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A Study of Civic Awareness Regarding the Municipal Corporation and Solid Waste Management Systems in the City of Indore

Dr. Bhavna Trivedi (Nayak)

Assistant prof., Department of Political Science, Mata Jijabai Government P.G. Girls College
Indore (M.P)

Vanita Dholetia

Researcher, School of Social Science, Devi Ahilya Vishwavidyalaya, Indore, M.P.

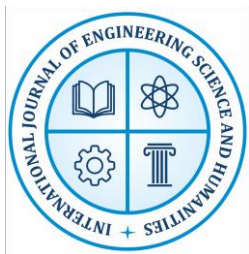
Abstract

The objective of urban administration extends beyond the maintenance of roads, drains, water supply, and public spaces; it also encompasses providing citizens with a clean, safe, and healthy living environment. Rapid urbanization, population growth, shifting consumption patterns, and the expansion of commercial activities are altering both the volume and the nature of solid waste in cities.

The study employed descriptive and analytical research methods, analyzing primary data collected from 152 respondents. According to the findings, 47.37 percent of respondents have partial knowledge of the Municipal Corporation's core functions, while 31.58 percent possess a clear understanding of these responsibilities. Regarding waste collection, 64.47 percent of respondents confirmed that collection takes place on a regular, daily basis.

In terms of waste segregation at the household level, 73.68 percent of respondents regularly separate their waste, 15.13 percent do so occasionally, and 11.19 percent do not segregate waste at all. An analysis of awareness regarding different categories of waste revealed that 56.58 percent of respondents are aware of two or three types of waste, while 15.13 percent have very little or no knowledge at all. Regarding the Municipal Corporation's sanitation system, 38.16 percent of respondents expressed satisfaction, and 35.53 percent reported being partially satisfied. Conversely, 47.37 percent of respondents were unaware of the mechanisms available for grievance redressal, and 44.08 percent of citizens did not participate in sanitation-related activities.

The study concludes that the effectiveness of the solid waste management system in Indore does not depend solely on administrative resources and technical infrastructure; rather, citizen awareness, responsible behavior, and active participation play a crucial role. Consequently, the research paper recommends increasing awareness about the Municipal Corporation's services, conducting behavioral training for household-level waste segregation, ensuring the regularity of



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waste collection, simplifying and enhancing the transparency of the grievance redressal system, and engaging citizens in sanitation campaigns.

Overall, the study concludes that for effective solid waste management, a clean urban environment, and sustainable urban development, it is essential to establish coordination between the administrative efficiency of the municipal corporation and the active participation of citizens.

Keywords- Indore Municipal Corporation, citizen awareness, solid waste management, waste segregation, door-to-door waste collection, sanitation, civic participation, urban administration, environmental conservation.

1. Introduction

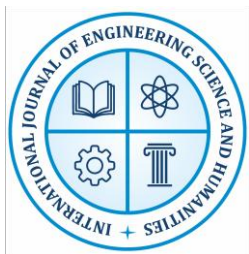
In the city of Indore, the sanitation system managed by the Municipal Corporation functions as an integrated process, encompassing door-to-door waste collection, waste segregation, transportation via designated vehicles, delivery to processing centers, and the scientific disposal of residual waste. The Municipal Corporation's official website identifies solid waste management as a core component of the city's sanitation system.

Segregating waste at the source is of particular importance in solid waste management. Wet waste consists of food scraps and other organic matter, while dry waste includes paper, metal, glass, and recyclable materials. Furthermore, specific, separate management is required for household hazardous waste, sanitary waste, and e-waste. Proper segregation across these categories helps improve the quality of processing and encourages recycling.

In Indore's system, processes such as converting organic waste into Bio-CNG and compost play a crucial role in transforming waste into a resource. In February 2022, the Press Information Bureau of the Government of India, while announcing the inauguration of Indore's 'Gobardhan' Bio-CNG plant, noted that it has the capacity to process 550 tonnes of segregated wet organic waste per day. Nevertheless, the success of a city's sanitation system does not depend solely on vehicles, personnel, and processing plants. If citizens fail to segregate waste at home, dispose of it outside designated areas, or neglect to utilize the grievance redressal system, the effectiveness of the entire framework is compromised. Conversely, regular collection, clear communication, effective grievance resolution, and active citizen participation strengthen the trust between the administration and the public. Against this backdrop, the present study seeks to analyze the awareness among Indore's citizens regarding the Municipal Corporation's initiatives, their waste management habits, their level of satisfaction with the services provided, and their participation in sanitation-related activities.

