

Perception and Participation in Solid Waste Management: A Household Based Study

Ravi Yadav^{1*} | Prof. Bela Kothari²

¹Research Scholar, Department of Anthropology, University of Rajasthan, Jaipur, Rajasthan, India.

²Department of Anthropology, University of Rajasthan, Jaipur, Rajasthan, India.

*Corresponding Author: jhikuu@gmail.com

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ABSTRACT

Household solid waste management is a social and human science variant of an already complex and intricate science and technology problem. This study examines the social and psychological dimensions of household waste management in Jaipur. It used an Interview schedule to collect primary data from 45 households. The study investigates how different social groups within the household such as men and women, intellectually grasp the phenomenon of waste. It studies how household waste is stored and how it is disposed of, and how the process is affected by social hierarchies. It evaluates the social and moral responsibilities of the citizens towards waste management. It studies how openly citizens express their wishes and desires for improvement of the waste management system through various means such as requesting for urgent corrective measures and volunteering for various welfare activities, including awareness activities. This study notes that the 45 citizens of Jaipur are willing to undertake waste management activities as a moral responsibility, but are not able to change their behaviour and fulfil this wish of theirs in practice. It concludes that improvement of household waste management in Jaipur requires simultaneous improvements in various social, moral, behavioural, and value transformation activities and providing adequate and proper social and infrastructural facilities. Recognize women's role in garbage management as an active stakeholder rather than an beneficiary.

Keywords: Solid Waste Management, Household Behaviour, Socio-Cultural Factors, Participatory Behaviour, Gender and Waste Work, Civic Engagement, Jaipur City.

Introduction

Jaipur city faces a number of problems with respect to solid waste management. Poor household level behaviour for segregation and disposal of waste poses a major challenge in solid waste management. Waste management has a gendered dimension and women are affected the most. Improving women's civic engagement and sense of ownership over public space will ensure improvement in the waste management systems in cities. Rapid urbanization results in growth and inequalities within the city. Cities need to manage their solid waste in an integrated and sustainable manner.

Waste management relies heavily on the behaviour of households. Households need to store, sort and dispose waste in a scientific manner. Households need to go beyond the boundaries of their homes for improvement of the waste management systems.

Perception, participation, and partnership are vital in managing solid waste. Perception refers to the meanings and understandings people derive from issues relating to solid waste management. Participation refers to the arenas through which people and households exercise their understandings of

solid waste management (if any). Partnership refers to collaboration between the government and other agencies. Perception influences participation. Partnership determines the level of participation. Based on the aforementioned relationships, this study analyses the relationships and equilibrium between these components.

Waste is a social construct. How do you decide when something becomes waste? Often, it is relative to a society's beliefs and social hierarchies. The concept of waste is closely related to the social position of an individual. In waste management, the prevailing attitude of the community in the absence of adequate waste management facilities plays a critical role in managing solid waste (Fadullah 2022). Waste management, however, is a multifaceted and interdisciplinary field. Viewing waste only from the lenses of management or consumer behaviour ignoring social order and inequity is unacceptable (Hird 2022). The studies reviewed reveal that waste management is politically charged. It touches on social inequity, the environment, and peace, security and human rights. Waste management determines the health and wellbeing of citizens and the state of the environment.

An understanding of the factors leading to indiscriminate waste disposal will provide reasons for excluding the household from active participation in SWM. Some of the reasons could be lack of adequate knowledge concerning the consequences of improper waste disposal, absence of will to participate in the proper disposal of waste or the waste management services being completely absent or irregular. Educated persons and the affluent social classes are found to be indifferent to the proper disposal of waste unless enforcement of proper waste disposal is strictly enforced (Asnani, 2024). In the absence of proper collection of waste, the public is often forced to resort to the indiscriminate disposal and/or burning of waste (Longe, 2009). Some of the problems associated with the management of municipal solid wastes could be attributed to the lack of adequate knowledge concerning proper waste disposal (Sahu and Mishra, 2023).

