

Survey on  
**SOLID WASTE**  
MANAGEMENT SYSTEM  
in Nagpur





# **SOLID WASTE**

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## Context

The city of Nagpur, located at the geographical centre of the country, has a population of 2.5 million spread across 217 sq.km. It is estimated that the city generates approximately 900-1000 tonnes of waste per day (TPD). Also, the city being an educational hub attracts large floating population. Rapid growth of population coupled with urbanization has put tremendous pressure on Nagpur Municipal Corporation to meet the growing demands of its citizens. However, despite its limited infrastructure, manpower and financial resources, the city is adopting the best feasible options to provide adequate services. The door-to-door collection of waste for the city was outsourced to a private contractor (Kanak Resources Management Ltd). Since 2008, this agency is responsible for transporting the waste to landfill site at Bhandewadi. However, the door-to-door services covers only 5 lakhs households against the population of 2.5 million.

In year 2010, NMC had contracted a private entity 'Hanjer Biotech' to commission and operate the waste processing and disposal facility. However, only 150-200 TPD of waste is being treated and processed at the facility while remaining 800 TPD is dumped at the site. In the last few years, almost 4 lakhs MT of waste was dumped at the Bhandewadi Site. Odor, flies and the leachate seeping into the ground is a common sight at the landfill. Flies abound and odour is overpowering. This is polluting the the environment and causing public health risks, especially for people residing in the vicinity. The city is facing significant challenges in addressing the system's deficiencies and reducing the environmental impacts due to unscientific solid waste management.



## Survey on 'Waste Management System' - Purpose and methods used

It is in the context of the above that Asar Social Impact Advisors, in collaboration with Centre for Sustainable Development, carried out a survey among the people of Nagpur. The purpose of the survey was to find out the current status of the Nagpur's waste management system and what people think about it. The survey specifically tried to ascertain the awareness of the people about waste segregation, whether segregation practice is being followed by them, do the residential colony they stay in, compost the wet waste, if there is awareness among people about Swachhata app/ local app to lodge complaints on cleanliness and assess the overall satisfaction level with the waste management system of the city. The ultimate goal of the exercise was to make the Municipality aware about the gaps/lacuna in the waste management system and launch evidence-based advocacy for better waste management system in the city.

The survey was conducted on-line with a total of 297 people spread across all the 10 zones of Nagpur. A structured questionnaire was designed jointly by Asar and Centre for Sustainable Development. The zone-wise number of people participated in the survey is provided in the below table (1).

**Table 1:** Zone-wise sample achieved

Zone	Sample No.	% coverage
Zone 1 - Laxmi nagar	54	18.2
Zone 2 - Dharampeth	38	12.8
Zone 3 - hanuman nagar	28	9.4
Zone 4 - Dhantoli	25	8.4
Zone 5 - Nehru nagar	25	8.4
Zone 6 - Gandhibagh	24	8.1
Zone 7 - satranjipura	28	9.4
Zone 8 - Lakadganj	24	8.1
Zone 9 - Ashi nagar	25	8.4
Zone 10 - Mangalwari	26	8.8
<b>Total</b>	<b>297</b>	<b>100.0</b>

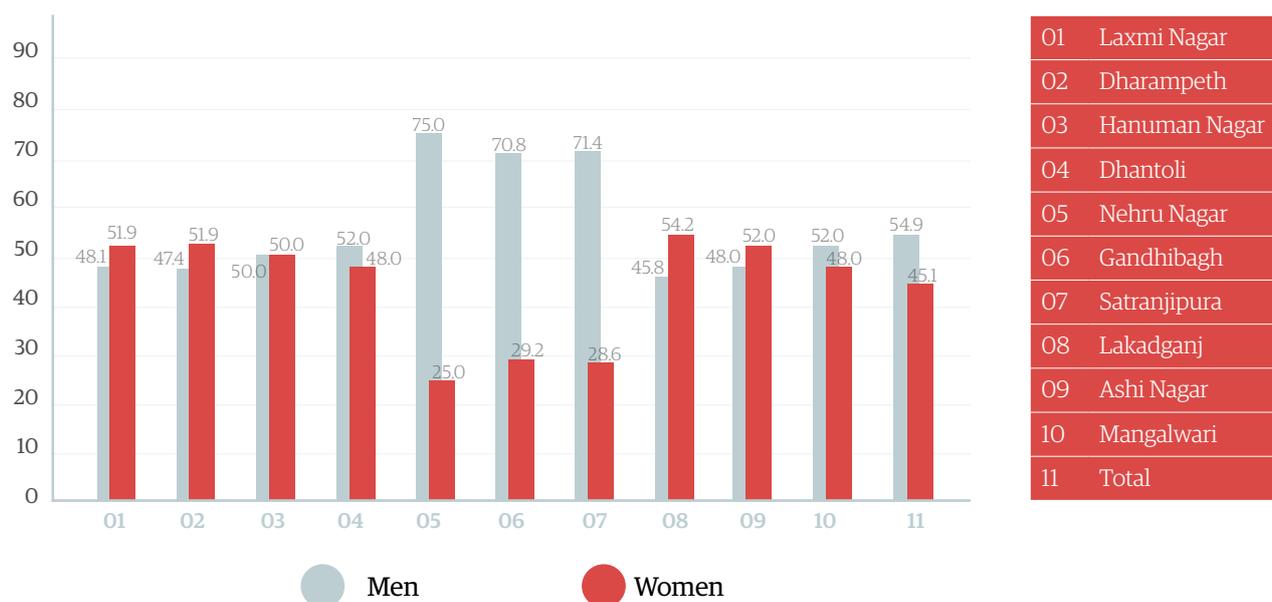
# Findings of the survey

## Characteristics of the sample participants

At aggregate level, representation of women in the sample survey was 45%. The zones where women participation was more than that of men were Lakadganj (54%), Dharampeth (53%) and Laxmi Nagar and Ashi Nagar with 52% each. Participation of men and women in the survey was equal from Zone 3 - Hanuman nagar.



**Figure 1:** % distribution of survey participants by gender



Maximum participants were in the age group of 36-45 years (29%) followed by 25% in the 46-60 years age bracket. Another 24% participants fell in the 26-35 years age group. Youngsters in the 18-25 years constituted 19% of the total sample. Only 4 participants were below the age of 18 years.