2. Need for and Significance of the Study

In the city of Indore, the effectiveness of the Municipal Corporation's operations—particularly regarding solid waste management, including waste collection, segregation, and disposal—



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depends on the awareness and participation of its citizens. For the successful implementation of sanitation-related systems, it is essential that citizens are well-informed about the services provided by the Municipal Corporation, the grievance redressal mechanism, and the regulations governing waste management. The significance of this study lies in its assessment of the level of citizen awareness, the degree of satisfaction with the Municipal Corporation's services, and the extent of public participation in waste management. The findings of this study are valuable for improving the Municipal Corporation's operational processes, effectively conducting public awareness programs, and promoting sanitation and environmental conservation in the city of Indore.

3. Objectives of the Research Paper

The primary objective of this research is to study the functioning of the Municipal Corporation in the city of Indore, as well as the level of citizen awareness regarding the solid waste management system.

4. Research Methodology

A descriptive and analytical research methodology has been adopted for this study. A sample of 152 respondents has been selected for analysis. Key variables included in the classification of data encompass age, educational qualification, awareness regarding the Municipal Corporation, waste collection, waste segregation, the grievance redressal system, and citizen participation.

5. Research Area

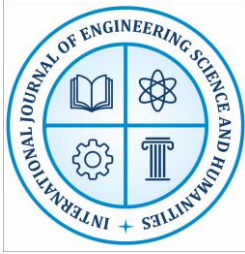
The City of Indore and the Municipal Corporation System

Indore is a major urban center in the state of Madhya Pradesh. The Municipal Corporation plays a significant role in the administration and operation of various civic amenities, urban infrastructure, and sanitation-related services within the city. According to the official website of the Municipal Corporation, its scope of work includes the provision of civic services, such as solid waste management.

5.1 The Municipal Corporation's Solid Waste Management System

1. Door-to-Door Waste Collection

Waste is collected from homes, shops, institutions, and other establishments according to designated routes and schedules. The objective of regular collection is to reduce the accumulation of waste on streets and in public spaces.



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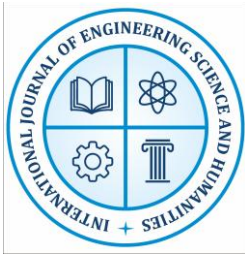
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2. Waste Segregation at Source

It is essential to properly segregate waste—into categories such as wet, dry, domestic hazardous, sanitary, and e-waste—at the household or establishment level. This allows for more systematic processing and recycling of waste.





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3. Transportation and Processing

The collected waste is transported to the respective processing centers using designated vehicles. Organic waste can be converted into bio-CNG or compost, while dry waste is sorted to separate recyclable materials.



4. Recycling and Disposal of Residual Waste

After recovering useful materials, the remaining waste must be disposed of scientifically and in accordance with established regulations. The objective of this process is to reduce open dumping, pollution, and reliance on improper disposal methods.





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5.2 Role of Citizens

The municipal waste management system becomes effective only when citizens also fulfill their responsibilities at their own level. The key roles of citizens include:

- Segregating waste into different categories at home.
- Handing over waste to the designated collection vehicles or systems.
- Refraining from littering in public spaces, on roads, or in drains.
- Avoiding the mixing of hazardous household waste, sanitary waste, and e-waste with general waste, and instead utilizing appropriate collection channels.
- Using the grievance redressal mechanisms provided by the municipal corporation in cases of irregularities in waste collection or the presence of litter in public areas.
- Participating in cleanliness drives and local awareness programs.

Official information from the municipal corporation and documents from NITI Aayog highlight citizen behavior, source segregation, and public awareness as crucial components of Indore's sanitation system.