In the case of India, various gaps and discrepancies have been documented between waste management policies and the abilities of municipal authorities to implement them (Joshi and Ahmed, 2016). Some structural barriers to improving waste management systems in the country have been documented (Ghatak, 2016). They include the absence of adequate transfer stations, proper scientific landfills, and formal integration of the informal recycling and waste management sector. Persons have been documented to hold positive perceptions regarding the waste management systems in place, however, this has not been the case in practice. This has been attributed to, among others, the weak and uneven nature of collaboration between municipal authorities and informal sector actors (Bahuguna and Bose, 2019). Positive household perceptions and attitudes toward public participation in waste management do not always lead to the formation of collaborative partnerships between the municipal government and informal sector workers (Goswami et al. 2024).

Generally, the studies reviewed showed that various dimensions combine to inform solid waste management. Meaning and responsibility regarding waste are socially constructed and context specific. Acts and practices associated with effective solid waste management are best learned through experiences and participation. Trust and commitment of the community and partners, e.g. local government and informal sector actors, are critical for the success of participatory solid waste management. The literature reviewed showed that in most cases, effective and responsible solid waste management consists of a synergistic combination of the three components of the triad, i.e. perception, participation and partnership.

Objectives of the Study

This research seeks to:

- To understand the meaning and perception of waste at household level.
- To explore household practices of waste generation, segregation, and disposal.
- To assess the willingness of respondents to participate in solid waste management at community level.

Methodology

The study employed a qualitative research design. It was conducted in Jaipur city and involved 45 households. The samples represented the pluralism of Jaipur city in terms of culture, social class and residential location. The researchers grouped the responses according to the seven themes: (i) socio-cultural background and the importance of cleanliness (ii) Waste as a cultural phenomenon (iii) daily

practices, quantity, and changes over time, (iv) household arrangements for waste collection and storage, (v) Sustainable practices (vi) participation in solid waste management at the community level (vii) future perspectives and suggestions.

Demographic Profile of the Respondents

Of the 34 respondents who were women, it could be due to the nature of the guiding question "Who do you think is the most appropriate person in your household to talk about waste and its management?"

28 respondents were living in nuclear families and 17 were living in joint families. The respondents were aging from 20 to 75 years, and the overall sample size was 233. Among the sample, 40.34% of the adult women and 40.34% of the adult men were household members, 8.16% of the women and 8.16% of the men were juveniles of less than 18 years, respectively.

Responses

• Awareness of Waste

The term "*kachra/kooda*" was used to represent waste in this study. The respondents were asked to explain their perception towards waste. The answers were broad and varied. Negative perceptions were expressed as health risks, foul smell and uncleanness. The expression "*gandagi*" was used to denote waste.

For many participants, the word *kachra* was related to the waste collection vehicle and the call to clear households' waste with the announcement "*gaadiwalaaya, ghar se kachranikaal*." Most participants complained about insufficient and small-sized dustbins and the practice to throw garbage randomly. The participants also mentioned the need for proper disposal of household waste. Regarding the definition of waste, some of the participants associated the term with "*gandagi*," "*badboo*," "*gandagi ka prateek*," "*gandagi, badboo aur bimariphailne ka khatra*," "*mannkharabhotahai, achhanahilagta*," and "*badboo aur ashuddh*" etc.

Waste management was also related with cleanliness by the participants. Some expressions like "*saaf-safai*," "*pavitrata/swachhata*," "*kachra*," "*vyarthvastu*," "*kachra ka management*," "*samagri se khaad banana*," "*vyarthupyog*," "*kachra ka upyog*" and "*samastekachre ka management*" reflect participants' understanding of the term waste management.

From the participants' statements, it may be inferred that they associated the term waste with a host of connotations like dirt, bad odour, infection, and disorder. The participants also linked the term with cleanliness, waste collection and management and civic sense.

Survey participants indicated which areas of the house they observe to determine if a house is clean or dirty. Many mentioned the kitchen, bathroom, and the main entrance of the house. Some mentioned the courtyard. One important finding of the survey was that participants assessed cleanliness by evaluating the areas of the house where domestic work is done. Also, because female family members do the domestic work and help in the upkeep of the house, cleanliness is closely related to the management of household waste and social honor of the family.

