper waste disposal are often neglected, as a result of which today one of the most important concerns and worries of community is the disposal of solid waste. Public participation has a direct bearing on effective and efficient solid waste management. People all round the globe are aware of the impact of improper waste disposal practices, but the improper techniques of implementation give rise to chaotic situations. The Solid Waste Management Rules (SWM), 2016 states that the waste generator has to segregate the waste at source into three bins as wet waste, dry waste and domestic waste and then hand it over to the waste collector. To find out the practicality about implementation of the waste segregation from households, the present survey work was carried out to obtain information on awareness on waste management practices and their attitude towards household waste disposal. The survey analysis showed that among 109 households, most of the responders are aware about problems related to solid waste disposal but the severity of the problem is not considered by them. It is evident from this study that there is difference between awareness and attitude. Further, since waste collector mixes different types of waste at their end, some people have stopped taking efforts to segregate waste. The study reveals the necessity of giving mass awareness regarding the segregation of household waste and managing them properly.

Keywords:- Household Waste, Segregation, Survey, Awareness, Solid Waste Disposal.

I. INTRODUCTION

The word waste means any substance which is no more usable or unwanted material. Over the decades, solid waste which has been categorized as unwanted material has caused varied environmental problems especially land and soil pollution. According to the Organization for Economic Co-operation and Development, the cities generate 50 % of global waste. The World Economic Forum's white paper on the Circular Economy estimates that, more than 70% of global population will be living in cities and will generate over 1.3 billion tons of solid waste annually by 2050.

Today, as we are developing towards more industrialization and commercialization, the problem of the solid waste is also magnifying. Due to extensive environmental pollution to Mother Earth, lots of concern has

been raised to protect our earth from this anthropogenic source of environmental nuisance. Today, globally, various attempts are being made towards Solid Waste Management. As the entire world is aiming to meet Sustainable Development Goals by 2030, many efforts are also taken by environmentalists and scientists to tackle the problem of solid waste in a sustainable manner. Since 2000, the World Bank has committed over 4.7 billion dollars to more than 340 solid waste management programs in countries across the globe. Most of the countries whether developed or developing ones, are trying to convert waste into wealth.

Solid wastes are broadly classified into degradable and non-degradable substances. Solid waste is created from all the sectors like residential, commercial and industrial sectors. But the characteristics of these waste differs depending upon source. Non- degradable wastes like plastics, glasses, etc. have been managed by the principle of 4 R's (Reduce, Reuse, Recycle and Refuse) wherein lots of efforts are being made to take care of such wastes. But the problem of degradable waste like municipal solid wastes is more as it is more difficult to manage this waste.

Household solid waste is the waste generated from private homes and apartments comprising of garbage and rubbish. Such waste comprises of solid rubbish (vegetable peelings, leftover food, bottles, tetra packs) including biodegradable and non-biodegradable waste. These wastes are collected as huge municipal waste by concerned staff of local municipal corporations on daily basis. According to Swachh Bharat Abhiyan started by our Honorable Prime Minister Shri Narendra Modi, all household waste should be segregated at source before being disposed to waste collectors so as to reduce its impact on the environment and on public health ultimately.

Increasing population, urbanization, industrialization and changing consumption patterns are resulting in the generation of increasing amounts of solid waste and diversification of the type of the solid waste generated, which lead to problems of improper disposal of solid waste. One of the major causes of environmental degradation is improper disposal of solid waste. It is a major cause of environmental pollution and outbreak of various diseases. Proper management of the generated waste is important with this matter.

Solid Waste Management (SWM) has 3 basic components collection of waste, transportation of waste and its disposal. Comprehensive solid waste management incorporates a diverse range of activities including reduction,

recycling, segregation, modification, treatment and disposal which have varying levels of sophistication (Zagozewski et al, 2011). The objective of SWM is to reduce the quantity of solid waste disposed off on land by recovery of materials and energy from solid waste in a cost effective and environmentally friendly manner (MF, 2009). It is now becoming essential to look for methods by which the garbage load on the land can be reduced. It is seen that at present segregation of waste at source seems to be the best method. This would help in reducing the waste and promoting effective waste management at the source i.e. where the waste is generated, segregation is vital. This study is restricted to households as the source of waste generation. It hardly takes any time for an individual to put biodegradable and non-biodegradable waste in two separate bins. Further the biodegradable can be converted into compost, from the non biodegradable items can be reused and only a small portion of remaining waste that is of no use can be discarded. This exercise not only saves a lot of effort at the dump site but also reduce the total amount of waste generated. Which ultimately reduces the need for new dumping grounds, which becomes breeding grounds for flies, rodents, pest and leachate polluting underground water and the reduction in the harmful gases which aggravates global warming.

There was no much effort taken in the past on creating community awareness, either on the likely perils due to poor waste management or any simple steps that a citizen can take.