6. Data Analysis

Table 1
Distribution of respondents by age

Age Group (Years)	Frequency	Percentage
18–25	28	18.42%
26–35	46	30.26%
36–45	39	25.66%
46 and above	39	25.66%
Total	152	100.00%

Source - Analysis of primary data

According to the data, the number of respondents in the 26–35 age group is 46 (30.26%), which is the highest. In the 36–45 age group and the 46-and-above age group, there are 39 (25.66%) respondents in each. There are 28 (18.42%) respondents in the 18–25 age group.

Table 2
Educational qualifications of the respondents

Educational Qualification	Frequency	Percentage
Primary/Secondary	25	16.45%
Higher Secondary	31	20.39%
Graduate	55	36.18%
Postgraduate	28	18.42%



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No Formal Education/Other	13	8.55%
Total	152	100.00%

Source - Analysis of primary data

The number of respondents with a graduate-level education is 55 (36.18%), which is the highest. There are 31 (20.39%) respondents with a higher secondary-level education, 28 (18.42%) with a postgraduate-level education, 25 (16.45%) with a primary/secondary-level education, and 13 (8.55%) in the 'no formal education/other' category.

Table 3

Awareness regarding the key functions of the Municipal Corporation

Level of Awareness	Frequency	Percentage
Clear knowledge of key tasks	48	31.58%
Knowledge of some tasks	72	47.37%
Very little or no knowledge	32	21.05%
Total	152	100.00%

Source - Analysis of primary data

According to the data, 72 (47.37%) respondents have some knowledge about the functions of the Municipal Corporation. There are 48 (31.58%) respondents who have a clear understanding of the key functions, while 32 (21.05%) respondents have very little or no knowledge at all.

Table 4

Citizens' experience regarding the regularity of door-to-door waste collection

Response	Frequency	Percentage
Regular daily collection	98	64.47%
Collection on most days	32	21.05%
Occasional collection	15	9.87%
No regular collection	7	4.61%
Total	152	100.00%

Source - Analysis of primary data

According to the data, 98 (64.47%) respondents report experiencing regular daily waste collection. For 32 (21.05%) respondents, collection occurs on most days, while 15 (9.87%) report occasional collection, and 7 (4.61%) fall into the category of having no regular waste collection.



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Table 5
Habit of waste segregation at home

Waste Segregation Status	Frequency	Percentage
Always segregate	112	73.68%
Sometimes segregate	23	15.13%
Do not segregate	17	11.19%
Total	152	100.00%

Source - Analysis of primary data

The table indicates that 73.68% of the respondents always segregate their waste, while 15.13% segregate waste sometimes. However, 11.19% of the respondents do not segregate waste at all. The findings show that most respondents follow waste segregation practices, but continued awareness campaigns and regular behavioural training are needed to encourage consistent waste segregation among all citizens.

Table 6
Awareness regarding different categories of waste

Level of Awareness	Frequency	Percentage
Clear knowledge of major categories	43	28.29%
Knowledge of two or three categories	86	56.58%
No/very little knowledge of categories	23	15.13%
Total	152	100.00%

Source - Analysis of primary data

The table indicates that 28.29% of respondents have a clear understanding of the main categories of waste, while 56.58% are aware of only two or three categories. In contrast, 15.13% of individuals have little to no knowledge regarding the various categories of waste. These findings suggest that while most respondents possess some level of awareness about waste classification, there is a need for further awareness campaigns and behavioral training to improve their understanding of waste segregation and proper disposal methods.

Table 7
Satisfaction with the Municipal Corporation's Sanitation System

Level of Satisfaction	Frequency	Percentage
Satisfied	58	38.16%
Partially Satisfied	54	35.53%
Dissatisfied	26	17.11%
Not Sure	14	9.21%



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Total	152	100.00%
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Source - Analysis of primary data

According to the data, 58 (38.16%) respondents are satisfied with the sanitation system. 54 (35.53%) are partially satisfied, 26 (17.11%) are dissatisfied, and 14 (9.21%) are unsure. Combining the 'satisfied' and 'partially satisfied' categories yields 112 respondents (73.68%).

Table 8

Awareness regarding the municipal corporation's grievance redressal system

Status	Frequency	Percentage
Aware of grievance redressal channels and have used them	33	21.71%
Aware, but have not used them	47	30.92%
Not aware of grievance redressal channels	72	47.37%
Total	152	100.00%

Source - Analysis of primary data

The data indicates that 72 (47.37%) respondents are unaware of the channels available for lodging complaints. 47 (30.92%) are aware of these channels but do not use them, while 33 (21.71%) are both aware of and utilize these channels.