As for the values of the surveyed individuals, it was found that 45 participants thought it is a person's moral obligation to properly dispose of household waste (i.e. '*merakachrameronatikjimedarihai*'). From the survey, participants showed awareness of their moral responsibility concerning household waste; however, the difference was in their actions. Of the 45 participants, 27 separated their wet and dry waste, 20 used cloth bags to carry their household waste, and 16 complained to the local authorities about the improper waste management. It can be concluded that most people agree with the philosophy of proper management of household waste; however, they need to be supported with proper waste management services and educational programs to foster the will in people to practice what they believe is their moral responsibility.

This study identifies how moral values are attached to the management of household waste. Respondents reported correction and education of their children regarding the right way to dispose of waste. Respondents spoke of the need to develop a value for right behaviour at an early stage in a child's life. "*Teach them in their childhood*" (*hum unhebachpan se sikhate hain*) is an indication of how the family value system influences the child regarding right behavior toward cleanliness. Other external influences on this education include the school and the mass media. It is relevant to note that 36 percent of the respondents stated that waste disposal irresponsibility by their children does not occur in the

household. This certainly is an indication of rising awareness regarding cleanliness. Thirteen percent of the respondents reported waste related quarrels with their neighbours. This illustrates that waste management is a two way interaction of all the households in a neighbourhood. If waste is managed properly in all the households in a neighbourhood, social and inter-personal conflicts in that neighbourhood are likely to reduce. It was relevant to note that 66 percent of respondents perceived waste as a resource.

- **Knowledge of and Sources of Knowledge of Waste Management**

Respondents' knowledge regarding formal waste segregation systems was found to be moderate. Of the respondents, 25 mentioned the use of either two or colours-coded waste bins. Twelve respondents named the three colours used in the waste collection vehicles. Respondents' knowledge regarding the colours of dry waste was found to be inadequate. Of the respondents, 23 mentioned that the colours code for dry waste should be blue. Others mentioned the colours code for dry waste should be green (13 respondents) and some (6 respondents) did not mention any colours code for dry waste.

Respondents mentioned a number of sources through which members of their family adopt waste disposal behaviours. These include father (41) and mother (42) of the family, school (40), television (36), and social media (36) and friends (25). Most of the respondents (22) cited all five sources mentioned above. This shows that members of the family, school and other external agencies such as television and social media harmonize in teaching disposal behaviours to family members.

From the results of the survey, it can be concluded that family members of the respondents are in favour of separation of waste. However, their knowledge regarding the colours codes and other classification of waste is inadequate.

- **Everyday Waste Practices, Gender and Social Hierarchy**

In most households, the disposal of household waste was organized in a way that kept the waste as far from the living area as possible. This was particularly important in relation to the area where the visitors and guests of the family were received. Depending on the location of the kitchen, waste could be disposed of in the courtyard, the veranda, or balcony. In most cases, waste storage containers were covered. Only a few baskets were left uncovered. Within the 45 households covered in the study, 27 stored wet and dry waste separately and the remaining 18 stored all the waste together.

Respondents (37) reported an increase in household waste during celebrations (e.g. marriages, festivals, religious functions, birthdays, get-togethers, etc.). Diwali was mentioned repeatedly. Most respondents attributed this increase in waste to cleaning and decorating the house (waste generated from cleaning and used in decorations), packing and wrapping of sweets, leftover flower and earthen diyas, firecracker remnants, and puja samagri.

From the responses given, waste management practices reflect the cultural and religious activities and tradition of a country. This is particularly true in city like Jaipur, which has a number of cultural and religious functions. Hence, while making solid waste management plans, the activities of the peak period (e.g. the festival season), and not the average or base-line conditions, should form the basis of the plans. Plans should incorporate additional emergency measures to augment regular waste management activities.

From the unstructured responses, most of the women were responsible for the day to day waste management activities in the household (e.g. deciding when waste should be discarded, removing waste from the house, and waste storage). Women also performed the major share of the tasks related to the management of household including cleaning. Most of the men did the waste management work outside the household (i.e. taking waste to the municipal waste collection vehicle). Children did house cleaning and also assisted in waste management.

