

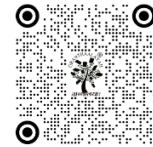
Original Article

INTEGRATING COMMUNICATION CHANNELS TO EDUCATE WASTE LITERACY: THE KILVELUR MODEL - A CASE STUDY

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ABSTRACT

Waste management is a significant global issue resulting from rapid population growth, unchecked consumption patterns, urbanization, and inadequate community participation. The waste management process involves segregation, collection, transportation, responsible disposal, and recycling. Cities with adequate disposal mechanisms and well-planned systems are less susceptible to ineffective waste management. Public participation and government efforts in addressing this issue remain important. Integrating communication channels to inform and educate about waste literacy is essential. This study aims to understand solid waste management initiatives implemented in Kilvelur (Urban Local Body) and the integration of communication channels in addressing waste literacy. The study aims to address the following questions: What solid waste management initiatives has the Kilvelur small urban local body adopted? What are the communication channels used to inform and educate about waste literacy? What are the challenges and gaps in the implementation of waste literacy initiatives at the urban local level? The study employed in-depth interviews with officials and the public from the Kilvelur local administration as the primary qualitative data collection method to explore waste management initiatives and the use and integration of communication channels in promoting waste literacy. Respondents were selected through purposive sampling, as they are directly involved in the design and implementation of waste management initiatives in Kilvelur. The study found that continuous information sharing on waste management significantly increased public responsibility. Effective source segregation is made possible through consistent field visits, rewards, and appreciation. The Kilvelur model shows that proper planning and effective implementation are possible by integrating all communication channels.

Keywords: Waste Management, Urban Local Body, Waste Literacy, Communication Channels, Public Participation

INTRODUCTION

Waste refers to materials that are no longer useful, or the utility of the particular product or service is almost met or used up. The increasing amount of waste every day presents a serious challenge to effective waste management. The management of waste involves a complex process, especially dealing with solid waste because of its heterogeneous nature. Solid waste is broadly classified into three types, namely wet waste, dry waste, and domestic hazardous waste. Wet waste is nothing but biodegradable waste; dry waste is predominantly non-biodegradable waste. Domestic hazardous waste includes batteries, expired tablets, napkins, used bulbs, etc. Construction and demolition waste also falls under dry waste. Effective solid waste management involves a comprehensive approach to dealing with solid waste from its inception to its final proper disposal, such as minimizing waste at its source, recycling, composting, and converting waste into energy, as well as utilizing scientific methods. Rising population, uneven consumption

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patterns, inadequate waste disposal or recycling mechanisms, and lack of awareness among the public result in an intensifying solid waste burden. In India, municipal bodies (urban local bodies) directly manage waste on the ground under the regulatory framework of the Central Pollution Control Board (CPCB), State Pollution Control Boards (SPCBs), and the Ministry of Housing and Urban Affairs (MoHUA), with support from private companies, NGOs, and waste pickers (formal and informal). These bodies develop a policy or initiatives to manage waste. At the municipal level, the municipal workers instruct the people to segregate the waste at the source. Then the segregated waste is collected from each household using either pushcarts or battery-operated vehicles. The collected waste is transported to the processing facility. In the processing facility, waste is either processed to create value from it or disposed of.

In India, there are states doing well in waste management. Indore has led the cleanest cities list for the last three years. Mysore and Telangana are also remarkably doing well with their waste management initiatives. In Kerala, they have integrated self-help group women into the waste management process. To achieve a proper waste management mechanism, effective planning is important. Also, people's support and participation take the waste management initiatives to next level. Kilvelur, a small urban local body from Nagapattinam district, secures the first place in the [Swachh \(2023\)](#) list under the less than 15,000 population category. Kilvelur's success formula is balancing and building a rapport between the garbage generator and the garbage collector. The continuous efforts by the small urban local body to educate people on waste literacy have resulted in securing a top position in the cleanliness survey. Their remarkable initiatives include teaching Anganwadi kids (by showing miniature models of three different dustbins), visiting schools and conducting awareness programs, encouraging school students to segregate waste at school, creating a zero-cost forest where the waste compost is used for plants and trees as manure, etc. A concept called "Manidhaneya Pettagam" was introduced to hand over things that are no longer useful to them. Many donated used dresses, electronic items, and toys. The municipality will collect and distribute it to the needy. All these initiatives were popularized among the public using various communication channels, including oral communication, print media, electronic media, and digital media. Outreach programs and media campaigns are regularly conducted and provide rewards for the people who do proper source segregation. Long-term encouragement and motivation resulted in active public participation. Rewards and appreciation drive them to do better. The study seeks to analyze the use of communication channels in communicating waste literacy among the people of Kilvelur. This study is significant to understand how an urban local body manages its solid waste by educating people on waste literacy through various communication channels. Regular information sharing on effective waste management ideas creates a sense of moral duty among the residents of Kilvelur. People actively discuss their duty in helping the municipality with proper waste management. Sanitation workers feel pride in keeping their locality clean.

