

DOI No.: <http://doi.org/10.53550/EEC.2023.v29isp1.014>

Attitude of people towards the effective management of Kitchen waste

Neeru Agrawal¹ and Ayush Agrawal²

¹*Government V.Y.T. Auto. P.G. College, Durg, Chhattisgarh, India*

²*AI & Analytics, Cognigent, India*

ABSTRACT

Increasing population, urbanization and poverty have generated pressure on the natural resources leading to degradation of environment which has become a serious issue as it threatens not only the people's existence but their health and lives too. Environmental pollution cannot be prevented by laws alone, public participation is equally important. In the present time, there is a dire need of economically conscious people to save the environment from disaster. Public awareness, primarily at domestic level, is required to create a positive attitude towards environment. Everybody has to contribute their share for protection of the environment before it's too late. In the present research paper, an attempt has been made to assess the attitude of people towards the effective management of kitchen waste with special reference to left out food, peels of fruits & vegetables etc. Data were collected randomly by providing questionnaire through google form. 308 people ranging between 18 and 70 years of age with different professions living either in independent house or multi-storeyed building of various cities of Chhattisgarh have responded to the questionnaire. It was observed that 61% of respondents are showing awareness about managing food waste by bio composting, however, it varies with the type of residence and city tier. People living in independent house are conveniently reusing kitchen waste while the ones living in multi-storeys want to dispose their waste out of house. As per the findings of survey, it was noted that as we move from tier 1 to tier 4 city, the compost making tendency in respondents is increasing and waste disposal in dust bin is decreasing. High awareness of people regarding disposal of bio and non-biodegradable waste as well as for making compost is found in this survey which may be due to participation of more educated people, independent house owners and low age group participants. In order to bring the awareness among all classes of society, an education drive will be mandatory for preventing environment.

Key words: Domestic, Kitchen waste, Compost, Biodegradable etc

Introduction

Food wastage and its accumulation are becoming a critical problem around the globe due to continuous increase of the world population. The exponential growth in food waste is imposing serious threats to our society like environmental pollution, health risk, and scarcity of dumping land. The Solid Waste Management Rule, 2016 which states that it is the duty of the individual generating the waste to segregate and store the generated waste into separate

bins and handing it over to the person collecting the waste in the segregated form.

Reducing food loss and waste is crucial to improving the use of natural resources; however, it will contribute to lower greenhouse gases emissions per unit of food consumed directly as there will be more food reaching the consumer for a given level of resources used (M. Olle, 2021: FAO, "Sofa, 2019) The awareness and concern towards the protection of the environment has been growing across the globe yet the level of concern for environmental

1. Assistant Professor, 2. Manager

awareness varies (Rosli *et al.*, 2008). Food waste amount was influenced by sociodemographic variables such as education, employment, income, and the number of members in the household. Country-side households donated less to food waste generation than town areas (Mattar *et al.*, 2018). Disposal of wet and biodegradable domestic kitchen waste from high rise buildings are more expensive in regards of collection and vertical transportation (Kirki Ori *et al.*, 2017). The high living standard makes the community low environmental conscious even though they understand wasting food is equal to wasting money and increased food waste management cost (Chooi Lin Phooi, 2022). At the household level, segregation is vital. It does not take any time for an individual to put biodegradable and non-biodegradable waste in two separate bins. This exercise saves a lot of effort at the dump site (Kumar and Nandini, 2013).

Based on the definitional framework set out by Östergren *et al.* (2014) and the management hierarchy from Huber-Humer *et al.* (2017), food waste measures are categorized as follows:- Measures preventing food from becoming food waste: Category 1: Avoidance measures aimed at reduction of food surplus at source, such as avoiding food overproduction and avoiding purchasing more than what is needed; Category 2: Redistribution or donation measures such as redirecting food surplus to people in need; Category 3: Valorization or conversion of food and inedible parts of food removed from the food supply chain, such as redirecting food waste to the bio-based industry or to animal feed. Measures managing food waste: Category 4: Recycling (anaerobic digestion or composting) and recovery (energy recovery) of food and inedible parts of food removed from the food supply chain in order to avoid landfilling.

