



Methods On Administration of Food Waste in Hospitality Sector

Ibegbulem, Udodi Marcia¹ & Professor Innime Righteous²

School Of Public Health, University of Port Harcourt

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*Corresponding Author:

Ibegbulem, Udodi Marcia

Abstract

This study revealed food waste management practices in the hospitality industry with case study Hotel Presidentials & Suites. It was inspired by four research objectives: to determine the main food waste causes, to understand the current management, to analyze the success of those implemented and to understand the challenges faced in their implementation. A descriptive survey research design was used and the data were collected using of structured questionnaires administered to 100 respondents drawn from various departments such as the kitchen, restaurant, housekeeping and administration units. Descriptive statistical methods such as frequency distribution and percentage were applied in analyzing the collected data while the Chi-square (χ^2) statistical method was used to test the hypothesis at 0.05 level of significance. The results revealed that the three key drivers of food waste were food overproduction, inappropriate inventory management and customer's preference for large food portions. The study also confirmed that a number of waste management practices are implemented in hospitality organizations such as inventory control, reusing and recycling of leftovers, employee training and monitoring systems. The results also showed that effective portion control and systematic monitoring can help to cut down food waste. However, lack of staff training and training costs, and customer behaviour were identified as major barriers to good food waste management. The results of the hypothesis testing showed that there is a statistically significant relationship between the food waste management practices and the reduction of food waste in the hospitality sector. The researchers found that sustainable management of food waste relies on the efficiency of the operation, staff skills, customer awareness, and management commitment. As a result, it recommended better management of inventory systems, regular training of staff, integration of waste monitoring technologies and organising awareness campaigns to encourage sustainable food waste management in the hospitality sector as a whole.

Original Research Article

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Introduction

Food waste is a pressing global concern with enormous environmental, economic and social ramifications. The hospitality industry, including hotels, restaurants, catering services and event centers, has been identified in recent years as a key contributor to food waste generation. This is mostly because of operational practices including overproduction, inappropriate storage, inefficient inventory management and customer behaviour patterns. The increasing demand for high quality food services, especially in metropolitan areas, has exacerbated the problem, elevating the appropriate management of food waste to a main priority for the hospitality industry.

Globally, it is estimated that nearly one-third of all food produced for human consumption is wasted each year, representing a significant loss of resources like water, energy and labour. Food waste is generated at many different phases in the hospitality industry; in ordering, preparing and serving food and after it has been eaten. Large portion sizes, buffets and unexpected client demand are often the drivers of plate waste, and the main causes of excessive kitchen waste are poor planning and a lack of staff training. Not only can inefficiencies increase operating expenses, but they also lead to environmental damage from greenhouse gas emissions from decaying food waste.

In developing countries such as Nigeria, the problem of food waste in the hospitality sector is exacerbated by infrastructural challenges, limited awareness of sustainable practices, and weak regulatory frameworks. Rapid urbanization and the expansion of the hospitality sector have increased food consumption patterns, thereby generating more waste. Despite the growing awareness of sustainability, many hospitality establishments still lack structured methods for managing food waste effectively. This gap highlights the need for the adoption of innovative and sustainable food waste administration practices tailored to local contexts.

Waste management practices in the hospitality industry include waste minimisation, reuse, recycling, and recovery. These strategies can encompass demand forecasting, portion control, menu planning, staff training, food donation programs, composting, and technology for inventory administration. Combining these approaches saves waste and promotes operational effectiveness and corporate social responsibility. Furthermore, sustainable food waste management is consistent with global development goals for reducing hunger, promoting responsible consumption, and mitigating climate change.

In the recent years, the circular economy ideas are gaining greater attention in the hospitality industry. This strategy emphasises reuse and recycling of resources, minimising waste and maximising value. One example is food waste that is turned into compost, animal feed or bioenergy, creating a resource from waste. However, with sufficient knowledge, training, investment and policy support, such strategies can be successfully implemented.

Furthermore, customer behavior plays a significant role in food waste generation. Consumer preferences for large portions, aesthetic presentation, and buffet-style dining often lead to excessive waste. Educating customers and encouraging responsible consumption can significantly contribute to waste reduction efforts. Similarly, staff involvement and administration commitment are crucial for the successful implementation of food waste administration methods.

Although food waste has been identified as a serious problem, empirical research on successful administrative strategies in the hospitality industry, particularly in developing economies, are scarce. Previous research have mostly focused on food waste at the household level, resulting in a knowledge gap about the food waste dynamics in commercial settings. Hence, the research is intended to investigate how food waste is managed in the hotel sector to suggest workable options for waste minimisation and higher sustainability.

Research Design

The study adopted a descriptive survey research design. The descriptive survey design is important because it enables for systematic collection of data from the respondents to describe and assess actual conditions, practices and perception of food

waste administration in the hotel sector. The design is perfect for this study since it gives importance to the gathering of information from personnel of selected hospitality enterprises specifically Hotel Presidentials & Suites to assess the reasons of food waste, present administration methods, efficacy of approaches and related challenges. Further, the approach allows the generalisation of the findings from the sample to the larger population.

