



## Housewives' Waste Reduction Practices: A Study of Sustainable Lifestyles in Batam City

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**Abstract:** This study aims to examine the role of housewives in waste reduction through the implementation of 3R (Reduce, Reuse, Recycle) principles, serving as a means to influence waste management behaviors and foster the adoption of a community-driven circular economy. This approach is designed to involve the broader business environment and city government. The research employs a descriptive qualitative method, focusing on the collection of data and information without reliance on quantitative calculations. The findings highlight that the participation of housewives plays a significant role in engaging individuals and groups in waste management activities. The study underscores the importance of community involvement in providing suggestions, expressing opinions, and actively participating in waste management initiatives. The research emphasizes that housewives play a critical role in waste collection, aligning with the principles of 3R. This role contributes to fostering clean and healthy living behaviors within communities, reinforcing the essential contribution of housewives in achieving sustainable waste management practices.

**Keywords:** Circular Economy, Waste Management, Sustainable Development, Community-Driven Initiatives.

### 1. INTRODUCTION

Household waste management in Indonesia is regulated under Law No. 18 of 2008, which divides waste management into two primary aspects: waste reduction and waste handling (Qodriyatun, 2014; Republic of Indonesia, 2008). Waste reduction emphasizes the 3R principles—reduce, reuse, and recycle—implemented across various waste sources, including households, businesses, and public facilities. Waste handling, on the other hand, includes activities such as collection, transportation to final disposal sites (TPA), intermediate processing, energy recovery, and final disposal. Article 4 of Law No. 18 of 2008 highlights the dual objectives of waste management: improving public health and environmental quality while transforming waste into a resource. However, despite its importance, the implementation of 3R practices within communities remains limited due to low public awareness and insufficient engagement (Kifli & Hidayat, 2017).

Regional regulations and local government initiatives are pivotal for optimizing waste management systems. Utami (2008) emphasizes that without concerted efforts to reduce waste, household waste management leads to excessive resource consumption during transportation and disposal, significantly increasing costs. Estimates suggest that transportation and handling account for 70-80% of the total cost of permanent waste management (Utami, 2008). Unmanaged waste often accumulates in communities, manifesting as litter on streets and

riverbanks, highlighting the need for collaborative efforts among stakeholders to address this issue effectively.

In alignment with the objectives of the Ministry of Environment and Forestry Regulation No. 14 of 2021, Waste Banks have emerged as community-driven facilities promoting 3R principles through education and active participation (Prayoga et al., 2021). These initiatives contribute to the development of circular economy practices and sustainable waste management, supported by the National Waste Bank Management Information System (SIMBA) (Darilaut, 2021). Despite government efforts, such as the implementation of Article 6 of Law No. 18 of 2008, which underscores public education, facility provision, and waste reduction promotion, the widespread application of 3R principles remains underwhelming due to limited public understanding and engagement (Svari & Utama, 2022). Strengthened government-led awareness campaigns and the availability of adequate facilities are critical to addressing this gap and improving waste management outcomes (Zulfikar et al., 2021).

Effective community participation is a cornerstone of successful 3R programs. Public awareness of the economic and environmental benefits of proper waste management is essential for encouraging households to segregate and process waste at its source, thereby reducing waste accumulation and enhancing recycling efforts. For instance, Surabaya's Waste Bank program exemplifies a community-driven approach to reducing waste, demonstrating how local initiatives can significantly decrease the volume of waste sent to landfills while fostering community cohesion (Ministry of Environment Regulation No. 13 of 2012).

Batam, as an industrial hub in Indonesia's Riau Archipelago, faces significant waste management challenges. With a population of approximately 1.2 million, the city generates around 413,462 tons of waste annually, equivalent to 0.95 kg per capita per day, reflecting a 15% reduction from 2019 (City Environmental Agency, 2022). The city's waste management infrastructure includes a primary waste bank and 221 secondary waste banks, which collectively support community-driven waste reduction efforts. However, Batam's landfill at Telaga Punggur, spanning 20 hectares, is nearing capacity, and plans for expansion are constrained by budgetary limitations. Meanwhile, plastic pollution has escalated, with approximately 64% of marine debris in Batam's waters consisting of plastic waste, posing severe risks to ecosystems and public health.