**Table 2:** % distribution of survey participants by age-group

Zone	Below 18 Years	18 - 25 Years	26 - 35 Years	36 - 45 Years	46 - 60 Years	60 Years & above
Laxmi nagar	0.0	22.2	24.1	20.4	27.8	5.6
Dharampeth	0.0	22.9	11.4	22.9	37.1	5.7
Hanuman Nagar	0.0	39.3	28.6	28.6	3.6	0.0
Dhantoli	0.0	16.0	36.0	28.0	20.0	0.0
Nehru Nagar	4.3	30.4	26.1	26.1	13.0	0.0
Gandhibagh	0.0	4.2	20.8	58.3	16.7	0.0
Satranjipura	7.1	7.1	14.3	53.6	17.9	0.0
Lakadganj	0.0	4.2	33.3	50.0	12.5	0.0
Ashi Nagar	4.0	16.0	48.0	4.0	28.0	0.0
Mangalwari	0.0	23.1	0.0	11.5	65.4	0.0
<b>Total</b>	<b>1.4</b>	<b>19.2</b>	<b>23.6</b>	<b>29.1</b>	<b>25.0</b>	<b>1.7</b>

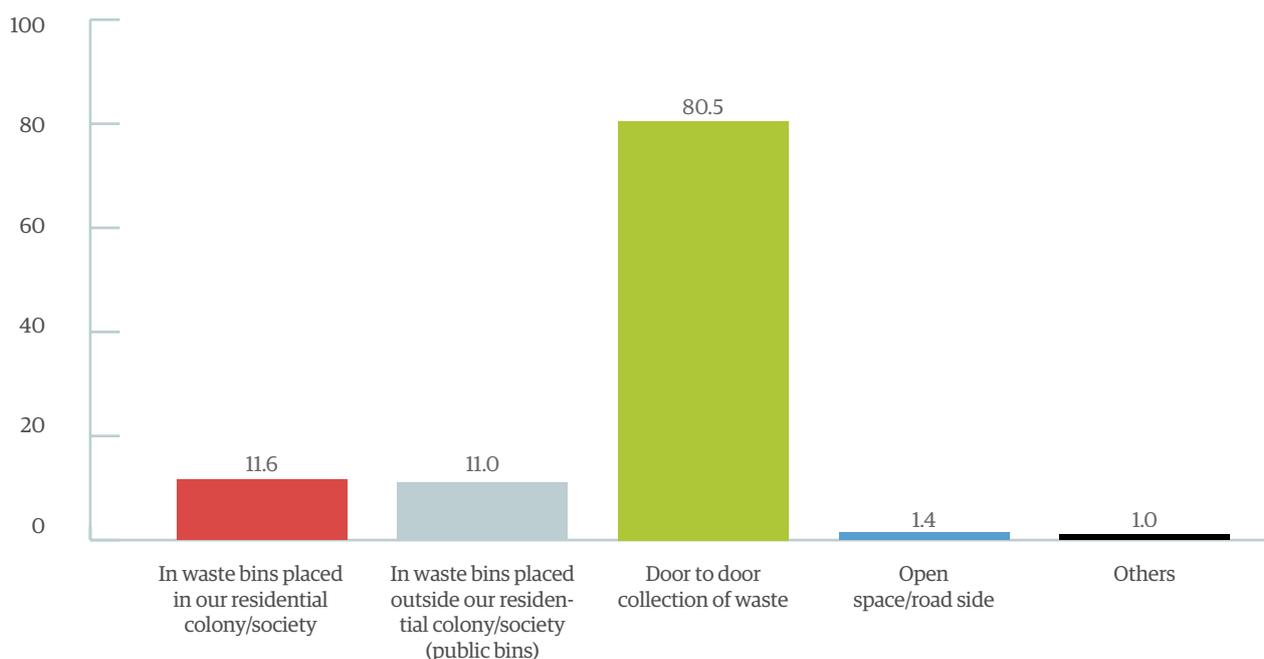
## Method of household waste disposal

Majority of the sample participants (81%) indicated that they have a system of door-to-door collection of household waste. Around 12% stated that they dispose of their waste in the waste bins placed inside their residential colonies/societies while another 11% disposed their waste in the public bins placed outside their residential colonies/societies. Negligible percentage of participants (1%) also said that they threw their waste in open spaces or road sides.

**Table 3:** % distribution of survey participants stating method of waste disposal (n=297)

Zone	In waste bins placed in our residential colony/society	In waste bins placed outside our residential colony/society (public bins)	Door to door collection of waste	Open space/road side	Others
Laxmi nagar	13.0	13.0	81.5	1.9	1.9
Dharampeth	16.2	5.4	83.8	0.0	2.7
Hanuman Nagar	14.8	18.5	74.1	0.0	0.0
Dhantoli	8.3	16.7	70.8	0.0	4.2
Nehru Nagar	25.0	8.3	70.8	8.3	0.0
Gandhibagh	8.3	20.8	70.8	0.0	0.0
Satranjipura	0.0	3.7	96.3	0.0	0.0
Lakadganj	0.0	12.5	87.5	0.0	0.0
Ashi Nagar	4.0	0.0	92.0	4.0	0.0
Mangalwari	23.1	11.5	73.1	0.0	0.0
<b>Total</b>	<b>11.6</b>	<b>11.0</b>	<b>80.5</b>	<b>14</b>	<b>10</b>