The Solid Waste Management Rule, 2016 which states that it is the duty of the individual generating the waste to segregate and store the generated waste into separate bins as biodegradable waste collection bin known as wet waste, non-biodegradable waste collecting bin as dry waste and domestic waste collection bin and handing it over to the person collecting the waste in the segregated form. Also, the residential societies need to process, treat and dispose the biodegradable waste with in the premises and the remaining waste should be handed over to the waste collecting authorities. As today we are experiencing the ill effects of inappropriately managed waste. Hence, this study is an attempt to find out awareness among the people and their attitude towards household waste disposal. The objectives of the present work include:

- To find the awareness among the people towards household waste management.
- To analyze the attitude of the people towards household waste disposal.
- To suggest some measures for household waste management.

II. MATERIALS AND METHODS

Study area: A survey was conducted for the housing societies located in Kandivali, Mumbai (MS). The study area is surrounded by many residential buildings.

Survey: To avoid one to one contact in this pandemic period due to the outbreak of Covid-19, a survey was conducted by creating google form bearing 10 questions excluding personal details. The link for the google form was circulated to the

WhatsApp group of 12 housing societies. The google form consists of which is as follows:

- Where do you store your daily garbage?
- Where do you throw the garbage from your dustbin?
- Do you segregate your waste into dry waste and wet waste?
- If NO why?
- Are you sometimes confused with the waste whether it's a dry waste or wet waste?
- Are you aware about the 3 R's (reduce, reuse, recycle)?
- Do you reuse items like plastic bags, parcel containers etc.?
- Any other measures taken to reduce the amount of waste you generate?
- Are you aware about the problems related to solid waste disposal?
- Information related to segregating, reducing the waste is reaching you through.

➤ Data analysis

The responses obtained were analyzed and graphical representation of the responses was reported in the form of pie-chart.

III. RESULTS AND DISCUSSION

Open dumping grounds lead to the generation and release of Greenhouse Gases (GHGs). As we head into a climate conscious society, it is imperative that we plan to reduce the amount of potential GHG emissions through waste management. In the present work, the data obtained is a primary data. The google form link was circulated through WhatsApp in different groups. Total 109 people living in different housing societies of Kandivali (MS) area responded to the questionnaire. The questionnaire helped to assess their attitude and awareness towards household waste disposal.

The sample represented 60.6% females and remaining 39.4% of males between the age group of 22 to 45 years. More than around 79.8% families were having four and more than four family members. Figures 1-2 depict storage and disposal of household garbage. It was evident that most of them (87.2%) store their garbage in dustbin while remaining store household garbage in plastic bags, buckets, etc. Regarding garbage disposal, 78.9% of the respondents hand it over to the garbage collector to whom they pay to collect the waste at their door step and 19.3% throw in the community bin or the vehicle by themselves and remaining 1.8% of respondents are having some other method to throw their garbage. Figure 3 shows responses to the question whether they segregate their waste into dry or wet waste at their homes. 36.7% said no they are not segregating the waste into dry and wet and 63.3% said they do segregate their waste. But out of the 63.3% respondents who segregate their waste 47.8% are not sure whether they are segregating in a correct way and some are confused with the wet and dry waste itself. This indicates that there is a need to spread more awareness about necessity for segregating waste. Figure 4-6 reveals that considerable number (76.1%) are aware about the problems of solid waste disposal and 88.1% of respondents are aware

about the reduce, reuse, recycling concept of solid waste management and 78% actually reusing some of the items like plastic bags, containers etc. and many respondents having their own ways of reducing their waste among which 10% are composting their wet waste as shown in Figure 7. Media as well as local municipal corporation are playing an important role in spreading awareness regarding the segregation and waste reduction at source as depicted in Figure 8.