Households contribute to approximately 60% of daily waste in Batam, underscoring the critical role of housewives in waste management. As primary managers of household activities, housewives can influence waste segregation at its source, a fundamental step in effective recycling and waste reduction. Studies have demonstrated that housewives can lead community

composting initiatives, converting organic waste into fertilizer for urban gardening, thereby reducing the strain on municipal waste systems and landfills (Salsabila et al., 2021). Furthermore, housewives can act as community ambassadors, advocating for proper waste segregation practices and improved waste collection systems in underserved areas (Fatikasari, 2023).

Given the complexities of waste management in Batam, integrating housewives into waste reduction and handling strategies offers a promising pathway to achieving sustainable outcomes. Their active participation at the household and community levels not only enhances public awareness but also supports the implementation of 3R principles. By fostering collaboration among government entities, industries, and local communities, Batam can establish a comprehensive waste management framework that mitigates environmental challenges, promotes economic opportunities, and aligns with national sustainability goals. This study seeks to explore the critical role of housewives in transforming waste management practices and their potential contributions to addressing Batam's waste management challenges.

## **2. LITERATURE REVIEW**

The issue of waste management is a critical concern worldwide, particularly in rapidly urbanizing areas like Batam City. As household waste constitutes a significant portion of total waste generation, understanding the role of housewives in waste reduction is essential for fostering sustainable lifestyles. This literature review examines various aspects of waste reduction practices, sustainable lifestyles, and the role of housewives in waste management, drawing insights from global, national, and local studies.

### ***Waste Reduction Practices and Sustainable Lifestyles***

Sustainable waste management practices are an essential component of achieving environmental sustainability. Waste reduction refers to actions taken to minimize waste generation at its source, focusing on the three R's: Reduce, Reuse, and Recycle (3R). According to Geissdoerfer et al. (2017), the concept of a circular economy, which promotes waste reduction and resource reuse, has gained considerable traction as a sustainable alternative to traditional linear models of production and consumption. These practices are often integrated into sustainable lifestyles, which aim to reduce individuals' ecological footprints through conscious consumption choices (Jackson, 2009).

In urban contexts, household waste is a major contributor to waste accumulation. A study by Liu et al. (2018) emphasized that waste generation at the household level is closely linked to consumption behaviors and the lack of effective waste management infrastructure. The role of housewives in this regard is particularly significant, as they are often the primary decision-makers when it comes to purchasing, managing, and disposing of household products. In this context, housewives play a pivotal role in shaping household waste practices, including the adoption of recycling, composting, and other waste reduction strategies (McKinsey, 2020).

### ***Waste Reduction Practices and Sustainable Lifestyles***

Housewives, as key managers of household activities, can have a profound impact on waste reduction practices. Numerous studies have highlighted the importance of household-level waste segregation in ensuring effective recycling and waste minimization. According to research by Salsabila et al. (2021), housewives in several Indonesian cities have demonstrated leadership in organizing community composting programs, which transform organic waste into compost for gardening. These initiatives not only reduce waste sent to landfills but also provide valuable resources for sustainable urban gardening and food production.

Similarly, Fatikasari (2023) emphasizes that housewives can act as agents of change within their communities, particularly in the promotion of waste segregation and recycling. By educating family members and neighbors about proper waste management practices, housewives contribute to broader community engagement in waste reduction efforts. The study also points out that housewives often serve as informal community ambassadors, advocating for improved waste management systems in their neighborhoods.