**Figure 2:** % distribution of survey participants stating method of waste disposal (Overall)





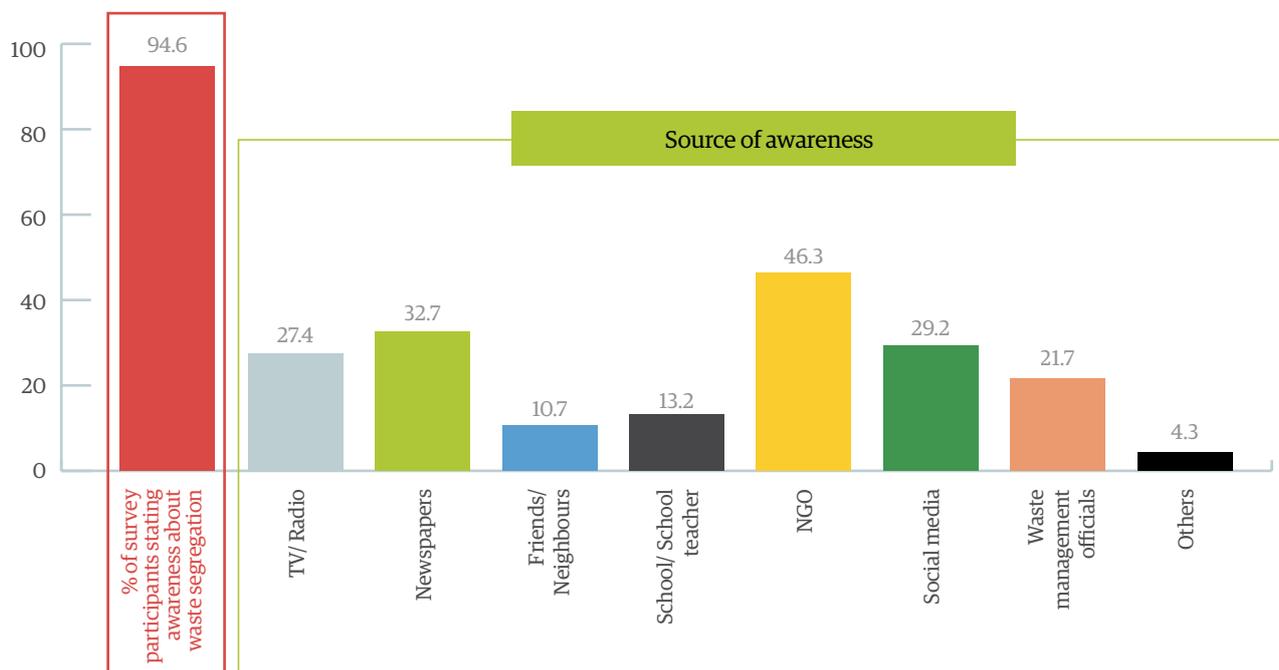
## Awareness about waste segregation

It was quite heartening to note that 95% of the sample participants had heard about waste segregation. All the survey participant from Gandhibagh, Satranjipura and Lakadganj were aware of waste segregation. Awareness about waste segregation was the least in the Dhantoli, Nehru Nagar and Ashi Nagar zones.

**Table 4:** % distribution of survey participants stating awareness about waste segregation

Zone	% of survey participants stating awareness about waste segregation	Source of awareness							
		TV/ Radio	Newspapers	Friends/ Neighbours	School/ School teacher	NGO	Social media	Waste management officials	Others
Laxmi nagar	94.4	37.3	51.0	11.8	13.7	29.4	39.2	21.6	3.9
Dharampeth	94.7	41.7	50.0	11.1	11.1	33.3	63.9	16.7	11.1
Hanuman Nagar	96.4	33.3	22.2	14.8	7.4	55.6	29.6	37.0	0.0
Dhantoli	88.0	9.1	9.1	4.5	13.6	54.5	22.7	9.1	4.5
Nehru Nagar	88.0	31.8	27.3	13.6	13.6	31.8	9.1	31.8	4.5
Gandhibagh	100.0	12.5	20.8	16.7	4.2	75.0	8.3	12.5	4.2
Satranjipura	100.0	28.6	7.1	3.6	10.7	60.7	10.7	25.0	3.6
Lakadganj	100.0	8.3	29.2	16.7	25.0	79.2	25.0	0.0	0.0
Ashi Nagar	88.0	9.1	40.9	9.1	13.6	27.3	22.7	40.9	4.5
Mangalwari	96.2	40.0	44.0	4.0	20.0	36.0	32.0	24.0	4.0
<b>Total</b>	<b>94.6</b>	<b>27.4</b>	<b>32.7</b>	<b>10.7</b>	<b>13.2</b>	<b>46.3</b>	<b>29.2</b>	<b>21.7</b>	<b>4.3</b>

**Figure 3:** % distribution of survey participants stating awareness about waste segregation (Overall)



Participants were asked how they knew about waste segregation. Maximum participants (46%) stated knowing about waste segregation from NGOs followed by 33% having read about it in newspapers. Social media was a source of awareness for 29% participants while another 27% heard of waste segregation on TV/Radio. Waste management officials was the source of information in the case of 21% participants.



## Orientation on waste segregation

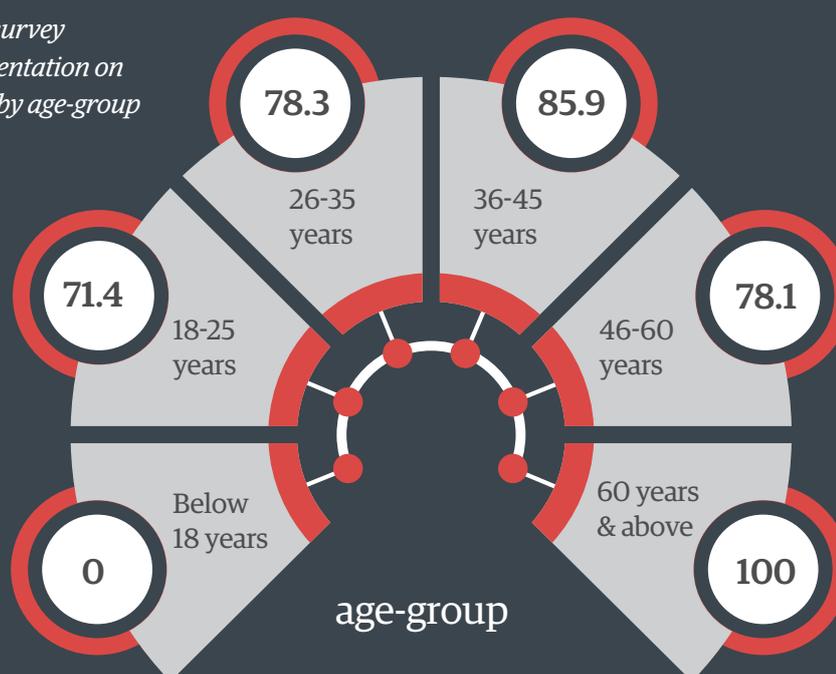
Around 78% participants indicated that they have been educated on proper segregation of waste. Maximum participants from Lakadganj (96%) reported that they were educated on waste segregation followed by participants from Satranjipura (89%) and Gandhibagh (88%). However only 65% and 68% participants from Laxmi Nagar and Ashi Nagar said that they have been educated on waste segregation.

**Table 5:** distribution of survey participants by receiving orientation on proper segregation of waste

Zone	Yes	No
Laxmi Nagar	64.8	35.2
Dharampeth	73.7	26.3
Hanuman Nagar	78.6	21.4
Dhantoli	76.0	24.0
Nehru Nagar	76.0	24.0
Gandhibagh	87.5	12.5
Satranjipura	89.3	10.7
Lakadganj	95.8	4.2
Ashi Nagar	68.0	32.0
Mangalwari	88.5	11.5
<b>Total</b>	<b>78.1</b>	<b>21.9</b>

**No significant difference was noticed between men and women participants in receiving orientation on waste segregation. However, age-group wise analysis indicates that all the survey participants aged above 60 years indicated that they have been educated on proper segregation of waste, followed by 86% participants in the age range of 36-45 years.**

**Figure 4:** % distribution of survey participants by receiving orientation on proper segregation of waste by age-group





## Practicing waste segregation at household level

More than 80% participants stated segregating their waste at the household level. Maximum participants who were segregating their waste were from Satranjipura (96%), Lakadganj (96%), Hanuman Nagar (93%) and Mangalwari (89%). In Nehru Nagar only 68% said that they segregate the waste at the household level.