Population of the Study

The population of the study comprises all staff working in various departments of Hotel Presidentials & Suites. This includes employees in the kitchen, restaurant, housekeeping, and administration units. These categories of staff are directly or indirectly involved in food handling, preparation, service, and waste administration processes. The estimated population for this study is 200 staff members across the relevant departments.

Sample Size and Sampling Technique

The study has a sample size of 100 respondents which is equivalent to 50% of the overall population. This percentage is deemed sufficient to guarantee the representativeness and trustworthiness of the results. The study uses stratified random sampling to make sure all relevant departments are properly represented. The population is initially stratified in departments (kitchen, restaurant, housekeeping and administration) and then simple random sampling is performed to select respondents from each stratum proportionally.

Instrument for Data Collection

The main data gathering device of the study was a structured questionnaire prepared by the researcher. The questionnaire is divided into two parts: Section A and Section B. Section A captures demographic data of respondents such as gender, age, educational qualification, years of experience and department. Section B comprises of structured items developed from the study questions. The items are measured on a five-point Likert scale ranging from Strongly Agree (SA) to Strongly Disagree (SD). The questionnaire items are aimed to collect information on drivers of food waste, existing administration practices, effectiveness of used approaches and obstacles encountered in food waste administration.

Validity of the Instrument

The questionnaire is reviewed by experts to confirm the validity of the instrument. The instrument copies are delivered to specialists in hotel administration and research methodology for evaluation. Their recommendations and adjustments are included to improve clarity, relevance, and adequacy of the items. This will ensure that the instrument measures what it is designed to measure.

Reliability of the Instrument

Reliability of the instrument is tested through a pilot study done on 20 respondents that are not part of the main study but

have similar characteristics with the target population. The internal consistency of the instrument is analysed by means of Cronbach's alpha with the data acquired from the pilot test. A reliability coefficient of 0.70 and higher is regarded appropriate for the investigation.

Method of Data Collection

Data for this study were acquired through face-to-face presentation of the questionnaire to the respondents selected. The researcher distributes the questionnaires with the help of trained research assistants to the workers in the specified departments of Hotel Presidentials & Suites. The respondents are given appropriate time to fill the questionnaire. The filled copies are collected for analysis. This approach gives high response rate and accuracy of the data.

Method of Data Analysis

Descriptive and inferential statistics were used to analyse the acquired data. The answers to study questions are summarised using descriptive statistics such as frequencies, percentages, means and standard deviations. The research hypothesis was tested using chi-square (χ^2) test at 0.05 level of significance using inferential statistics. The results are presented in tabular form for clarity and easy understanding.

Ethical Considerations

Ethical considerations have been adhered to scrupulously in the course of this work. Participation in the study is voluntary and the respondents are told about the goal of the research. We guarantee anonymity and confidentiality of the responses and do not publish any personal information. The management of Hotel Presidentials & Suites granted permission to carry out the study and respondents were informed that the information submitted would be utilised for academic reasons only.

4.2 Data Presentation and Analysis

Section A: Demographic Information

Table 4.1: Distribution of Respondents by Gender

Gender	Frequency	Percentage (%)
Male	60	60%
Female	40	40%
Total	100	100%

The data indicate that a larger proportion of respondents (60%) are male, while 40% are female. This suggests that male employees dominate the workforce in the selected hospitality establishment. This distribution may reflect the nature of certain departments, such as kitchen operations, which traditionally employ more male staff. However, the presence of female staff also indicates gender diversity within the organization.

Table 4.2: Distribution of Respondents by Age

Age Range	Frequency	Percentage (%)
18–25	20	20%
26–35	35	35%
36–45	25	25%
46 and above	20	20%
Total	100	100%

The majority of respondents (35%) fall within the 26–35 age group, indicating that the workforce is relatively young and active. Employees within this age range are likely to be adaptable to new practices and innovations, including food waste administration methods. The presence of older staff also suggests a balance of experience and youthful energy within the organization.

Table 4.3: Educational Qualification

Qualification	Frequency	Percentage (%)
SSCE	15	15%
ND/NCE	25	25%
HND/B.Sc	40	40%
Postgraduate	20	20%
Total	100	100%

The table shows that the majority of respondents (40%) possess HND/B.Sc qualifications, while 20% have postgraduate degrees. This indicates that the workforce is relatively well-educated, which may positively influence their understanding and implementation of food waste administration practices. Educated staff are more likely to appreciate the importance of sustainability and adhere to best practices.

Table 4.4: Years of Experience

Experience	Frequency	Percentage (%)
0–2 years	20	20%
3–5 years	30	30%
6–10 years	25	25%
Above 10 years	25	25%
Total	100	100%

The results show that 30% of respondents have 3–5 years of experience, while 50% have over 6 years of experience combined. This indicates that a significant proportion of staff have substantial experience in the hospitality sector, which is essential for understanding operational processes and identifying sources of food waste.