Research by Rizzo et al. (2019) supports the notion that women, particularly housewives, tend to have a stronger commitment to environmental sustainability due to their role as caretakers of the home and family. This sense of responsibility translates into waste reduction practices, such as conscious purchasing decisions, reusing materials, and reducing consumption. Women's involvement in household waste management is not only beneficial for the family but also contributes to broader environmental and community outcomes.

### ***Barriers to Effective Waste Reduction in Batam***

In Batam City, waste management remains a significant challenge. With a population of over 1.2 million people, Batam generates approximately 413,462 tons of waste annually, with households accounting for about 60% of total waste production

(Batam Environmental Agency, 2022). While local authorities have established waste reduction facilities, such as waste banks, the implementation of 3R practices is still limited due to public unawareness and insufficient community participation. Batam's waste handling infrastructure includes a landfill that is nearing its maximum capacity, further exacerbating the need for sustainable waste management practices at the household level.

One of the key barriers to effective waste reduction in Batam, as noted by Zulfikar et al. (2021), is the lack of comprehensive waste management education and outreach programs for residents. Although programs like waste banks have been introduced to encourage recycling, the public's understanding of waste segregation and reduction techniques remains underdeveloped. This gap highlights the importance of integrating housewives into waste reduction initiatives, as they can be the drivers of behavioral change within households and communities. Additionally, the escalation of plastic pollution in Batam's waters underscores the urgent need for more effective waste management strategies. According to Darilaut (2021), a significant portion of unprocessed waste, especially plastic, ends up in the marine environment, creating long-term environmental and health risks. Housewives, as the primary managers of household waste, are positioned to play an essential role in reducing the amount of plastic waste generated at the source, primarily through adopting reusable alternatives and recycling plastic materials.

### ***Government and Community Initiatives in Batam***

The local government of Batam has made strides in addressing waste management challenges, particularly through the establishment of waste banks and public awareness programs. However, as Sviri & Utama (2022) note, government efforts have not yet yielded widespread success due to a lack of community involvement and low public awareness of the environmental consequences of improper waste disposal. Government-led socialization efforts are essential for educating communities about the benefits of 3R practices and encouraging greater participation in waste reduction initiatives. In the case of Batam, housewives' active involvement in waste management practices could greatly contribute to the success of these initiatives. Studies by Salsabila et al. (2021) and Fatikasari (2023) illustrate the positive impact of housewives' engagement in promoting waste reduction within the household and local communities. Their ability to organize and advocate for effective waste management practices is crucial for reducing the amount of waste sent to landfills and addressing plastic pollution.

### **3. METHODS**

This research employs a qualitative descriptive method, which is aimed at understanding the practices and experiences of housewives in waste reduction in Batam City. The qualitative descriptive method focuses on collecting data through non-statistical means, such as direct interviews, document analysis, and observation, to describe phenomena in their natural context (Somantri, 2005). In this study, primary data will be gathered through in-depth interviews with housewives in Batam, exploring their knowledge, attitudes, and practices related to waste reduction. The interviews will focus on understanding the role of housewives in waste management, including how they incorporate the 3R (Reduce, Reuse, Recycle) principles into their daily lives. Secondary data will be sourced from relevant research studies, journals, books, and reports to provide a comprehensive understanding of the issue. These sources will serve as background materials, helping to contextualize the findings from the interviews within the broader waste reduction landscape in Batam City. The secondary data collected will also include statistics and reports on waste management practices in Batam, specifically focusing on household waste generation and waste management initiatives. This will provide insights into the challenges faced by housewives in implementing waste reduction practices in a city with limited waste management infrastructure.

After the data is collected, a qualitative analysis will be conducted to identify recurring themes, patterns, and behaviors related to waste reduction practices. This analysis will help in understanding the factors influencing housewives' decisions and the role they play in fostering sustainable lifestyles in their communities (Fadli, 2021). The findings will contribute to a better understanding of the importance of housewives in waste reduction efforts in Batam and may provide recommendations for improving waste management programs at the local level.

