

# Challenges to Adopt Waste Management Behaviour

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**Abstract**— Unhealthy disposal of solid waste is one of the important problems in many societies. Despite various rules, regulation and guidelines, when waste management still remains a great challenge then it is just not a challenge but it a social handicap. Youth are our tomorrow's leaders, they have the power to influence and transform the society. Hence the present study aimed to investigate youths' level of awareness and engagement related to municipal waste management, with reference to Nasik city. Findings reveal that the willingness to adopt waste management methods is correlated to the practicality of those methods; which meant that sufficient support from municipal council was needed for continued practice.

**Index Terms**— Nasik, Waste Management, Youth.

## I. INTRODUCTION

Solid waste refers to the discarded, unwanted and useless range of garbage arising from animal and human activities like industrial, residential and commercial activities. Solid Waste Management (SWM) is defined as the discipline associated with control of generation, storage, collection, transport or transfer, processing and disposal of solid waste materials in a way that best addresses the range of public health, conservation, economics, aesthetic, engineering and other environmental considerations. Thus SWM is inclusive of planning, administrative, financial, engineering and legal functions.

Municipal waste includes all types of solid waste generated by households and commercial establishments and usually collected by local government bodies.

India is the fastest growing economy and yet the fact is that most Indian cities and towns are found littered with garbage (MSW) and only important chosen places are maintained clean. On an average, garbage is composed of 40-45% of organic fraction and 20-30% of plastics, paper, rags and other components [2]. Against the population and developmental growth, it is essential to draw time targeted action plan for management of MSW by each city and town, else increasing quantity of waste will lead to unhealthy environmental conditions. In 2000, the Ministry of Environment and Forest, Government of India (GoI), notified the Municipal Solid Waste (Management and Handling) rules for all Indian cities.

Nashik is a city located in Northwest of Maharashtra State in India, in the Western Ghats. Nashik is one of the fastest developing city, not only in Maharashtra but ranks 16th fastest growing city in Asia [1]. It forms important vertex of 'Golden Triangle' of Mumbai-Nashik-Pune triangle of development. The city is registering almost 20% extra growth rate compared to similar other cities in India.

Nashik Municipal Corporation (NMC) the governing administrative body of city was established in 1864. As per the last Census of India, population of the city grew from 0.15 millions in 1951 to 1.49 million in 2011. The rapid development and population growth in the city is consequently leading to more per capita MSW, quantity of which has been estimated to reach 1161gm/day by and 1628 TPD by 2031 [5].

Solid waste Management: The Health Department, NMC is responsible for Collection, Segregation and Transportation of MSW and the Mechanical Division takes care of processing and landfill. The city has a functioning door-to-door solid-waste collection system and a compost plant. Nashik is the only city in Maharashtra which has taken lead towards scientific management of MSW in accordance with MSW rules 2000. The NMC is collecting 300-350 tons of MSW per day. The city also has a biomedical waste management plant operated by the municipal corporation [5]. Both the collection and transport of waste is outsourced on contract basis. NMC boasts of being a leading municipal corporation in India, as far as disposal of waste and its management are concerned. Its Ghantagari project became world famous.

Unhealthy disposal of solid waste is one of the important problems in many societies. Despite various rules, regulation and guidelines, when waste management still remains a great challenge then it is just not a challenge but it a social handicap. With the common attitude that waste management is local government's responsibility, widely spread in society; Indians will not give it much importance.

### *Significance of the Study*

Waste management rules in India mandate municipalities and commercial establishments to act in an environmentally accountable and responsible manner. But the key to waste management is to ensure segregation at source else most recyclable waste ends up in dump yards. Thus it is also essential to emphasize the role of community residents, their

attitudes and, their waste handling practices, as they are the main end-users of waste management facilities [6]. In India where almost 34% of the population consists of youth, they apparently become compelling agents of change. Thus surveying this influential section of the society is important to bring about transformation in attitude and behavior of society towards waste management. With the preceding discussion, the present study gains its rationale to determine the youths' level of awareness and willingness to adopt waste management.

## II. LITERATURE REVIEW

Research shows that school education programme can improve students' knowledge and awareness of municipal waste. The students further shared their learning with their parents and also attempted to improve waste practices in their homes [3]. For younger generation self-internalization of waste management awareness that do not require much effort is the easiest form of awareness [4].

## III. RESEARCH OBJECTIVE AND HYPOTHESIS:

**Research Question:** What are the practical challenges faced while implementing waste management methods?

**Objective:** The present study aimed to investigate youths' level of awareness and engagement related to municipal waste management.

**Hypothesis:** To investigate this issue, following linkage was hypothesized

**Ha:** The willingness to implement waste management methods is correlated to the practicality of those methods

## IV. RESEARCH METHODOLOGY

The study adopted descriptive research design with quantitative approach.

**Participants:** for the purpose of this study special focus was on youth from Nasik city; because youth are our tomorrow's leaders, they have the power to influence and transform the society.

**Sampling:** Sample of 255 youths were selected using convenience sampling technique. From the sample 20 respondents were selected for focus group research.