**Table 6:** distribution of survey participants by receiving orientation on proper segregation of waste

Zone	Yes	No
Laxmi Nagar	73.6	26.4
Dharampeth	84.2	15.8
Hanuman Nagar	92.9	7.1
Dhantoli	80.0	20.0
Nehru Nagar	68.0	32.0
Gandhibagh	87.5	12.5
Satranjipura	96.4	3.6
Lakadganj	95.8	4.2
Ashi Nagar	80.0	20.0
Mangalwari	88.5	11.5
<b>Total</b>	<b>83.8</b>	<b>16.2</b>

## Segregation of waste at community/ locality level

At the aggregate level, 52% participants pointed out that waste segregation happens at the community/locality level or at the residential colony that the participants resided in. Majority of participants from Satranjipura (82%) and Gandhibagh (75%) said that waste segregation happens at the level of community/locality/residential colony. However, only 42% participants each from Nehru Nagar and Mangalwari and 32% from Dhantoli stated the same.

**Table 7:** % distribution of survey participants stating segregation of waste at community/ locality level/ residential level

Zone	Yes	No	Don't know
Laxmi Nagar	46.3	33.3	20.4
Dharampeth	50.0	34.2	15.8
Hanuman Nagar	50.0	21.4	28.6
Dhantoli	32.0	40.0	28.0
Nehru Nagar	41.7	29.2	29.2
Gandhibagh	75.0	12.5	12.5
Satranjipura	82.1	10.7	7.1
Lakadganj	54.2	41.7	4.2
Ashi Nagar	48.0	36.0	16.0
Mangalwari	42.3	30.8	26.9
<b>Total</b>	<b>51.7</b>	<b>29.4</b>	<b>18.9</b>



## Composting wet waste

Overall, 42% participants indicated that they or the residential colony they reside in do the composting of the wet waste. The data showed that it was from Satranjipura that maximum participants (68%) stated composting the wet waste while only 26% from Dharampeth said the same.

**Table 8:** % distribution of survey participants stating composting wet waste at household/ residential colony level

Zone	Yes	No	Don't know
Laxmi Nagar	32.1	45.3	22.6
Dharampeth	26.3	65.8	7.9
Hanuman Nagar	42.9	50.0	7.1
Dhantoli	44.0	40.0	16.0
Nehru Nagar	28.0	44.0	28.0
Gandhibagh	62.5	20.8	16.7
Satranjipura	67.9	17.9	14.3
Lakadganj	54.2	41.7	4.2
Ashi Nagar	48.0	44.0	8.0
Mangalwari	30.8	53.8	15.4
<b>Total</b>	<b>41.9</b>	<b>43.6</b>	<b>14.5</b>

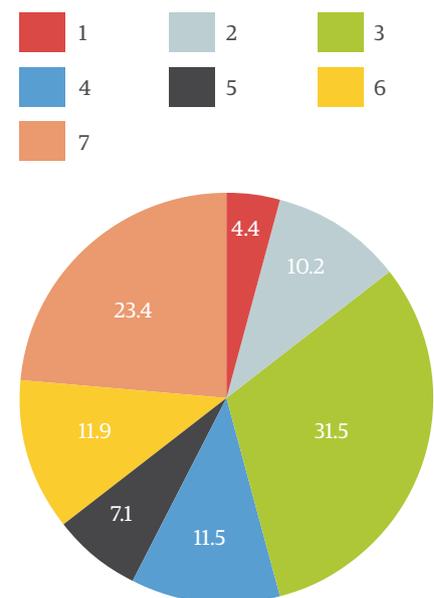
## Frequency of door-to-door waste collection

Collection of regular door-to-door waste was stated by 23% participants followed by 3 days a week (32%) and once a week (23%). Waste collection happened once in 4 days and in 6 days as stated by 12% participants each. Collection of waste everyday was highest in Ashi Nagar (44%) while it was lowest in Lakadganj (4%).

**Table 9:** % distribution of survey participants stating frequency of door-to-door waste collection

Zone	1	2	3	4	5	6	7
Laxmi nagar	3.8	1.9	30.2	15.1	3.8	20.8	24.5
Dharampeth	2.6	7.9	10.5	7.9	10.5	21.1	39.5
Hanuman Nagar	0.0	0.0	32.1	14.3	25.0	10.7	17.9
Dhantoli	0.0	16.0	32.0	28.0	4.0	8.0	12.0
Nehru Nagar	8.0	8.0	36.0	8.0	4.0	0.0	36.0
Gandhibagh	4.2	20.8	45.8	8.3	0.0	8.3	12.5
Satranjipura	7.4	7.4	40.7	11.1	3.7	11.1	18.5
Lakadganj	0.0	33.3	50.0	8.3	4.2	0.0	4.2
Ashi Nagar	0.0	4.0	32.0	8.0	4.0	8.0	44.0
Mangalwari	19.2	15.4	19.2	3.8	11.5	15.4	15.4
<b>Total</b>	<b>4.4</b>	<b>10.2</b>	<b>31.5</b>	<b>11.5</b>	<b>7.1</b>	<b>11.9</b>	<b>23.4</b>

**Figure 5:** % distribution of survey participants stating frequency of door-to-door waste collection (Overall)

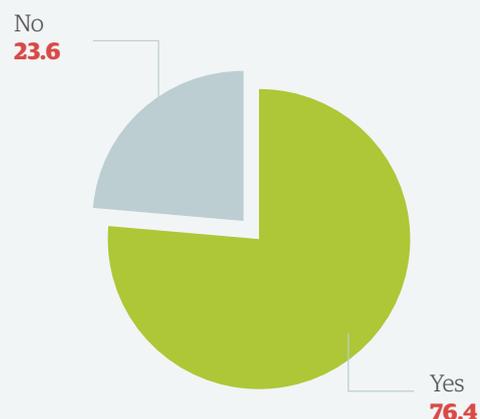


## Collection of segregated waste

More than 70% participants indicated that the waste collector only collects the segregated waste i.e., dry and wet waste separately. Collection of dry and wet waste separately was reported highest by the participants from Gandhibagh (96%), followed by Lakadganj (96%) and Dhantoli (88%). However, 42% participants from Dharampeth and 35% from Mangalwari stated that the waste collector collects unsegregated waste.