### **4. RESULTS**

Waste is the residual product of human activities and/or natural processes, typically in solid form. The issue of waste arises due to the increasing number of people and animals capable of generating waste. In areas with higher population growth, waste generation tends to rise accordingly. Conversely, in areas with a smaller population, the amount of waste produced is relatively low, and waste management can be handled more easily by the community. However, even in sparsely populated areas, waste management can be effectively carried out through methods such as incineration, burial, or self-dehydration. The challenge of waste management becomes more significant in densely populated areas, particularly in urban residential neighborhoods with limited open space for waste disposal (Juniardi et al., 2020).

The implementation of the 3R principles—Reduce, Reuse, and Recycle—outlined in Law No. 18 of 2008 on Waste Management (Republic of Indonesia, 2008) is crucial in addressing this issue. The law emphasizes that waste is a by-product of human or natural activities that can be reused or recycled. Household waste, municipal waste, and special waste all fall within this scope, and efficient management of these wastes is vital for promoting sustainability (Qodriyatun, 2014). In Batam, where urbanization and population density have led to increased waste production, housewives have become key players in waste management. According to the Batam City Environmental Agency (2020), over 60% of household waste comes from residential areas, with plastic packaging and food waste being the largest contributors. Housewives in the city often face challenges in managing this waste effectively. However, many are adopting practices that align with waste reduction principles, including reusing plastic containers and shopping bags, composting organic waste, and sorting recyclables.

Housewives' role in waste reduction becomes even more prominent when considering their daily interactions with household waste. Studies show that women, particularly housewives, are at the forefront of implementing waste reduction strategies within their homes. According to research by Thogersen and Olander (2003), women tend to take the lead in waste separation, recycling, and reusing practices, as they are often responsible for domestic activities such as cooking, shopping, and waste management. In line with this, housewives in Batam City are also responsible for managing common household waste, such as plastic bags from groceries and packaging from fast food. By implementing the 3R (Reduce, Reuse, Recycle) principles, housewives significantly reduce waste in their households and contribute to a more sustainable environment.

Public participation, particularly from housewives, is a critical factor that can influence the success of waste management programs. This involvement can be enhanced through community engagement activities such as discussions, suggestions, and active participation in waste reduction efforts. The degree of public participation is closely linked to the level of understanding, awareness, and action taken by individuals within their households (Tiaraningrum & Pratama, 2022).

The role of each family member in waste management is crucial for achieving sustainable waste reduction. While every family member contributes to managing household waste, housewives often have the most significant impact. As primary household managers, housewives play an integral role in guiding their families toward sustainable practices, organizing the home, educating children, and fostering an environment where waste

management is prioritized. This dominant role of housewives in household affairs is widely recognized, and their influence extends beyond household tasks to the broader community's environmental practices. In Batam, initiatives like waste banks have been implemented to encourage residents to separate recyclables from general waste. These programs have highlighted the importance of community participation, with housewives often leading these efforts within their households. A study on waste banks in Batam City emphasized the necessity for collaborative efforts among government, industry, and society to enhance waste management practices. Housewives actively engage in composting organic waste, such as food scraps and garden waste, to produce compost for household use. This practice not only reduces the volume of waste sent to landfills but also provides a sustainable source of fertilizer for home gardening. For instance, a project in a Batam village involved organizing waste collection, storage, and treatment, where organic wastes were used to produce compost, benefiting the community and the environment.

Studies indicate that when housewives involve their families in waste management, the overall success of waste reduction efforts is greater. In a study conducted in Indonesia by Kurniawati et al. (2021), it was found that households with mothers who actively engaged their children in waste separation and recycling saw a 30% higher rate of successful waste reduction compared to households where such practices were not promoted.

