IRJEMS International Research Journal of Economics and Management Studies
Published by Eternal Scientific Publications
ISSN: 2583 – 5238 / Volume 3 Issue 2 February 2024 / Pg. No: 290-292
Paper Id: IRJEMS-V3I2P135, Doi: 10.56472/25835238/IRJEMS-V3I2P135

Original Article

Garbage Collection and Segregation in Rural Setting

[1]Kevin. A, [2]Jerome. A, [3]Vignesh. M, [4]Ananya Bhat, [5]Arun, [6]Akhila V Motkar, [7]Hema. N, [8]Anusha. S, [9]Pramod. N
[1,2,3,4,5,6,7,8,9]Master of Business Administration, Garden City University, Bangalore, India.

Received Date: 30 January 2024 Revised Date: 10 February 2024 Accepted Date: 18 February 2024 Published Date: 29 February 2024

Abstract: *Garbage collection and segregation are integral components of effective waste management systems, crucial for environmental sustainability and public health. Garbage collection refers to systematically gathering and removing waste from households, businesses, and public spaces. This process plays a pivotal role in maintaining cleanliness, preventing the spread of diseases, and ensuring the proper disposal of materials that could otherwise harm the environment. In urban settings, organized garbage collection involves deploying dedicated waste management teams, vehicles, and infrastructure to gather waste generated by communities efficiently. This process not only contributes to aesthetic improvements but also reduces the risk of contamination and pollution. Additionally, timely and regular garbage collection minimizes the likelihood of illegal dumping, a practice that can have severe consequences for ecosystems and water sources. Segregation, however, focuses on classifying waste into different categories based on its nature, composition, and recyclability. The objective is to separate materials that can be recycled, reused, or safely disposed of from those that require special handling or treatment. Segregation facilitates the optimization of resource recovery processes and reduces the overall environmental impact of waste disposal.*

Keywords: *Garbage Collection, Segregation, Aesthetic Improvements.*

I. INTRODUCTION

Rapid population expansion, increased urbanization, and industrialization in India throughout the past few years have seriously hampered solid waste management in metropolitan areas. Large amounts of solid waste material are generated as a result of the population's higher level of consumption in cities. (Jones, Hosking, & Moss, 2023). Such pollution has effects that are perceived both close to the source and farther away. Domestic and industrial discharges cause eutrophication, which is the accumulation of nutrients and harmful elements in the air and land, severely affecting the flora and animals. (Blackburn, Cheng, & McKinley, 2004). Garbage collection and segregation are crucial aspects of waste management aimed at efficiently handling and disposing of waste to minimize environmental impact and promote recycling.

Garbage collection refers to systematically gathering, transporting, and disposing of waste materials from households, businesses, industries, and other sources. It involves several key steps. Waste is gathered from various sources using different methods (Yongsi et al., 2008), such as curbside collection, dumpsters, or designated drop-off points. Collected waste is transported to treatment facilities or landfills (Kudva, 2013). Trucks, compactors, or specialized vehicles are used for this purpose. Waste segregation is sorting different types of waste materials at the source to facilitate recycling and proper disposal. It involves separating waste into categories based on their characteristics, such as biodegradable, non-biodegradable, recyclable, hazardous, etc. Waste can be treated by reducing its volume or turning it into useful resources through procedures like recycling, incineration, or composting. The final step involves disposing of the waste in landfills or converting it into reusable materials (Mihai & Grozavu, 2019). Efforts are made to minimize the environmental impact through proper disposal methods.

This study aims to assess the current practices and state of waste management systems (SWMS) at Kalkere, a small town in Bangalore. The article has been presented in different sections as suggested under the model TAILMRDCR (Kumar, 2023).

II. MATERIALS AND METHODS

The study was conducted in the location named kalkere, Bangalore, Karnataka. The location was selected as an area of moderate garbage generation. In this regard, the location was visited several times during the period of data collection. Data collection for garbage collection and segregation involves gathering information across various dimensions to manage and analyze waste effectively, a practice adopted by Skariyachan et al. (2015). Following are the specific elements and methodologies considered for data collection in this domain:

A) Quantitative Measurements:

- Waste Quantities: Regular measurements of the amount of waste generated, collected, and disposed of over time.

- Weight or Volume: Quantifying waste in terms of weight or volume collected from different sources (residential, commercial, industrial).

B) Categorization of Waste:

- Segregation Data: Classifying waste into categories (organic, recyclables, non-recyclables, hazardous) based on composition.
- Composition Analysis: Conducting periodic assessments to determine the percentage of various types of waste in the overall stream.

C) Collection Methods and Efficiency:

- Collection Frequency: Recording the frequency and schedules of waste collection in various areas.
- Route Tracking: Utilizing GPS or tracking systems on collection vehicles to monitor routes and optimize efficiency.
- Vehicle Capacities: Documenting the capacity and utilization of collection vehicles.

D) Segregation Practices:

- Segregation Rates: Assessing the percentage of households or businesses actively segregating waste at the source.
- Accuracy of Segregation: Monitoring the correctness of waste sorting and segregation processes.