**Table 10:** % of survey participants stating dry and wet waste collection separately by waste collector

Zone	Yes	No
Laxmi Nagar	69.8	30.2
Dharampeth	57.9	42.1
Hanuman Nagar	85.7	14.3
Dhantoli	88.0	12.0
Nehru Nagar	68.0	32.0
Gandhibagh	95.8	4.2
Satranjipura	85.7	14.3
Lakadganj	95.8	4.2
Ashi Nagar	68.0	32.0
Mangalwari	65.4	34.6



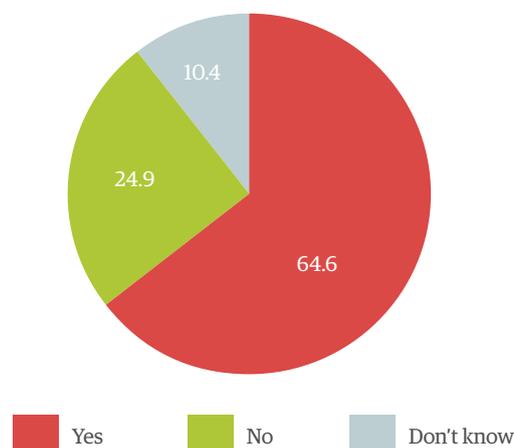
## Putting dry and wet waste in separate bins

Around 35% sample participants stated that the waste collectors do not put the dry and wet waste in separate bins and 10% of the participants had no idea whether the waste collectors used different bins to put the wet and dry waste. The practice of putting dry and wet waste in separate bins was found highest in Hanuman Nagar and Satranjipura with 71% each and lowest in Lakadganj (54%).

**Table 11:** % of survey participants stating waste collector putting dry and wet waste in separate bins

Zone	Yes	No	Don't know
Laxmi Nagar	61.1	20.4	18.5
Dharampeth	47.4	36.8	15.8
Hanuman Nagar	71.4	14.3	14.3
Dhantoli	76.0	16.0	8.0
Nehru Nagar	56.0	32.0	12.0
Gandhibagh	79.2	8.3	12.5
Satranjipura	85.7	14.3	0.0
Lakadganj	54.2	45.8	0.0
Ashi Nagar	60.0	40.0	0.0
Mangalwari	65.4	23.1	11.5
<b>Total</b>	<b>64.6</b>	<b>24.9</b>	<b>10.4</b>

**Figure 6:** % of survey participants stating waste collector putting dry and wet waste in separate bins (Overall)



## Method of transportation of segregated waste

Majority of the participants indicated that the segregated waste is transported in a van with different compartments for the wet and dry waste while 13% pointed out that the van used for transport did not have separate compartments. Around 8% participants were not aware of how the waste is transported. The zone-wise responses of the survey participants are indicated in the table below.

**Table 12:** % of survey participants stating methods used for transportation of segregated waste

Zone	In same van with no compartments	In same van with compartments	In two separate Vans	Don't know
Laxmi nagar	9.3	70.4	3.7	16.7
Dharampeth	31.6	55.3	0.0	13.2
Hanuman Nagar	10.7	82.1	7.1	0.0
Dhantoli	4.0	84.0	4.0	8.0
Nehru Nagar	12.5	70.8	8.3	8.3
Gandhibagh	8.3	62.5	29.2	0.0
Satranjipura	10.7	78.6	10.7	0.0
Lakadganj	0.0	82.6	17.4	0.0
Ashi Nagar	25.0	58.3	0.0	16.7
Mangalwari	15.4	73.1	3.8	7.7
<b>Total</b>	<b>13.3</b>	<b>71.1</b>	<b>7.5</b>	<b>8.2</b>

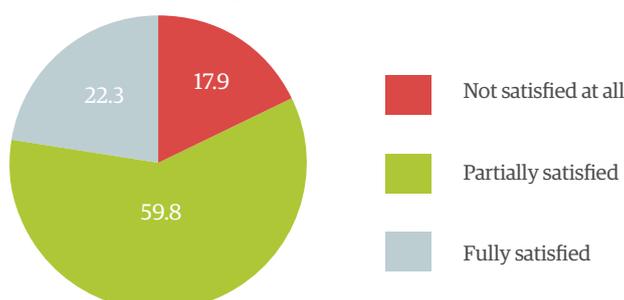
## Extent of satisfaction with the waste collection and waste disposal system in neighbourhood

Among the survey participants, only 22% were found to be fully satisfied (men-23%, women-21%) with the system of waste collection and disposal in their neighbourhood. Rest of the participants were either partially satisfied (60%) or were completely dissatisfied (18%) with the waste disposal system. Lakadganj and Mangalwari reported least satisfaction in terms of waste disposal system in their neighbourhood as only 8% and 11% participants were fully satisfied with the system. Maximum participants who expressed complete satisfaction were from Ashi Nagar (36%).

**Table 13:** % of survey participants by their level of satisfaction with the waste collection and waste disposal system in their neighbourhood

Zone	Not satisfied at all	Partially satisfied	Fully satisfied
Laxmi Nagar	16.7	55.6	27.8
Dharampeth	28.9	55.3	15.8
Hanuman Nagar	10.7	67.9	21.4
Dhantoli	8.0	60.0	32.0
Nehru Nagar	20.0	48.0	32.0
Gandhibagh	8.3	83.3	8.3
Satranjipura	7.4	66.7	25.9
Lakadganj	25.0	66.7	8.3
Ashi Nagar	24.0	40.0	36.0
Mangalwari	26.9	61.5	11.5
<b>Total</b>	<b>17.9</b>	<b>59.8</b>	<b>22.3</b>

**Figure 7:** % of survey participants by their level of satisfaction with the waste collection and waste disposal system in their neighbourhood (Overall)



Among the reasons for partial/non satisfaction, maximum participants (67%) pointed out that they were not satisfied because the waste collector mixes the dry and wet waste while 29% were unhappy with the frequency of waste collection and felt that the collection is not regular. About 25% participants were disappointed with the way the waste collector handles the waste.