In wealthier households, waste management work was not allocated to family members as it was in lower income households. Rather, this work was assigned to a paid domestic worker. Thus, members of upper social classes were, in effect, outsourcing to others work that was physically dirty and unpleasant. Joint efforts to perform waste management work was observed in households consisting only of a husband and a wife. In these households, both husband and wife shared the responsibility and worked together to perform waste management tasks which included, among others, sorting of household waste, waste storage and waste transport to the waste collection point.

These qualitative findings were supported by the quantitative findings. Of the 24 respondents, 13 (54%) indicated that different members of the family were assigned different tasks in waste management. Of the 19 respondents who indicated that there was no assignment of different waste management tasks to different family members, 13 (68%) of these respondents were women. These findings further demonstrate that in the absence of other alternatives, the management of household waste becomes part of the domestic work, which is, for the most part, performed by women.

In the pursuit of public sanitation and improving environmental health conditions, certain policies may involuntarily increase the work burden on women if mechanisms to ameliorate women's and other affected groups' work burden are not integrated in these policies.

According to the respondents, 40 of them had to rely on door-to-door collection by municipal waste vehicles. A few of them also admitted to using public waste bins and open dumping. Respondents were, however, divided on the collection system; 31 of them gave it a positive review. The other 10 of them held a negative opinion of the system. Four others also held the opinion that the collection system was deficient.

Barriers in Solid Waste Management

- **Social Barriers:** Social barriers are related to the division of labour in the household, community participation, neighbour disputes and reliance on informal means of waste handling. Within the household, the most prominent division of labour is that of gender. Women are responsible for the likes of waste removal and maintenance of the household's surrounds. This is confirmed by responses including, "mahila," and "gerhini" among others. Men were reported to participate only in the removal of large waste loads and transportation to the collection truck, as expressed by "purushbharikachrauthane me, mahila safaiavmvyavasthapan me." Other household members were also reported to participate in waste management activities. It is also reported that the responsibility of waste management is imparted to the household members. It was reported that some household members remain completely negligent to this responsibility.

Disputes among neighbours about waste disposal and the movement of dust and waste between homes have also contributed to the breakdown of order beyond the household. Other causes of enmity include the disposal of liquid and solid household waste, and the falling of leaves. The inability to reach an agreement about the maintenance of the cleanliness of the neighbourhood often results in the breakdown of social amity and becomes a subject of legal cases. Disputes are often settled through informal means like adjustment, –the removal of waste, or by arguing without reaching a conclusion. Some neighbours continue to rely on traditional methods of waste management and recycling by giving away leftover food to the stray cattle and/or dogs and/or by selling old and used papers, metals, and plastic to the local waste and scrap dealers (raddiwalas/kabadiwalas).

Although these practices promote waste diversion, and therefore have a place in municipal solid waste management systems, in practice they are implemented in an unofficial capacity. In general, study participants were more concerned about cleanliness in their immediate environment, particularly within their own homes. There was less concern about shared/ public space, including roads, drainage, and vacant land.

An exceptional case to illustrate the barriers to organizational and behavioural change to improve solid waste management is found in a local initiative to clean up the neighbourhood. Residents voluntarily agreed to clean up their streets on Sunday. In the end, the program was abandoned due to a failure by a significant number of residents to support the initiative. Other barriers to effective solid waste management are located at different levels and include a lack of community cohesion, diverse informal waste disposal practices, and lack of commitment by community members to assist in the development of long-term solid waste management solutions.

- **Cultural:** The study suggests that cultural barriers in the case of proper management of waste is Passed down through generations, acquired through personal interactions and unconscious beliefs and perceptions regarding dirt and cleanliness. When asked about their impression regarding the term 'Kachra' respondents associated it with Gandagi (dirty), Badbu (sickness, disease), Ashuddhata (impurity) and various other unpleasant things. It is a part of the cultural belief in our society to maintain social and physical distance from anything dirty, unpleasant and impure. It creates a feeling amongst the people to get rid of the waste from their surrounding as quickly as possible. Respondents' believe that lifestyle and behavior towards cleanliness is

strongly related to family. Many respondents expressed that cleanliness is learnt at home, in the informal setting. A respondent expressed, "Bachpan se sikhaya" which means "It is learned at home". Respondents also spoke about "Neglect is learned at home" which means "Their elders also learnt neglect". This says that indifference towards waste and responsible behaviour towards waste also is norm in the family.