The objectives of the present work include: to assess the environmental awareness of the people towards bio and nonbiodegradable kitchen waste, to assess the attitude of people towards the effective management of kitchen waste specially food waste, peels of fruits and vegetables etc. and to establish environmental awareness and sustainable action in the society to solve the environmental problems at individual level.

Materials and Method

A survey was conducted with people of different cities of Chhattisgarh. Sampling was done randomly

by using personnel contacts. The data were collected from 308 respondents of Chhattisgarh. A survey was conducted by creating google form bearing 4 questions excluding personal details. The link for the google form was circulated to people on WhatsApp to avoid one to one contact during pandemic period due to the outbreak of Covid-19

Questionnaire design for survey: The study is primarily based on the survey from the people in the predefined questionnaire on different environmental issues. The questionnaire included few demographic variables like age, gender, city, profession and type of house of the respondents and 4 behavioural variables (Table 1 and 2).

Inputs for all the variables were taken in a categorical manner except for city, which was converted into categorical variable by categorizing into Tier 1, 2, 3 & 4 cities (Tier 1: population > 10 lacs, Tier 2: 5-10 lacs, Tier 3: 1-5 lacs and Tier 4: less than 1 lacs...). Data observed were analysed by using IBM SPSS Statistics Data editor.

Results and Discussion

After random sampling using Questionnaire following responses were observed from 308 respondents from various parts of India.

Hypothesis testing: Chi square test in SPSS is applied for analysis.

Environmental awareness of 308 respondents was assessed through the questionnaire provided to them. The results are listed in Table 1. According to results obtained 87.7% of respondents are fully aware about separation of biodegradable and non-biodegradable waste and their behaviour is same irrespective of all demographic variables taken in this study. Here the segregation of biodegradable and non-biodegradable waste in two separate bins is vital at household level as mentioned by Kumar and Nandini, 2013. This exercise saves a lot of effort at the dump site.

About 37.7% of people use peels of fruits and vegetables in making compost while 24.7% place it outside for cattle and remaining either throw in dustbin or have not mentioned it's disposal clearly. This particular behaviour of people has significant relationship with type of residence and city tier. It was observed in this study that many people living in independent house of tier two cities show maximum behaviour of placing peels of fruits and vegetables outside for cattle (Fig.1) and thus redirecting

Table 1. Response in percentage against different behaviours

Behavioural Variable	Response	Respondent (%)
Disposal of biodegradable & non-biodegradable waste separately	Yes	87.7%
	No	12.3%
Disposal of peels of raw vegetables and fruits	Throw in dustbin	31.2%
	Place outside for cattle	24.7%
	Make Compost	37.7%
	Other	6.4%
	Throw in dustbin	14.9%
Disposal of the left out cooked food	Place outside for cattle	36.7%
	Make Compost	21.8%
	Give it to maid	26.6%
Arrangements for making compost	Not making compost	39%
	Dump in pit	28.6%
	Burying waste in garden soil	22.7%
	Use of composting machine	9.7%

food waste to the bio-based industry or to animal feed (Östergren *et al.* (2014) and Huber-Humer *et al.*, (2017). This may be due to the convenient location of their house at ground level and easy availability of roaming cattle in tier two cities. In case of left out cooked food 26.6% people prefer to give it to their maid and thus redistribute or redirect food surplus to people in need and follow category 2 of food waste measure. About 36.7% place food waste outside for cattle, 21.8% use for compost and remaining 14.9% throw it in dust bin. Percentage of food throwing in dustbin is less than peels of fruits and vegetables may be due to use of food by maid. Most respondents have a high awareness of causes and impact of food waste and for about 61% believed that bio-compost is to be the most effective method to manage food waste, and most of them were willing to have it at home either by burying it in pit or

by burying it in garden soil and reusing it as manure. While use of composting machine was mentioned by only 10% respondents. Out of 308 respondents about 39% are not making compost from biodegradable waste and lack action on food waste reduction.