The study employs the Participatory Communication Model, which emphasizes two-way dialogue and community involvement in the communication process. In the context of Kilvelur Town Panchayat, this model explains how rapport between sanitation workers and households, the integration of communication channels, and the inclusion of NGOs and schools fostered public participation in waste management. The success of Kilvelur in the Swachh Survekshan survey reflects how participatory approaches can lead to sustainable behavioral change.

Communication channels play a crucial role in reaching a larger population. Kilvelur local administration highly depends on WhatsApp and Facebook groups as a bridge to connect with the people. They encourage people to segregate waste at source through these communication channels by continuously sharing videos relating to waste literacy. Likewise, sustained effort to educate the public on waste literacy yielded a positive result. A strong rapport between garbage generators and garbage collectors was identified as a success factor. Sanitation workers were given respect and recognition; special attention to their children made them feel valued. They also highlight the hard work of sanitation workers regularly. Kilvelur local administration works as a team to address issues related to effective waste management. The Kilvelur model shows that proper planning and effective implementation are possible by integrating all communication channels.

AIM OF THE STUDY

The study aims to understand and identify the integration of communication channels in communicating waste literacy among the people of Kilvelur.

OBJECTIVE(S) OF THE STUDY

- To understand the solid waste management initiatives adopted by the small urban local body Kilvelur.
- To identify the communication channels used to inform and educate the waste literacy.
- To analyze the challenges and gaps in the communication of waste literacy at the urban local level.

LIMITATIONS OF THE STUDY

This study is limited to Kilvelur local body, Nagapattinam district of Tamil Nadu. The study focuses on the solid waste management policies and initiatives implemented by the Kilvelur municipal administration. The findings rely largely on Kilvelur municipal sources.

SCOPE OF THE STUDY

The study can be studied further, focusing on the overall waste management, and comparing it with other small urban local bodies of Tamil Nadu. The scope of the study can be extended further by focusing on the role of informal waste pickers, women in effective waste management.

REVIEW OF LITERATURE

Rapid urbanization leads to various environmental implications. Growing unchecked consumption patterns pose a great difficulty in managing waste. Municipal solid waste management has emerged as a critical issue to address in the 21st century. Several studies highlight the challenges in effective municipal solid waste management. A case study by Thakur and Ganguly discusses the overall efficiency of the waste management system in Una Town (Himachal Pradesh). This study highlights the inefficiencies in transportation and waste treatment facilities.

A study by [Dulta \(2023\)](#) addresses the importance of mitigating future challenges in waste management. This study discussed the existing level of waste management awareness among the public in Shimla. This study also mentions the importance of integrating technological advancements in waste management to facilitate a proper disposal mechanism.

Communication plays a crucial role in shaping public perceptions towards waste management [Okeke et al. \(2024\)](#). To address proper waste management, communication strategies are much needed. Behavioural change is possible by prioritizing effective communication through various means. Effective communication not only creates awareness but also empowers the community to take part in waste management initiatives.

Sustained public participation in waste management initiatives would bring drastic changes in waste management. A study by [Mandal and Manasi \(2022\)](#) discusses the role of civic activism in urban waste management. The study highlighted how various civil society protests against improper waste disposal activities drew government attention.