Respondents associated phrases such as "achalaga" and "thought-provoking" with the examples of everyday waste management. This implies that the management of waste is done silently. Questions and reflections on the management of waste are also not done. There are no open debates or discourses on the management of waste. The cultural silence on the management of waste may lead to continuation of existing waste management systems without questioning. Some respondents also related the management of waste with the system of cleanliness, particularly with the celebrations of the festival of Diwali and marriage, as well as the ritual of Holi. Respondents also mentioned the importance of systematic management of waste by special occasions. It is also evident from the respondents' accounts that the cultural system of cleanliness incorporated the routine management of waste. Respondents also related other cultural systems with the management of waste. Respondents also mentioned the importance of kitchen waste management by culturally and morally justifying donating kitchen waste to animals. Similar practices also demonstrate that household members generally look for culturally justifiable means of waste management before looking for scientifically justifiable means. In absence of means of justifiably combining the practice of waste management with the rules and guidelines of systematic waste management, it may be difficult to change household members' perception regarding waste management.

- **Structural:** Regarding barriers at the household level, the study mentions insufficient waste management within the household as being attributed to several structural constraints. The main barrier, however, is insufficient space to store household waste. Smaller households in particular, are challenged to store waste within the household premises. Waste is stored within the household kitchen and in other unofficial places, like near the staircase or outside the household's gate. Household members attempt to manage waste in an efficient manner, by storing it in official and unofficial places, until the kachragaadi (waste collection vehicle) arrives. In the meanwhile, household members may transport the waste to unofficial dumping sites, like vacant plots within the neighbourhood. Segregating household waste is another challenge. Household members tend to lose interest in waste management if the waste collection vehicle does not adequately separate the waste and mixes the different streams. Household waste management becomes challenging, especially if household members do not have adequate household waste management infrastructure, like bins. A motivated household may lose interest in waste management if the waste management infrastructure is of poor quality. Other barriers include irregular and unpredictable waste collection.

Approximately 20 respondents said the collection vehicle comes at various times during the day, sometimes even multiple times a day. For households with members who work or have other commitments outside the home, an uncertain collection schedule makes it very difficult to manage household waste. Collection disruptions result in the accumulation of waste within and surrounding the household. These are structural barriers, which, when combined with other inadequate infrastructure and inadequate waste management systems, negatively impact household members' abilities and willingness to adequately manage household waste.

- **Institutional:** At the institutional level, barriers are connected to the processes and procedures of the Nagar Nigam and the broader municipal level waste management systems, particularly in the context of the implementation of policies and rules. The largest number of respondents (39) said that the Plastic Ban was ineffective. Respondents said that "plastic, paper, and thin/thick (sheets) are all banned. Still, it is allowed to continue" and "Ban is there, but it is not implemented. The ban itself is allowed. 100% ban is implemented and it is monitored by the government only." This shows that there is a significant disconnect between the law/policy and its implementation. The second most cited case of an ineffectual institutional framework is associated with the irregular functionality of the grievance redressal mechanisms. While 38 of the respondents said they had never used the formal mechanisms to file a grievance, the other 8 respondents, who had interacted with the Nagar Nigam, the toll-free number and the Sampark

Portal, expressed dissatisfaction since most of the improvements in cleanliness of the area were only transient.

This suggests that lack of barrier is not only due to the lack of efforts by the residents, but also due to inadequate planning and strategy by the local government. Institutional barriers include the failure of the municipality to enforce its own by-laws, the lack of an effective and efficient mechanism to resolve grievances, poor supervision of waste handlers, and absence of information and communication on proper management of different types of waste. Lack of all these creates a weak and unrepairable gap in the faith of the people in the municipal waste management system.