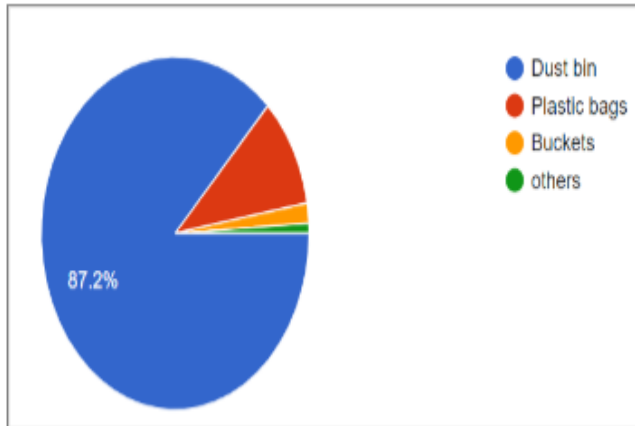


Fig 1 shows where garbage is stored at house

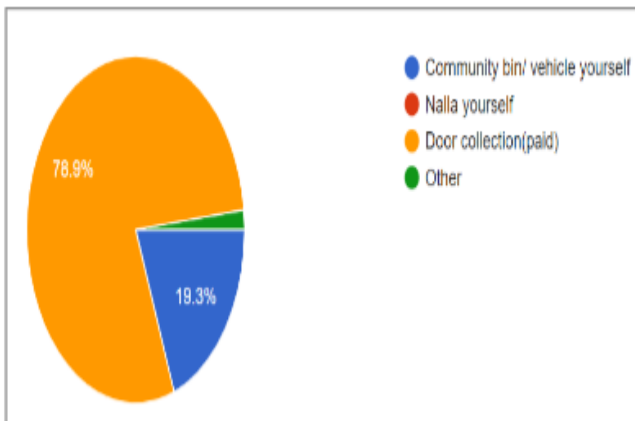


Fig 2 shows where solid household garbage is disposed

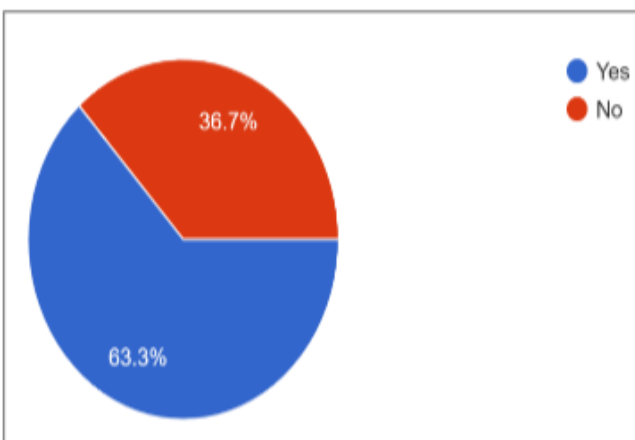


Fig 3 shows whether waste is segregated at source associated with solid waste disposal