**Table 14:** % of survey participants stating reasons for their non-satisfaction or partial satisfaction

Zone	Door to door collection is not regular	Door to door collector is mixing the waste	Door to Door collector not handling waste properly
Laxmi Nagar	28.9	60.5	39.5
Dharampeth	25.0	75.0	35.7
Hanuman Nagar	21.1	57.9	26.3
Dhantoli	33.3	73.3	6.7
Nehru Nagar	37.5	68.8	25.0
Gandhibagh	4.8	90.5	4.8
Satranjipura	50.0	55.0	5.0
Lakadganj	13.6	68.2	18.2
Ashi Nagar	53.3	60.0	46.7
Mangalwari	36.4	59.1	22.7
<b>Total</b>	<b>29.2</b>	<b>66.7</b>	<b>24.5</b>

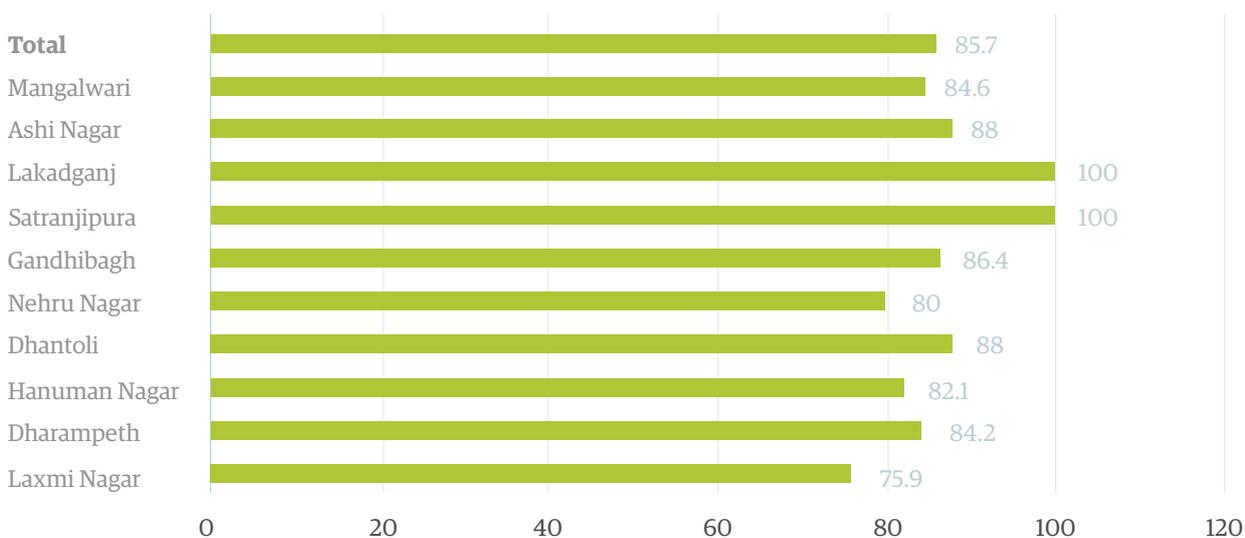
**Figure 8:** % of survey participants stating reasons for their non-satisfaction or partial satisfaction (Overall)



## Disposing off dry waste through Recyclerw

Slightly more than 85% participants disposed off their dry waste by giving it to the recycler (kabadiwala). All the participants from Satranjipura and Lakadganj stated giving their dry waste to the kabadiwala.

**Figure 9:** % distribution of participants by disposing dry waste through recycler (kabadiwala/raddiwala)



## Swachhata app/ local app - Awareness and complaints raised using app

Around 70% participants were aware of the Swachhata app to raise issues and complaints around cleanliness in their city while the remaining 30% had no idea about such an app. Awareness about Swachhata app was highest among the participants from Lakadganj (92%) and lowest in Dharampeth (53%).

The **age-group** wise analysis revealed that all the participants aged above 60 years were about Swachhata app, followed by 81% participants who were in the age bracket of 36-45 years.

When asked how they came to know about the Swachhata app, 61% participants indicated that they came to know about it from social media while 25% stated that they had heard about it from waste management officials. 15% each participants knew about the app from TV/Radio and newspapers while friends/neighbours were the source of awareness for 12% of the sample.