A study by [Kala et al. \(2020\)](#) aims to identify the appropriate communication channels based on the socio-economic categories of citizens. Rapport between Citizens and Government is essential in executing effective waste management initiatives. Outreach campaigns and regular local-level meet-ups among stakeholders increase awareness among the public. The study suggests that a diverse demographic profile needs to be taken into account while formulating policies that cater to all sections of the population.

The role of information, education, and communication is indispensable to reach the public. Public participation depends on the knowledge they have about waste management. To achieve this, the use of print, electronic media, and social media is needed to spread awareness. [Shubra \(2017\)](#).

A case study on solid waste management in Indore recommends that investing in modern waste processing infrastructure can significantly improve the efficiency of waste management systems. Indore's integrated approach towards waste management transformed it into one of the cleanest cities in India.

India faces significant challenges without an integrated waste policy, waste technology selection, and well-trained professionals in the waste management sector [Reddy \(2022\)](#).

Continued investment in education, infrastructure, and supportive legislation can overcome difficulties in waste management systems [Kumar \(2024\)](#). The study also suggests the importance of decentralized community-led initiatives.

A case study of waste management strategies in [Ashik and Shaju \(2019\)](#) discusses how the concept of participatory communication strategies was used to achieve the goals of a green and clean panchayat. In India, with its federal form of government, decentralized waste management yields better results.

The importance of collaboration among stakeholders in implementing local sanitation rules and regulations plays an indispensable role in providing sustainable waste management services in rural areas [Kanyagui \(2025\)](#). Public-private partnerships help to manage the waste mechanism.

Solid waste management is one of the emerging challenges to the global economy [Purushothama \(2018\)](#). Grassroots-level awareness is needed to overcome waste disposal challenges. The implementation of traditional composting methods, like home composting, was suggested.

A case study by [Shyamal et al. \(2022\)](#) on urban municipal solid waste management in the Indian Himalayan state raises the issue of non-availability of suitable land for a new landfill, lack of skills and technical expertise among the staff, delay in getting funds from the government, and non-devolution of some functions were the main causes for improper implementation of solid waste management.

METHODOLOGY

The study employed in-depth interviews with Kilvelur municipal officials and members of the public as the primary qualitative data collection method to explore waste management initiatives, as well as the use and integration of communication channels in promoting waste literacy. Respondents were selected through purposive sampling, as they are directly involved in the design and implementation of waste management initiatives in Kilvelur. A total of twelve respondents were selected. Among them, six officials representing different levels of the work hierarchy and six members of the public participated in the interviews, providing insights into Kilvelur's existing waste management policies, communication channels, and strategies for promoting waste literacy.

FINDINGS AND DISCUSSION

The study found that continuous information sharing on waste management significantly increased public responsibility. Interviews with municipal officials revealed that rapport between garbage generators and garbage collectors is essential for effective waste management.

Meticulous planning combined with adequate human resources and machinery is a significant factor responsible for effective waste management. In the 2023 Swachh Survekshan survey, Kilvelur secured the cleanest local body award in the list of southern states (south zone) under the population category of less than 15,000. This achievement was widely shared across various communication channels, such as WhatsApp, Facebook groups, and local media channels, to create a sense of pride. Likewise, sustained effort to educate the public on waste literacy yielded a positive result. Continuous monitoring, NGO collaborations, and outreach programs at regular intervals helped Kilvelur achieve the top position in the Swachh Survekshan survey.

As part of the cleanliness initiative, every house was provided with two dustbins (blue for non-biodegradable waste and green for biodegradable waste) to promote household source segregation.

Executive Officer K Kuhan stated that Kilvelur's first and foremost success formula is building a good relationship between the garbage creator and the garbage collector. He further added that the municipality provided utmost importance to sanitation workers. The study also found that special attention to the children of sanitation workers made the workers feel valued.

Every morning, sanitation workers give their attendance to a team responsible for it. As soon as the workers mark their attendance, they take their pushcarts and proceed to their allotted locality.

Interviews with members of the public indicate that they recognize the work of sanitation workers, understand what is required from their end, and are willing to work together. This support has been achieved through the sustained efforts of the local administration. Some respondents noted that initial resistance to waste segregation reduced over time due to continuous awareness campaigns. They also highlighted WhatsApp and Facebook groups as effective communication channels for grievance redressal.