- **Psychological:** The analysis identifies psychological barriers in solid waste management as a result of negative cognitive frame works and emotions, perception of weakness and lack of control over one's environment, and a behavioural predisposition to respond to situations in an unplanned and reactive manner. Many participants reported that when they think of the word "kachra" the first thing that comes to their mind is "gandagi" (dirtiness) or sickness. In other words, respondents considered unmanaged and improperly disposed waste as a sickness and something dirty. Consequently, respondents reported that an appropriate and responsible management of waste is of no importance and should not be the focus. The management of waste should primarily be aimed at quickly and thoroughly removing waste from the environment. A widely held frame work among participants is that the waste management system is not going to improve and it is of no use for an individual to take actions to improve it. Furthermore, most participants reported they have a very low level of trust in their fellow citizens to be actively involved and coordinate in improving the waste management system. As a result of the negative frame works, most participants preferred to remain passive. The frame works and attitudes influenced participants' unwillingness to confront their neighbours that litter and allow animals to scatter waste.

Instead of confronting the behaviour, people chose to deal to deal with the consequences in their own way. The defenders of the social order claimed that tanaav(socialunrest) can be prevented by requesting the offender to clean the area himself or herself, or by doing it themselves. However, they expressed their concerns about inadequate and unregulated solid waste management. A lack of sense of personal control (agency) over their environment was evident as most of them suggested that improvement in the waste management system was the responsibility of the government, local bodies and local administration. Most of the respondents were unable to suggest ways in which they could bring about improvement in waste management. Many respondents felt that discussing waste management was new and unique for them; some responded that the discussion was 'thought-provoking' and others were surprised that they had never reflected on the issue before. Most respondents agreed that waste management is not part of their usual and ordinary thinking. Most respondents acknowledged that waste is managed in their environment, but 'reflection on waste management' was absent. Waste management is usually relegated to the background, and rarely brings people to self-critical awareness. The major reasons for dealing with waste in a passive way were: the negative emotional attitude of people towards waste; fear of confrontation; lack of control or power; and general apathy and indifference.

The frequency of waste collection by the municipal department emerged as a major concern. Of the 100 respondents, 17 stated that waste was collected from their vicinity daily, and at an appointed time. Twenty respondents also indicated that waste was collected daily, but at varying times. 6 of the respondents indicated that waste collection was irregular and at times, never carried out. Of the 100 respondents, 40 stated that they had no prior notification regarding the arrival of the waste collection truck. The respondents stated that not knowing the exact time that the waste collection truck would arrive, or if it would come at all, made it difficult to dispose household waste in an appropriate manner.

Other issues related to waste disposal included the inability to dispose of wet and dry waste separately due to the absence of other household members to help during the collection time, and the absence of an open area in the courtyard to bury waste. Of the 100 respondents, 38 stated that they kept waste in or around their house until the next waste collection. The remaining 3 respondents stated that they disposed of waste in an unauthorized location.

It is evident that irregular waste collection by the municipal department motivated respondents who were otherwise concerned about proper waste disposal to use unauthorized waste disposal means.

Sustainable Practices

For most households, sustainability practices focused on restraint (i.e. less use of plastics) and waste management (recycling and reusing).

- Restraint – reduction in the use of plastic
- Reuse
- Traditional practices
- Segregation and disposal practices

Some respondents, (39 in number), expressed that household waste has value and should be utilized. For instance, vegetable and fruit peels were given to animals for feeding. Other respondents talked about reusing materials in creative ways. For example, old clothes were reused to make household bags and doormats, and dried coconut shells were used as plant holders and as home décor. Also, participants mentioned that waste like fruit peels could be used to make face wash and toothpaste. Hence, the study suggests that participants (respondents of the survey) were well aware of traditional, creative and resourceful ways to reuse and recycle waste materials, and also reinforce value to waste, in their day to day lives. Many of the respondents were also uninformed and unaware about the existence of any structured municipal waste management and recycling systems.

Three-fourths of the respondents (38) knew about the government's ban on single-use plastic bags. A majority of respondents (25) claimed that they always keep a cloth bag for shopping. However, 44% of the respondents claimed that they take a cloth bag only if they remember to do so. Forgetting to take a cloth bag was a recurring problem for respondents. Many of the respondents described the inconsistency in the public's awareness regarding the plastic bag ban, and blamed vendors for using plastic bags and wraps to give out products. Some respondents showed frustration for initiating an effort to limit the usage of plastic bags only to find that plastic bags are used to give out products by the vendors. The respondents reported that, despite the awareness about the plastic bag ban and the frustration of the consumers regarding the plastic bags, a real effort by the government to control plastic bags is needed. The plastic bag ban, by itself, is meaningless.