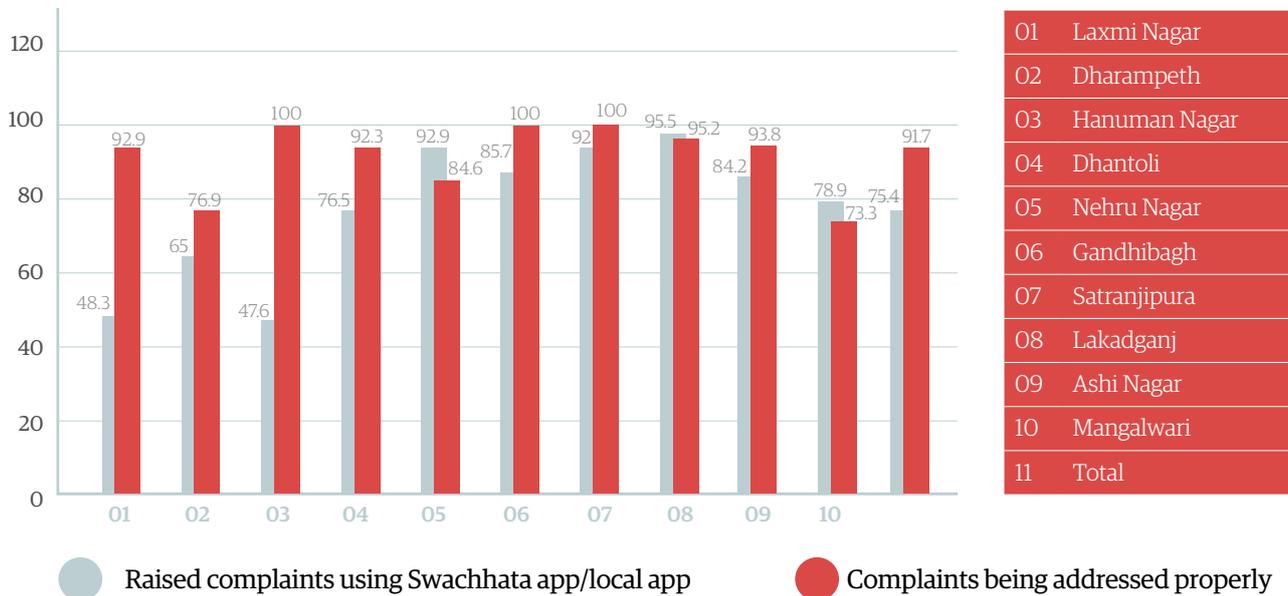


**Table 15:** % of survey participants stating awareness about Swachhata app/ local app

Zone	% of survey participants stating awareness about Swachhata app/ local app	Source of awareness					
		TV/ Radio	Newspapers	Social media	Friends/ Neighbours	Waste management officials	Others
Laxmi nagar	53.7	10.3	10.3	72.4	13.8	27.6	3.4
Dharampeth	52.6	30.0	40.0	70.0	20.0	25.0	5.0
Hanuman Nagar	75.0	19.0	19.0	66.7	14.3	14.3	0.0
Dhantoli	70.8	5.9	5.9	76.5	0.0	11.8	0.0
Nehru Nagar	56.0	7.1	14.3	42.9	14.3	28.6	7.1
Gandhibagh	87.5	4.8	9.5	76.2	9.5	23.8	0.0
Satranjipura	89.3	28.0	12.0	24.0	16.0	48.0	4.0
Lakadganj	91.7	0.0	9.1	86.4	18.2	0.0	0.0
Ashi Nagar	76.0	10.5	10.5	31.6	0.0	57.9	0.0
Mangalwari	76.9	30.0	25.0	60.0	15.0	15.0	0.0
<b>Total</b>	<b>70.3</b>	<b>14.9</b>	<b>15.4</b>	<b>61.1</b>	<b>12.5</b>	<b>25.5</b>	<b>1.9</b>

A little over 75% of the sample said that they had used the Swachhata app to escalate complaints around cleanliness in their city while the remaining 25% had not. Maximum participants who made use of the app were from Lakadganj (95%), Satranjipura (92%) and Gandhibagh (86%). Least number of participants who use the Swachhata app were from Laxmi Nagar (48%) and Hanuman Nagar (48%).

**Figure 10:** % distribution of survey participants stating use of Swachhata app/ local app to escalate complaints



More men (**82%**) than women (**67%**) reported using Swachhata app to raise their complaints around cleanliness.

More than 90% participants who registered complaints with the Swachhata app stated that their complaints around cleanliness were heard and addressed adequately. It was interesting to note that 100% participants from Hanuman Nagar, Satranjipura and Gandhibagh pointed out that their complaints had been addressed through the app.

## Rating about cleanliness level in neighbourhood

Except for 29%, majority of the survey participants were either dissatisfied or only moderately satisfied with the **cleanliness level in their neighbourhood**. Least percentage of participants who were satisfied belonged to Lakadganj, Gandhibagh and Hanuman Nagar zones.



**Table 16:** Participant's rating on cleanliness level in neighbourhood

Zone	1 - Not satisfied at all	2	3 - Moderately satisfied	4	5 - Completely satisfied
Laxmi Nagar	5.7	13.2	45.3	17.0	18.9
Dharampeth	10.5	15.8	39.5	28.9	5.3
Hanuman Nagar	14.3	17.9	57.1	7.1	3.6
Dhantoli	4.2	29.2	45.8	12.5	8.3
Nehru Nagar	4.2	12.5	45.8	12.5	25.0
Gandhibagh	0.0	54.2	37.5	4.2	4.2
Satranjipura	7.1	10.7	28.6	28.6	25.0
Lakadganj	0.0	58.3	37.5	0.0	4.2
Ashi Nagar	16.0	4.0	44.0	0.0	36.0
Mangalwari	3.8	11.5	57.7	23.1	3.8
<b>Total</b>	<b>6.8</b>	<b>21.1</b>	<b>43.9</b>	<b>14.6</b>	<b>13.6</b>

Women appeared to be lesser satisfied than men as evident from the below figure.

**Figure 11:** Participant's rating on cleanliness level in neighbourhood by gender



## Rating about cleanliness level in commercial and public areas

When it comes to satisfaction with regard to cleanliness level of the commercial and public areas of Nagpur city, nearly 27% participants expressed complete dissatisfaction with cleanliness level while 42% were moderately satisfied. Only less than one fourth (19%) people stated satisfaction with the cleanliness level of the commercial and public areas of the city.

Again Gandhibagh, Lakadganj, Mangalwari, Dharampeth and Dhantoli were the zones where very less number of people seemed to be satisfied with the cleanliness level of the commercial and public areas of the city. Satisfaction level among the women was lesser than men.



**Table 17:** Participant's rating on cleanliness level in commercial/ public areas

Zone	1 - Not satisfied at all	2	3 - Moderately satisfied	4	5 - Completely satisfied
Laxmi Nagar	11.1	22.2	48.1	7.4	11.1
Dharampeth	21.6	21.6	48.6	5.4	2.7
Hanuman Nagar	10.7	21.4	53.6	10.7	3.6
Dhantoli	16.7	29.2	41.7	8.3	4.2
Nehru Nagar	12.5	16.7	41.7	12.5	16.7
Gandhibagh	0.0	62.5	33.3	0.0	4.2
Satranjipura	7.1	14.3	21.4	32.1	25.0
Lakadganj	0.0	66.7	29.2	4.2	0.0
Ashi Nagar	12.0	16.0	32.0	0.0	40.0
Mangalwari	7.7	19.2	65.4	3.8	3.8
<b>Total</b>	<b>10.5</b>	<b>27.6</b>	<b>42.5</b>	<b>8.5</b>	<b>10.9</b>

## Overall satisfaction

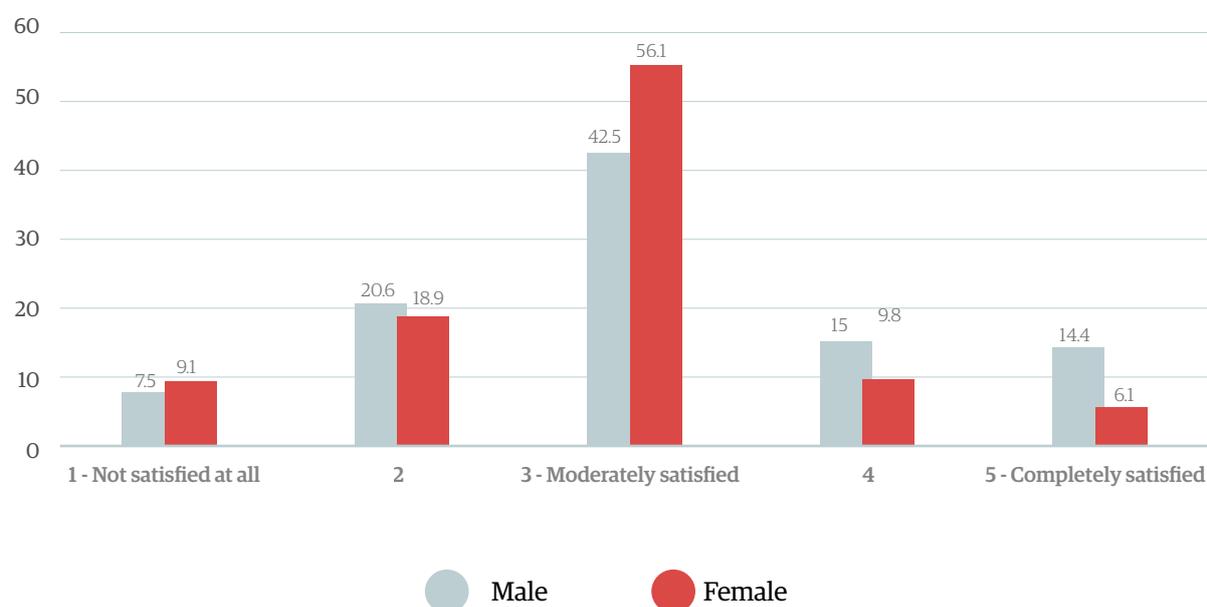
The study made an attempt to find out the satisfaction levels of the sample participants on the waste management process in Nagpur. Only 11% participants reported complete satisfaction with the waste management process while 13% expressed satisfaction to a large extent. Those who were dissatisfied with the process constituted 29% of the sample (8%: not at all satisfied, 20%: dissatisfied to a large extent). 48% of the sample participants said that they were moderately satisfied with the waste management system in Nagpur. Maximum participants (54%) from Lakadganj were dissatisfied with the process of waste management followed by Gandhibagh (44%).