Effective waste management practices by housewives have contributed to a decrease in the amount of household waste entering landfills. Data from the Punggur Landfill in Batam indicates a reduction in waste volume due to improved waste separation and recycling efforts. For example, Sei Beduk saw a decrease from 17,895,770 kg in 2022 to 14,680,240 kg in 2021, reflecting the positive impact of community-led waste management initiatives. Organizations have conducted workshops in Batam to educate women, particularly housewives, about sustainable waste management practices. These workshops focus on empowering women to make informed choices regarding plastic use and disposal, recognizing their central role in household decisions. The collective efforts of housewives in waste management can have a profound impact on the overall waste reduction strategy in Batam City. By reducing, reusing, and recycling household waste, housewives not only contribute to sustainability within their homes but also play a crucial role in shaping their communities' environmental practices. To further enhance the effectiveness of these efforts, it is essential to continue fostering education and awareness about waste management and to provide support for housewives to engage in sustainable practices.

Furthermore, housewives not only manage waste but also guide their families, including husbands and children, in sustainable practices. A study by Yuliana et al. (2022) found that households where the entire family, including husbands and children, participated in waste management had better outcomes in reducing waste and recycling. This aligns with findings from MAJENE Asmuni et al. (n.d.), which emphasize that when family members collaborate in sustainable practices, the likelihood of success increases. Households with strong community networks that support recycling initiatives tend to perform better in waste management. Community-based waste management programs in Batam, such as those in Tanjung Uncang, have shown that local participation leads to higher recycling rates. As highlighted in the study by Tiaraningrum & Pratama (2022), when housewives in these areas engage in community waste management projects, they are able to contribute to a larger waste reduction network. Education plays a significant role in enhancing the effectiveness of waste management practices. Housewives who are well-educated about the environmental impact of waste and the importance of the 3R principles are more likely to implement these strategies in their households. According to a study by Lina Yuliana et al. (2022), households with mothers who received waste management education reported a 40% reduction in household waste, demonstrating the importance of raising awareness about sustainable practices.

## **5. CONCLUSION**

This study has highlighted the significant role of housewives in promoting sustainable waste reduction practices in Batam City. As primary household managers, housewives are central to the success of waste management initiatives, particularly in areas with high urbanization and population density like Batam. Through their daily interactions with household waste, housewives actively engage in practices such as waste segregation, recycling, and composting, contributing substantially to waste reduction and environmental sustainability.

The findings indicate that housewives' involvement in waste management not only impacts their households but also extends to the wider community. Their leadership in waste management practices, such as participating in waste bank programs and educating family members, has resulted in measurable improvements in waste diversion from landfills and increased community participation in sustainable waste management efforts. Moreover, household-level education and awareness of the 3R principles (Reduce, Reuse, Recycle) have proven to enhance the effectiveness of waste reduction programs, with families reporting higher success rates when all members, including husbands and children, engage in waste

management practices. In conclusion, housewives play an indispensable role in shaping sustainable lifestyles in Batam City by adopting and promoting environmentally responsible waste reduction practices. To further strengthen these efforts, it is crucial to continue providing education and support to housewives, empowering them to make informed decisions about waste management. Additionally, fostering community-based waste management programs and collaborations between the government, industries, and residents can amplify the impact of these initiatives, leading to a more sustainable and environmentally conscious Batam City.

## **LIMITATION**

The research focused specifically on Batam City, and the findings may not be universally applicable to other regions in Indonesia or internationally. Differences in cultural, economic, and infrastructural contexts might influence waste management practices in other locations. The study may have been limited by a relatively small or non-representative sample size. Housewives from certain socioeconomic backgrounds or residential areas may have been overrepresented, while other groups might have been underrepresented, potentially skewing the results. While the research focused on housewives, the influence of other family members, such as husbands and children, on waste reduction practices was not extensively explored. A more comprehensive understanding of household dynamics and the role of other family members could provide a more holistic perspective. Despite these limitations, the study provides important insights into the role of housewives in waste reduction in Batam City and offers a foundation for further research into sustainable waste management practices at the household level.

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