Table 9

Citizen Participation in Sanitation Activities

Level of Participation	Frequency	Percentage
Regular participation	31	20.39%
Occasional participation	54	35.53%
No participation	67	44.08%
Total	152	100.00%

Source - Analysis of primary data

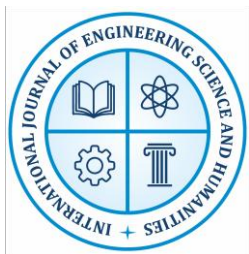
In terms of the data, 67 (44.08%) respondents fall into the category of those who never participate in cleanliness activities. 54 (35.53%) participate occasionally, and 31 (20.39%) participate regularly. In this distribution, the non-participation category is larger than the regular participation category.

7. Recommendations

7.1 Enhancing Awareness of Municipal Corporation Functions

Information regarding the Municipal Corporation's key services, responsibilities, sanitation programs, and the cooperation expected from citizens should be made available in simple Hindi. Regular awareness activities can be organized in residential areas, markets, educational institutions, and community centers.

7.2: Promoting Waste Segregation Through Behavioural Training



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Waste segregation should be promoted through regular behavioural training rather than relying solely on posters and awareness materials. Such training programmes should be conducted consistently in every ward, particularly on Sundays, to encourage greater citizen participation and develop sustainable waste-segregation practices at the household level.

7.3 Ensuring Regularity in the Collection System

Citizens should be informed about the scheduled timings and routes for waste collection. It is also beneficial to provide information on alternative arrangements in case of service disruptions, as well as clear channels for lodging complaints. The Municipal Corporation can review the regularity of services based on the service records for specific areas.

7.4 Simplifying Grievance Redressal

Citizens should be made aware of the official channels available for lodging complaints. Providing clear information regarding the complaint registration process, reference numbers, the status of resolution, and the expected timeframe for redressal can help build public trust. Before specifying any particular channel or timeline, the Municipal Corporation's existing systems should be verified.

7.5 Encouraging Citizen Participation

Sanitation programs can be organized in collaboration with residential associations, market associations, student groups, voluntary organizations, and local communities. Publicly showcasing positive examples of sanitation initiatives can help encourage ongoing participation.

7.6 Raising Awareness About Converting Waste into Resources

Citizens should be informed that segregated organic waste can be utilized for the production of compost or bio-CNG, and that certain categories of dry waste are recyclable. The bio-CNG plant and waste processing facilities in Indore can be highlighted in such awareness-raising materials.

7.7 Monitoring and Citizen Feedback at the Ward Level

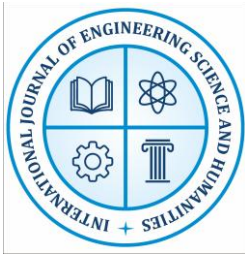
Information regarding citizen complaints, the regularity of waste collection, waste segregation, and the cleanliness of public spaces can be compiled at the ward level. A combined review of citizen feedback and administrative records allows for a more systematic identification of issues.

7.8 Regular Citizen Surveys

Conducting periodic surveys to assess citizen satisfaction with, and awareness of, municipal services would be beneficial. These surveys should document details such as the questionnaire used, the sampling methodology, the date of the survey, and the process for verifying responses. This will enable a reliable assessment of changes over time.

8. Conclusion

The study of the municipal sanitation system and civic awareness in the city of Indore is significant from the perspectives of urban governance, environmental conservation, and public



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participation. Solid waste management encompasses door-to-door waste collection, source segregation, transportation, processing, and the scientific disposal of residual waste. The effectiveness of these processes is contingent upon citizen behavior, the availability of information, and the consistency of municipal services. The overarching conclusion of this study is that an effective sanitation system requires the integration of administrative infrastructure and active civic participation. While the municipal corporation must ensure regular collection, scientific processing, transparent grievance redressal, and the provision of clear information to the public, citizens, in turn, must fulfill their responsibilities regarding waste segregation and the maintenance of public cleanliness.

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