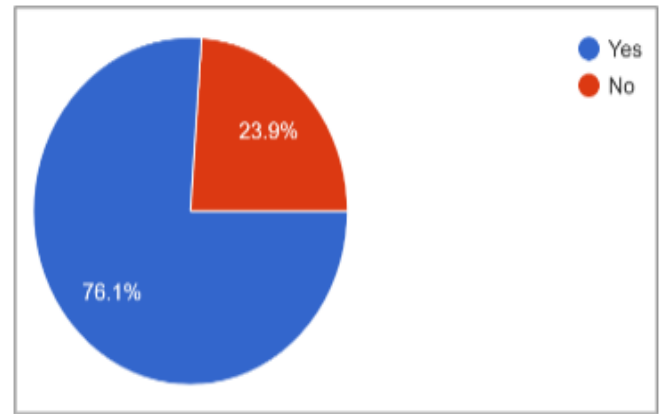


Fig 4 shows whether they are aware about problems

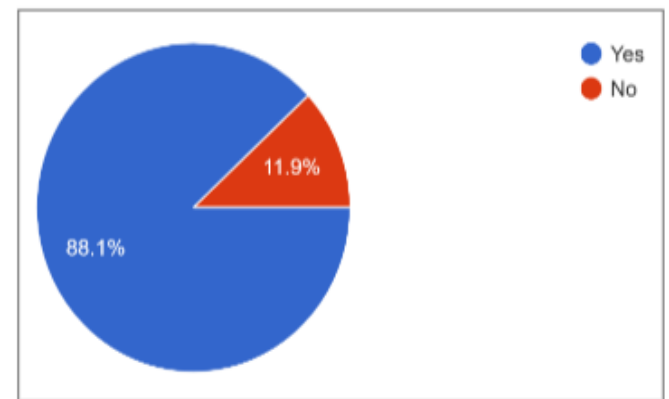


Fig 5 shows whether respondents are aware about 3R's

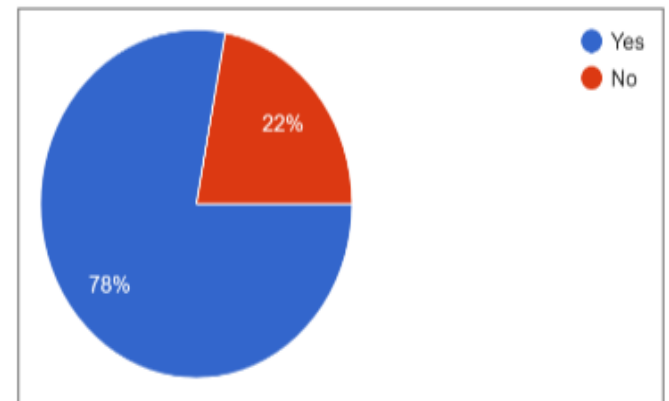


Fig 6 shows whether respondents reuse items

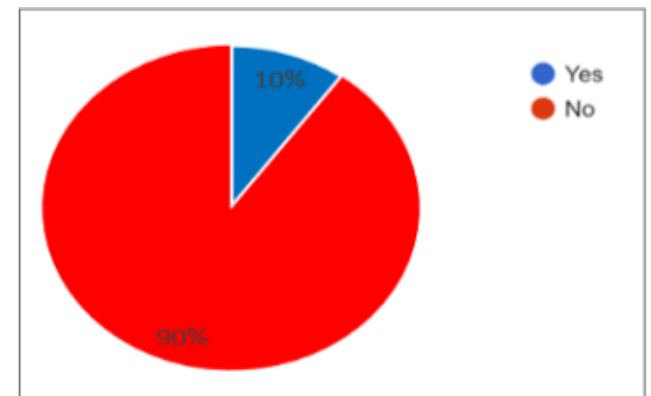


Fig 7. Shows whether respondents are composting their wet waste

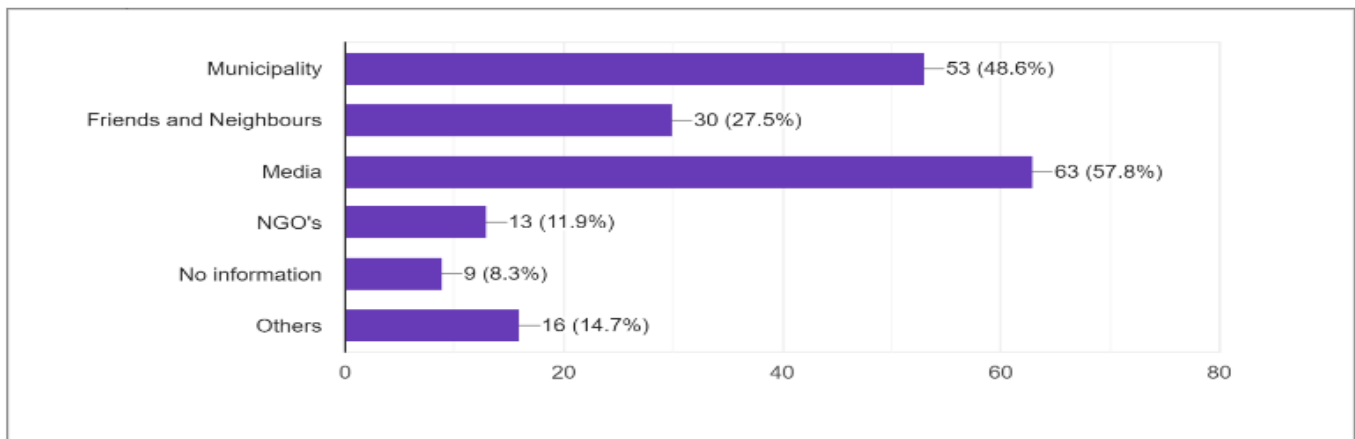


Fig 8 shows role of different sources to spread awareness about solid waste management

Presently, the situation of solid waste management has improved and local municipal corporators have encouraged people for waste segregation by providing 2 bins for free to every household to segregate wet waste with dry waste so that community is involved in waste segregation and effective solid waste management is achieved in every ward. Even though the situation has improved as compared to five years back, but to achieve the goal of zero waste disposal still lots of efforts are to be taken at different levels; individual, society and community level. Following are some suggestions which can be incorporated for enhancing solid waste management:

- 1) Municipal authorities shall organize awareness programme through various platforms about segregation of household waste and shall encourage reusing and recycling dry waste.
- 2) Corporators and local NGOs should organize various competitions related to waste management for societies to encourage solid waste management.
- 3) Reward system should be followed to encourage more and more communities, localities and societies to encourage active participations among people which can lead to clean city.
- 4) Any of family member particularly house wives can take a leading role in segregating and managing the wet waste to convert it into compost in their houses.
- 5) Provision for strong penalties and effective execution of law can be the important tool for reducing the problem of solid waste management.

IV. CONCLUSION

The study concludes that a considerable number of people are segregating the waste that shows the positive attitude of the people towards solid waste management and the rules laid down by the Municipal corporation but still the awareness regarding the type of waste is lacking where people are confused with what should go in the wet waste bin and what should go in the dry waste bin. NGOs, Municipal authorities should take more efforts to educate the people. Greater level of public participation in segregating waste and proper management of wet waste in scientific manner through campaigning is required. Once enforcement of effective segregation with the wet garbage going properly in wet waste bin and dry items collected in dry waste bin is gained,

biodegradable waste can be collected for composting and from the remaining non-biodegradable items some can be reused. This would ensure that only less percent of waste goes to the so-called dump sites.

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