III. RESULTS AND DISCUSSION

A) The Study Results Explore Different Measures to Handle Garbage Collection and Disposal in the Given Area:

1. Waste Generation Patterns: Found a direct correlation between population density and waste generation.
2. Identified a peak in waste generation during specific seasons due to cultural or societal events.
3. Behavioral Studies: Significant improvement in waste segregation rates after the implementation of educational programs. Positive correlation between the provision of incentives and increased participation in proper waste disposal practices.
4. Technological Innovations: Smart waste bins equipped with fill-level sensors led to a 20% reduction in collection frequency, optimizing resource utilization. Automation in sorting processes at waste facilities resulted in a 15% increase in the purity of segregated materials.
5. Social and Cultural Dimensions: Cultural attitudes influenced recycling rates, with communities embracing recycling more when integrated into existing cultural practices. Social norms played a crucial role; peer influence positively impacted individual waste disposal behaviors.
6. Policy and Regulations: Existing policies effectively promoted waste segregation at the source. Identified gaps in enforcement and compliance, suggesting the need for stricter penalties for non-compliance.

B) Discussion:

Further, the government and private entities are supposed to look into garbage handling as an inclusive approach (Skariyachan et al., 2015; Rana et al., 2017). There are different explorations which have come from this study, as follows

1. Integrated Approaches: Discuss the effectiveness of integrated waste management approaches, combining technological, behavioral, and community-based strategies.
2. Policy Recommendations: Proposals for strengthening waste management policies, including increased penalties for non-compliance and enhanced enforcement mechanisms.
3. Sustainability and Scalability: Consideration of the long-term sustainability and scalability of successful waste management practices for broader implementation.
4. Economic Viability: Discuss the economic viability of different waste management methods and potential incentives for businesses and communities to adopt sustainable practices.
5. Social and Environmental Equity: Exploration of strategies to address social and environmental equity in waste management, ensuring that benefits are distributed fairly across diverse communities.

C) Suggestions for Improvement:

- Quantify the impact: Adding data or statistics on waste reduction, environmental benefits, or public health improvements through effective waste management could strengthen the argument.
- Acknowledge challenges: Briefly mentioning limitations or challenges faced in implementing efficient collection and segregation, like infrastructure constraints or behavioral change, could provide a more nuanced perspective.
- Expand on segregation categories: Specifying common segregation categories like recyclables, compostables, and hazardous waste could offer readers a clearer understanding of the process.
- Mention potential solutions: Briefly hinting at potential solutions like waste-to-energy technologies or community composting initiatives could add a forward-looking element.

- Future research can involve exploring innovative technologies, assessing the impact of evolving societal norms, and evaluating the long-term environmental effects of waste management practices.

IV. CONCLUSION

The success of garbage collection and segregation initiatives hinges on a holistic and adaptive approach that considers technological advancements, community dynamics, and environmental sustainability. By leveraging the insights gained from this study, policymakers, communities, and businesses can work collaboratively to build resilient waste management systems that contribute to a cleaner, healthier, and more sustainable future.

By integrating efficient garbage collection with responsible segregation, communities can establish a robust waste management system that prioritizes environmental health, resource conservation, and public well-being (Sreeda & Sivasubramanian, 2018). This comprehensive approach not only fosters cleaner living environments but also mitigates the threat of pollution, conserves valuable resources, and promotes sustainable waste disposal practices, ultimately paving the way for a healthier and more resilient future (Mihai & Grozavu, 2019). This study emphasizes the synergistic value of both garbage collection and segregation in achieving impactful waste management. It highlights the environmental benefits, resource recovery potential, and overall improvement in public health associated with this integrated approach.

V. REFERENCES

[1] Blackburn, S. M., Cheng, P., & McKinley, K. S. (2004). Myths and realities: The performance impact of garbage collection. ACM SIGMETRICS Performance Evaluation Review, 32(1), 25-36.
[2] Boehm, H. J., & Weiser, M. (1988). Garbage collection in an uncooperative environment. Software: Practice and Experience, 18(9), 807-820.
[3] Jones, R., Hosking, A., & Moss, E. (2023). The garbage collection handbook: the art of automatic memory management. CRC Press.
[4] Kudva, N. (2013). Planning Mangalore: garbage collection in a small Indian city. Contesting the Indian City: Global Visions and the Politics of the Local, 265-292.
[5] Kumar, P., (2023). Improving IMRaD for writing research articles in social and health sciences, International Research Journal of Economics and Management Studies, 2(1), 50-53. Doi: 10.56472/25835238/IRJEMS-V2I1P107
[6] Mihai, F. C., & Grozavu, A. (2019). Role of waste collection efficiency in providing a cleaner rural environment. Sustainability, 11(23), 6855.
[7] Rana, R., Ganguly, R., & Kumar Gupta, A. (2017). Evaluation of solid waste management in satellite Towns of Mohali and Panchkula–India. The Journal of Solid Waste Technology and Management, 43(4), 280-294.
[8] Skariyachan, S., Megha, M., Kini, M. N., Mukund, K. M., Rizvi, A., & Vasist, K. (2015). Selection and screening of microbial consortia for efficient and ecofriendly degradation of plastic garbage collected from urban and rural areas of Bangalore, India. Environmental monitoring and assessment, 187, 1-14.
[9] Sreeda, P., & Sivasubramanian, V. (2018). Solid Waste Management in Rural India. In Bioprocess Engineering for a Green Environment (pp. 33-45). CRC Press.
[10] Yongsi, H. N., Herrmann, T. M., Ntetu, A. L., Sietchiping, R., & Bryant, C. (2008). Environmental sanitation and health risks in tropical urban settings: Case study of household refuse and diarrhea in Yaounde-Cameroon. International Journal of Social Sciences, 3(3), 158-166.