Although 61% respondents are showing awareness about managing food waste by bio composting however it varies with type of residence and city tier. People living in independent house are conveniently reusing kitchen waste while living in

Table 2. Table showing the Socio-economic characteristics of Households

Variable	Category	% age
Gender	Male	13.6%
	Female	86.4%
Age	Below 25 Yrs.	49.4%
	25-35 Yrs.	3.3%
	35-45 Yrs.	7.1%
	45-55 Yrs.	17.5%
	Above 55 Yrs.	22.7%
Type of Apartment	Apartment in multi-storeyed building	14.8%
	Independent House	85.2%
City	Tier 1	39.93%
	Tier 2	5.19%
	Tier 3	31.49%
	Tier 4	23.38%
Profession	House wife	7.5%
	Doctor	2.1%
	Teaching	32.2%
	Working in MNC	2.3%
	Engineer	3%
	Student	46.1%
	Other	6.8%



Fig. 1. Depicts increase in % of respondents making compost and decrease in % of respondents throwing waste in dustbin as we moved from Tier 1 to tier 4 city.

Table 3. Correlation of demographic variables (categorical) with the behavioural variables (categorical)

Behavioural Variable	Demographic variable	Significance value (p value)	Correlation Remarks	(Significant/ Not significant)
Disposal of biodegradable & non-biodegradable waste separately	Age	.265	Not Significant	
	Gender	.122	Not Significant	
	Type of residence	.374	Not Significant	
	City Tier	.838	Not Significant	
	Profession	.950	Not Significant	
Disposal of peels of raw vegetables and fruits	Age	.057	Not Significant	
	Gender	.766	Not Significant	
	Type of residence	.004	Significant	
	City Tier	.006	Significant	
	Profession	.192	Not Significant	
Disposal of the left out cooked food	Age	.000	Significant	
	Gender	.331	Not Significant	
	Type of residence	.001	Significant	
	City Tier	.000	Significant	
	Profession	.000	Significant	
Arrangements for making compost	Age	.001	Significant	
	Gender	.662	Not Significant	
	Type of residence	.015	Significant	
	City Tier	.000	Significant	
	Profession	.000	Significant	

multi-storey are just want to dispose their waste out of house and it was also reported by Kirki Ori *et al.*, (2017) that disposal of biodegradable domestic kitchen waste is more expensive from high rise buildings. According to the results (Fig. 1) it was observed that as we move from tier 1 to tier 4 city the compost making tendency in respondents is increasing and waste disposal in dust bin is decreasing. In Tier 1 city high living standard makes the community low environmental conscious as reported by Chooi Lin Phooi, 2022. High awareness of people regarding bio and non-biodegradable waste as well as for making compost is may be due to more percentage of educated people, independent houses and low age group participants (Mattar *et al.*, 2018) in the survey (Table 2). We have seen that major part of population separates biodegradable and nonbiodegradable waste but the level of concern for environmental awareness varies (Rosli *et al.*, 2008).

Acknowledgement

The authors would like to thank all participants who took part in their survey.

Conflicts of Interest: The authors declare that there are no conflicts of interest.

References

- Chooi Lin Phooi , Elisa Azura Azman , Roslan Ismail , Jasmin Arif Shah and Evelyn Shin Rou Koay, 2022. Food Waste Behaviour and Awareness of Malaysian. *Hindawi Scientifica*. 2022 Article ID 6729248, 11 pages <https://doi.org/10.1155/2022/6729248>
- Kirki Ori, Bharti Ajay and Sunil Kumar, 2017-Disposal of Kitchen Waste from High Rise Apartment. *J. Inst. Eng. India Ser. A* DOI 10.1007/s40030-017-0213-3, ISSN 2250-2149
- Kumar, M. and Nandini, N. 2013. Community attitude, perception and willingness towards solid waste management in Bangalore city, Karnataka, India. *International Journal of Environmental Sciences*. 4(1).
- Mattar, L., Abiad, M.G., Chalak, A., Diab, M. and Hassan, H. 2018. Attitudes and behaviors shaping household food waste generation: lessons from Lebanon. *Journal of Cleaner Production*. 198: 1219–1223.
- Olle, M. 2021. Review: Bokashi technology as a promising technology for crop production in Europe. *5e Journal of Horticultural Science and Biotechnology*. 96(2): 145–152, 2021.
- Rosli, N., Abdullah, K., Bertsch, A., Saeed, M. 2008. An Exploratory Study of the Environmental Awareness of Malaysian Consumers, *Proceedings of the 15th annual South Dakota International Business Conference, Northern State University, Aberdeen, SD, USA, October 11, 2008* S
- Sofa, FAO, 2019. <https://www.fao.org/state-of-foodagriculture/en/>.