**Table 18:** % distribution of survey participants stating their overall satisfaction with the waste management process in the city

Zone	1 - Not satisfied at all	2	3 - Moderately satisfied	4	5 - Completely satisfied
Laxmi Nagar	1.9	18.5	53.7	14.8	11.1
Dharampeth	13.9	16.7	58.3	5.6	5.6
Hanuman Nagar	10.7	17.9	53.6	10.7	7.1
Dhantoli	8.0	20.0	56.0	12.0	4.0
Nehru Nagar	12.0	16.0	44.0	16.0	12.0
Gandhibagh	0.0	43.5	52.2	0.0	4.3
Satranjipura	7.1	7.1	28.6	32.1	25.0
Lakadganj	0.0	54.2	45.8	0.0	0.0
Ashi Nagar	24.0	4.0	36.0	4.0	32.0
Mangalwari	7.7	15.4	46.2	26.9	3.8
<b>Total</b>	<b>8.2</b>	<b>20.4</b>	<b>48.3</b>	<b>12.6</b>	<b>10.5</b>

As compared to men (30%), only 15% women expressed their satisfaction with the waste management process in the city.

**Figure 12:** Overall satisfaction with the waste management process by gender



Those participants who were not satisfied with the waste management system in their city were asked the reasons for the same. Maximum participants (45%) pointed out that the reason for their dissatisfaction was because the door-to-door waste collector does not segregate the wet and dry waste and collects them together. 38% of the sample participants were unhappy with the process because the garbage dumped at vulnerable spots were not being cleared. Another 34% were disappointed with the system because the processing is not being done and 33% expressed their dissatisfaction as the residents do not segregate the wet and dry waste.

**Table 19:** % distribution of survey participants stating reasons for their non/less satisfaction with the waste management process

Zone	Door to door collection is not regular	Residents don't segregate	Mixed garbage is being collected by the door-to-door collector	Waste processing is not being done	Garbage vulnerable spots not being cleared	Waste pickers and others in waste business not integrated
Laxmi Nagar	20.5	46.2	48.7	35.9	51.3	38.5
Dharampeth	25.0	56.3	62.5	43.8	37.5	31.3
Hanuman Nagar	26.3	15.8	42.1	0.0	36.8	26.3
Dhantoli	25.0	20.0	40.0	20.0	35.0	25.0
Nehru Nagar	64.7	58.8	52.9	41.2	35.3	41.2
Gandhibagh	5.0	5.0	25.0	45.0	30.0	15.0
Satranjipura	16.7	25.0	66.7	16.7	41.7	8.3
Lakadganj	20.8	8.3	12.5	41.7	16.7	0.0
Ashi Nagar	56.3	31.3	50.0	43.8	50.0	12.5
Mangalwari	35.3	41.2	52.9	35.3	41.2	47.1
<b>Total</b>	<b>27.8</b>	<b>32.9</b>	<b>44.9</b>	<b>33.8</b>	<b>38.0</b>	<b>25.9</b>



# Conclusions

This report presents the findings of the on-line survey conducted among a total of 297 people spread across all the 10 zones of the city of Nagpur. Women comprised 45% of the sample and 54% were aged 36 years or above and 24% were in the 26-35 years age group.

The survey findings revealed that dumping the waste in the open was almost negligible. Door to door waste collection facility was available for 81% of the sample, the rest drop the waste in bin kept inside or outside the gated colonies. About 95% were aware about waste segregation. The most common source for this awareness was NGOs or the media (print/ broadcast and social). Moreover, around 78% received some orientation in waste segregation.

More than 80% participants stated segregating their waste at the household level, the proportion being near or more than 90% in localities like Satranjipura, Lakadganj, Hanuman Nagar and Mangalwari. In Nehru Nagar only 68% said that they segregate the waste at the household level.

Composting of waste is done by the participants themselves or the residential colony as per 42% participants, the proportion going up to 68% in Satranjipura, but only 26% in Dharampeth.

Daily collection of waste was reported by 23% participants. One third of the participants reported collection at a frequency of three days a week.

Segregating the waste before handing it over to the waste collector was resorted to by 70% participants (Gandhibagh - 96%, Lakadganj - 96%; and Dhantoli - (88%). As per 65% of participants the waste collector puts the dry and wet waste in separate bins.

Only 22% were fully satisfied (men-23%, women-21%) with the system of waste collection and disposal in their neighbourhood, 60 percent were partially satisfied and the rest were fully dissatisfied. Lakadganj and Mangalwari were the localities which had the highest dissatisfaction rates. The reasons for dissatisfaction were "the waste collector mixes the dry and wet waste (67%) and the rest were dissatisfied with the frequency of waste collection (29%) or the way the waste was handled after collection.

Nearly 27% participants expressed complete dissatisfaction with regard to cleanliness level of the commercial and public areas of the Nagpur city, while 42% were moderately satisfied. Gandhibagh, Lakadganj, Mangalwari, Dharampeth and Dhantoli were among the zones where very small number of people were satisfied.

About 29% of the sample were dissatisfied with the waste management process, only 11% participants reported complete satisfaction, 13% expressed satisfaction to a large extent and 48% were moderately satisfied. Maximum participants (54%) from Lakadganj were dissatisfied with the process of waste management followed by Gandhibagh (44%). As compared to men (30%), only 15% women expressed satisfaction with the waste management process in the city.