**Instrument:** A self-administered questionnaire was designed carefully based literature review and objectives of the study.

## V. RESULT AND DISCUSSION

Findings of the study were based on 248 valid responses received. Respondents' average age group was 18 to 22 years and male respondents accounted for 41%. Almost half of the respondents 48% had completed graduation and were pursuing further education, while the rest were doing their graduation.

Almost all respondents (97%) agreed that with growing population and somewhat indifferent attitude of public, waste management is a mounting concern for India. Over 89% respondents voiced their concern over spread of diseases due to improper waste storage and disposal methods. 76% were worried about the illegal dumping that is increasingly polluting air, rivers and, streams. Inconsiderate utilization of natural resources for making products that we buy and use was a matter of worry for 72%.

Respondents were asked whether they were aware of the four strategies to waste management- Refuse, Reuse, Reduce and Recycle (4Rs). A major observation was that despite being aware, comparatively less respondents actually practiced it in their daily life. The most preferred method was recycling (72%), done by handing over waste to Kabbadiwalas; while the least practiced one was refusing to buy anything unless really needed (24%). Respondents who were not aware or did not adopt waste management practices despite being aware were further queried about their willingness to adopt waste management if educated about the same. Yet again, maximum respondents (80%) showed preparedness was for recycling while very few (42%) agreed on reducing amount of waste/garbage generated. The level of their awareness and implementation of these strategies is presented in Table 1.

*Table 1: Level of Awareness and Willingness to Adopt Waste Management*

<b>Awareness related to:</b>	<b>Aware</b>	<b>If aware, do you implement?</b>	<b>Willing to adopt if informed</b>
Reuse - everything to its maximum; make secondary use of different articles	74%	51%	53%
Refuse: Do not buy anything which that is really not need.	61%	24%	46%

Reduce - the amount of garbage generated	64%	33%	42%
Recycle – keep things which can be recycled to be given to rag/ waste pickers	82%	72%	80 %

**Source: Data analysis of the study**

Focus Group Study: After this analysis, a small focus group of 20 respondents who were highly concerned over unhealthy disposal of waste were further educated about the issues associated with improper waste disposal and informed about means for proper waste management. The group was convinced about the benefits and encouraged to educate their family members to adopt waste management methods. To minimize or reduce the waste in environment and help to keep it clean, focus group was asked to practice waste segregation at source; that is to divide waste into dry and wet waste and store it in separate bins at home. Specific instructions were given to store waste in bins and not in throw away polythene bags as is the common practice. Dry would consists of paper, cardboards, glass or metal while the wet waste would be particularly organic waste like leftover food, vegetables and fruits peels, or dry flowers and leaves. Focus group was also required to separately store all plastic waste in a third bin. Recycling in and around the home can be easy when one knows how to do it. Hence focus group was also informed about various measures to adopt recycling at home.

After a month, the focus group was surveyed again to determine the change in their waste management behavior and to understand the challenges faced by them.

Most (87%) of focus group respondents reported that it was time consuming and not convenient to segregate waste or recycle at home. Inclined behavior and busy lifestyle made these practices unfeasible. Nevertheless, after deliberate efforts 52% of the focus group members could not only follow waste management methods but also sustain it throughout the month. Half of them could convince their family but adopt it just for few weeks. Only 4% could not bring about any change in their waste management behavior.

**Challenges to adopt Waste Management:**

Waste management practices not being convenient and feasible considering busy daily schedule (82%). Waste segregation was a problem with most respondents (79%)

accustomed to dumping waste without giving a thought. Using throw-away polythene bags was a convenience, whereas using separate dustbins was a task for 74% respondents, as it required regular cleaning. Many (43%) discontinued the practice of segregating waste at source when they observed that employees of garbage collecting van simply dumped all wastes together in the van. Either there were no facilities in the van to maintain the segregated waste or the employees were not following that practice. Further even the municipal council did not provide for separate closed bins for dumping segregated wastes in the locality.

Focus group also faced certain challenges while adopting recycling practices. Making no or minimum use of plastic items at home was the biggest one (78%); the concept of switching over to glass kitchenware instead plastic did not go well (69%). The suggestion of buying products that can be recycled easily such as glass jars and tin cans, when shopping at the supermarket was practical to the extent that these alternative packaging were not comparatively costly (52%). Purchasing products that were eco-friendly was a difficulty as many product labels had no such information on it (77%).

Pearson’s correlation test for hypothesis showed that there was significant positive relation between the two variables, willingness to adopt waste management methods and practicality of waste management methods ( $r = 0.78, n = 248, p = 0.002$ ).

**VI. CONCLUSION**

A significant conclusion is that youth hold a strong concern for a clean environment and believe that more awareness campaigns are needed to disseminate information. The willingness to adopt waste management methods is correlated to the practicality of those methods; which meant that sufficient support from municipal council was needed for continued practice. Exposure visits to municipal waste management plant should be arranged to revive faith that authority are concerned about and are taking every measure to control waste disposal issues. Incentives be

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