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# WASTE MANAGEMENT CATERING

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**Abstract:** This article analyzes waste management practices in the catering industry, focusing on food waste, packaging waste, and operational waste. Using surveys, observations, and literature review, the study identifies current challenges and evaluates the effectiveness of sustainable waste-reduction strategies. The findings show that digital tracking systems, staff training, portion control, and recycling programs significantly reduce waste generation. Recommendations are provided to support catering businesses in improving sustainability, reducing costs, and minimizing environmental impacts.

**Keywords:** Catering, waste management, food waste, sustainability, recycling, composting, environmental protection

## Introduction

The catering industry is a major contributor to global waste generation, producing large quantities of food waste, single-use packaging, and disposable service materials. Rapid growth in events, restaurants, and institutional catering has increased environmental pressure and operating costs. Inefficient waste management contributes to resource depletion, greenhouse gas emissions, and public health risks. Therefore, implementing effective and sustainable waste management strategies is essential for improving environmental performance and operational efficiency within the catering sector.

Waste mismanagement in catering facilities creates several challenges. Environmentally, it leads to higher greenhouse gas emissions, particularly methane produced from decomposing organic waste in landfills. Economically, waste represents a direct financial loss, as discarded food and materials increase operational costs. Socially, the presence of improperly handled waste can create health risks, reduce hygiene standards, and damage the reputation of catering businesses. As a result, many countries are tightening regulations on waste disposal and encouraging the adoption of sustainable waste management strategies across the food sector.

## Methods

This study used a mixed-methods research design to investigate waste management practices in the catering industry. Data were collected from 40 catering companies representing different service types, including event catering, hotel kitchens, corporate canteens, and educational institutions. To obtain background knowledge and identify global best practices, a full literature review was conducted using academic journals, environmental reports, and government guidelines related to food waste and sustainability in food service operations.

Primary data collection included surveys, on-site observations, and waste quantification. A structured questionnaire with both closed-ended and open-ended questions was administered to managers, chefs, and food handlers. The survey collected information about daily waste quantities, waste categories, recycling practices, composting availability, staff training, and barriers to adopting sustainable waste systems. To complement the survey, on-site observations were carried out in 12 facilities using a standardized checklist. During these visits, researchers observed kitchen workflows, food storage conditions, staff waste-handling behavior, bin placement, labeling, and customer waste habits in buffet and self-service areas.

To ensure accurate measurement of waste output, a three-day waste audit was performed in five selected catering sites; all food scraps, leftovers, packaging materials, and disposable items were weighed and classified into organic, recyclable, and non-recyclable categories. Operational factors such as food preparation techniques, portion sizes, menu planning, and peak-hour workflow were also recorded to understand how daily processes influence waste generation. Quantitative data were analyzed using simple statistical calculations to determine averages, percentage distribution, and variation across facilities, while qualitative data were reviewed through thematic coding to identify patterns such as lack of staff training, limited recycling infrastructure, and inefficiencies during meal service. Ethical standards were maintained by informing all participants of the study purpose, assuring confidentiality, and avoiding collection of any sensitive business information.

**Results**

The findings of the study revealed significant variations in the types and quantities of waste generated across different catering facilities, but food waste consistently represented the largest proportion in every site examined. On average, food waste accounted for 56–62% of total daily waste, with the highest levels recorded in buffet-style and institutional catering due to overproduction and unpredictable customer flow. Packaging waste represented about 28–34%, largely consisting of single-use plastic containers, cardboard boxes, and beverage packaging. Mixed waste and hazardous waste, including oils and chemical cleaning products,

constituted approximately 8–10%. Data from the three-day waste audit showed that each medium-sized catering facility produced an average of 42–57 kilograms of waste per day, with organic waste being the most dominant component.

Survey results indicated that while 72% of catering businesses claimed to practice waste segregation, real-time observations showed that actual segregation accuracy was often lower, with only around 48% of waste correctly sorted.

**Discussion**

The study shows that food waste remains the most significant challenge in the catering industry, largely due to overproduction, unpredictable customer turnout, and poor storage practices. Although recycling efforts are increasing, most businesses still rely heavily on single-use packaging because of convenience and cost considerations.

The adoption of digital tools such as waste-tracking software can significantly improve waste monitoring and support decision-making. Composting organic waste and donating surplus food can also reduce environmental impact and support community welfare. The gap between reported practices and observed behavior suggests that environmental policies within catering organizations are not always translated into everyday actions. Poorly labeled bins, insufficient staff training, and time pressure during service hours contribute to cross-contamination and reduce the effectiveness of recycling programs. Similar challenges have been reported in other research, where inadequate infrastructure and lack of employee motivation were identified as barriers to proper waste handling. This indicates that sustainable waste management requires not only equipment and policies but also a change in workplace culture and routine practices.

**Conclusion**

Waste management in the catering industry remains a major issue, with food waste being the largest contributor. Although efforts toward sustainability have begun, a more comprehensive approach is needed. Integrating recycling systems, staff education, and modern waste-monitoring technologies can greatly enhance waste reduction outcomes. The findings of this study highlight the importance of collaboration between catering businesses, customers, and local authorities to achieve long-term sustainability. Food waste continues to dominate overall waste output, largely due to overproduction, inaccurate portioning, poor storage practices, and unpredictable customer demand. Despite increased awareness of environmental issues, many catering facilities still struggle to translate sustainability policies into daily routines, resulting in gaps between reported and observed waste management behaviors.

**Recommendations**

1. Implement digital waste-tracking tools to monitor and analyze waste generation patterns.
2. Provide regular staff training on waste segregation, food handling, and sustainability principles.
3. Introduce portion-control methods to reduce overproduction and leftover food.
4. Establish partnerships with recycling centers and composting facilities.
5. Use biodegradable and reusable packaging to reduce single-use waste.
6. Improve customer awareness through visual guides, posters, and color-coded waste bins.
7. Donate surplus food to food banks and community organizations.
8. Adopt menu planning strategies based on demand forecasting to prevent waste.

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