The study found that source segregation is made possible through consistent field visits, rewards, and appreciation. The local government administration distributed wet waste compost for gardening. It also provided sanitary workers with an additional income from the recycling of dry waste.

Another important observation from the study is that the majority of the workers who engaged in waste management are women. From collecting segregated waste from the households to transporting it to the material recovery facility, women lead at the forefront.

The findings revealed that various initiatives introduced by the municipal administration, such as Manidhaneyapettagam, Zero-Cost Forest, Blue Banks in schools, and Waste to Wonder, help to secure the top position in the South zone category of the Swachh Survekshan survey.

The public in Kilvelur is aware of these waste management initiatives undertaken by the local body, and they render their full support, says the municipal officer who works in the forefront. She further adds that this was made possible by the continuous effort of the municipal administration, sanitation workers, and non-governmental organizations.

The municipal officers addressed that the long-term goal is to bring about behavioral change among people. Without bringing about behavioral change, it is impossible to make sustained improvements in waste management.

Despite the achievements, the study identified several persistent challenges, including insufficient human resources, inadequate funding, and systematic inefficiencies, which are the main factors that pose challenges to effective waste management.

The active participation of officials in promoting waste management plays a crucial role in the successful implementation of waste management policies. Waste disposal mechanisms should be streamlined from source segregation to proper final disposal. Continuous monitoring should be implemented to ensure consistency and effectiveness throughout the implementation process.

CONCLUSION

The study explores the solid waste management initiatives implemented in the Kilvelur small urban local body. Special attention to waste management helped the Kilvelur local administration to achieve a remarkable position at the national level. People began to improve their waste management practices. Yet they need continuous motivation to make it a part of a lifestyle. Communication channels play a crucial role in reaching a larger population. Kilvelur local administration highly depends on WhatsApp and Facebook groups as a bridge to connect with the people. They encourage people to segregate waste at source through these communication channels by continuously sharing videos relating to waste literacy. They also highlight the hard work of sanitation workers regularly. When a resident complains about waste dumping on streets, the administration immediately acknowledges the complaint and solves it within a stipulated time period. This quick grievance addressal mechanism created a good impression among the public. Kilvelur local administration consciously works as a team to address issues related to effective waste management. One of the challenges is human resources and funding. They put efforts to sell processed waste as organic manure and other recycled products, but it was not well-received by the public. They make only a nominal amount by selling those value-added products. At their material recovery facility centre, women work as a team to segregate the waste into batteries, pesticide bottles, fluorescent lamps, coconut shells, expired medicines, paint cans, carton boxes, metal, and plastic. The Kilvelur model shows that proper planning and effective implementation are possible by integrating all communication channels. Adequate funding and infrastructure with updated machinery and active community participation can bring change in waste management. Only segregating and transporting the segregated waste doesn't yield much result unless the collected waste is disposed of properly. The segregated waste, if not properly managed, would pile up in dump yards. It serves as a demotivation for the public to segregate waste at households. The government should regulate the waste management process and make the public understand the efforts of sanitation workers. Public-private partnerships and collaborations with NGOs result in innovative mechanisms to address waste management. Kilvelur model is successful because all layers of administration worked together to make their Urban local body the cleanest place. This sense of responsibility is built through continuous efforts by the local administration and the people.

RECOMMENDATIONS

Based on these findings, the research study recommends the following:

- Promoting community-led initiatives at the local level and highlighting successful local and regional waste management initiatives through various media channels to inspire community participation and strong action.
- Giving priority and focus to waste literacy education when framing waste management policies.
- Informing the public about the waste management process in their local area and keeping them involved in addressing and implementing sustainable measures.

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APPENDIX

Figure 1



Figure 1 Field Visit Photographs

Figure 2



Figure 2 Waste Segregation Facility for Used Clothes in Kilvelur Town Panchayat

Figure 3



Figure 3

Figure 4



Figure 4 'Manidhaneya Pettagam' – A Place to Collect Used Products for People in Need

Figure 5



Figure 5 'Blue Bank' Kept in Government School to Keep Used Plastic Bottles