Solid Waste Management at the Grassroots Level

16 of the respondents said they had raised a waste management-related grievance. Of those who raised the grievances, the municipal corporation and the local municipal councillor's office were the places where the grievances were lodged the most. Some of the respondents stated that after lodging the grievances, the waste management situation in their locality improved. The majority of the respondents preferred to get involved in improving waste management programs by means of awareness activities and/or voluntary participation. Only two of the respondents said that training activities have been initiated by the local authorities. The remaining of the respondents indicated that they would prefer to get involved by means of awareness activities.

Suggestions for Improvement in Waste Management

Improvements in the waste management system suggested by the respondents included:

- ensuring that waste collection vehicles arrive at the scheduled time and in an regular basis,
- placing dustbins at street intersections and along lanes, and in other public places,
- strictly implementing waste disposal regulations and imposing fines on violators,
- conducting regular awareness programs on cleanliness at the community level and at schools, and integrating cleanliness education in the school curriculum,
- instituting an effective and easily accessible waste management system and providing e-waste management facilities,
- making information on waste management and other allied services easily accessible to the public,
- rewarding and recognizing individuals and households for practicing appropriate waste management, and
- strengthening public awareness programs on the need to maintain environmental cleanliness.

The respondents recommended that all the above mentioned strategies be implemented.

The results show that the management of household solid waste in Jaipur is affected by different factors. These include how waste is perceived, the level of involvement of household members and the relationship of households and service providers. The solid waste collection system operated by the municipality covers the sampled households. Awareness on the solid waste management system and the ban on the production, sale and use of single use plastic items are some of the interventions undertaken by the government. Although sampled households were conscious on the need to manage their solid waste properly, they often had to store the solid waste for long periods or ended up disposing it off in the unauthorized area due to unannounced and long intervals between collection. Variety of approaches designed to encourage the management of solid waste by the householders should be implemented. Further, the participatory and educational programs should be designed to ensure that the responsibility is transferred from women and domestic help. Such programs are necessary to ensure the programs do not worsen the situations of women and children.

Conclusion

Waste is a manifestation of cultural norms surrounding value and use. It includes notions of dirt and cleanliness, and moral and social well-being. People recognised their primary responsibility for waste management as household-level waste. However, it rarely translated into practice. Most people rely on others to manage waste. Though a great deal of people prefers to use cloth bags and are in favour of segregating waste, they have not been able to translate this into practice. Low priority for waste management, irregular collection by municipal authorities, inadequate awareness regarding proper methods of waste management, and assumption of responsibility for waste management by women are the main reasons for poor practice. In the context of Jaipur, ameliorating household waste management would require, among other things, better and reliable services of the municipal authorities, and public awareness and participation.

Some of the recommendations based on the findings of the study include the following:

- Waste management authorities should communicate to the people regarding the reason for absence or delay of collection.
- Waste management training should be implemented repeatedly at the community level.
- Stricter implementation of law and order and public awareness programmes should be implemented to eliminate use of polythene bags.
- Household members should be encouraged to implement best practices for waste management at household level.

Management of waste needs to be strengthened especially during the high-waste generating period, for example, during festivals like Diwali and weddings. Additional waste collection and separate disposal facilities should be provided during this period.

There should be easy accessible and quick methods to bring about a change in the service delivery related to waste management. Such methods include an efficient and effective helpline and waste management problem reporting and follow up mechanisms at the ward level. The lack of awareness about such systems prevails among the residents and hinders their ability to report and follow up on waste management issues.

Waste management is as much a social and cultural issue as it is a science and technology and municipal administration issue. This is because, culturally and socially, what is defined as waste varies and the methods of disposal of waste also vary. It is important to inculcate the importance of health and hygiene, waste management and environmental protection and care in school going children. Schools and families together play a pivotal role in shaping children's behavior regarding health, hygiene, and waste management.

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