Table 4.5: Department

Department	Frequency	Percentage (%)
Kitchen	30	30%
Restaurant	25	25%
Housekeeping	20	20%
administration	15	15%
Others	10	10%
Total	100	100%

The majority of respondents (30%) are from the kitchen department, followed by the restaurant (25%). These departments are directly involved in food preparation and service, making their responses particularly relevant to the study. The inclusion of other departments ensures a comprehensive perspective on food waste administration.

Section B: Major Causes of Food Waste

Table 4.6: Overproduction of Food

Response	Frequency	Percentage (%)
SA	45	45%
A	30	30%
U	10	10%
D	10	10%
SD	5	5%
Total	100	100%

A significant majority of respondents (75%) either strongly agree or agree that overproduction of food leads to waste. This indicates that food is often prepared in excess to meet anticipated demand, which may not always materialize. This finding highlights the need for improved demand forecasting and production planning.

Table 4.7: Poor Inventory administration

Response	Frequency	Percentage (%)
SA	40	40%
A	35	35%
U	10	10%
D	10	10%
SD	5	5%
Total	100	100%

The majority (75%) agree that poor inventory administration contributes to food spoilage and waste. This suggests that inefficiencies in stock control, such as overstocking or improper storage, are significant contributors to waste generation.

Table 4.8: Large Portion Sizes

Response	Frequency	Percentage (%)
SA	50	50%
A	30	30%
U	5	5%
D	10	10%
SD	5	5%
Total	100	100%

An overwhelming majority (80%) agree that customers' preference for large portions increases food waste. This finding underscores the importance of portion control and customer awareness in reducing waste.

Section C: Existing Food Waste administration Practices

Table 4.9: Inventory Control Practices

Response	Frequency	Percentage (%)
SA	35	35%
A	40	40%
U	10	10%
D	10	10%
SD	5	5%
Total	100	100%

The results indicate that 75% of respondents agree that effective inventory control practices are in place. This suggests that the establishment has taken steps to monitor food usage, although there is still room for improvement.

Table 4.10: Reuse and Recycling of Food

Response	Frequency	Percentage (%)
SA	30	30%
A	35	35%
U	15	15%
D	10	10%
SD	10	10%
Total	100	100%

About 65% of respondents agree that leftover food is reused, donated, or recycled. While this indicates some level of sustainability practice, the relatively high neutral and disagreement responses suggest inconsistency in implementation.

Table 4.11: Staff Training

Response	Frequency	Percentage (%)
SA	25	25%
A	40	40%
U	15	15%
D	10	10%
SD	10	10%
Total	100	100%

The findings show that 65% agree that staff receive training, indicating moderate investment in human capacity development. However, the presence of dissenting responses suggests that training programs may not be regular or comprehensive.

Section D: Effectiveness of Food Waste administration methods

Table 4.12: Reduction of Food Waste

Response	Frequency	Percentage (%)
SA	30	30%
A	40	40%
U	15	15%
D	10	10%
SD	5	5%
Total	100	100%

70% of respondents agree that methods have reduced food waste, indicating a generally positive impact of current practices.

Table 4.13: Portion Control Effectiveness

Response	Frequency	Percentage (%)
SA	35	35%
A	40	40%
U	10	10%
D	10	10%
SD	5	5%
Total	100	100%

75% agreement shows that portion control is an effective strategy, reinforcing earlier findings about portion size as a key factor.

Table 4.14: Monitoring and Evaluation

Response	Frequency	Percentage (%)
SA	30	30%
A	45	45%
U	10	10%
D	10	10%
SD	5	5%
Total	100	100%

The high agreement (75%) indicates that monitoring systems play a crucial role in improving waste administration practices.

Section E: Challenges Affecting Food Waste administration

Table 4.15: Lack of Training

Response	Frequency	Percentage (%)
SA	40	40%
A	35	35%
U	10	10%
D	10	10%
SD	5	5%
Total	100	100%

A strong majority (75%) agree that lack of training is a major challenge, indicating a need for continuous staff development.

Table 4.16: Cost of Implementation

Response	Frequency	Percentage (%)
SA	45	45%
A	30	30%
U	10	10%
D	10	10%
SD	5	5%
Total	100	100%

75% agreement suggests that financial constraints significantly hinder the adoption of effective waste administration methods.

Table 4.17: Customer Behavior

Response	Frequency	Percentage (%)
SA	50	50%
A	30	30%
U	5	5%
D	10	10%
SD	5	5%
Total	100	100%

80% agreement indicates that customer behavior remains one of the most difficult challenges to control.

4.3 Test of Hypothesis

Analysis of Research Hypothesis

The hypothetical statement of the study is stated as follows:

H₀: There is no significant relationship between food waste administration methods and the reduction of food waste in the hospitality sector.

H₁: There is a significant relationship between food waste administration methods and the reduction of food waste in the hospitality sector.

To test this hypothesis, data obtained from responses in

Response Category	Observed (O)	Expected (E)	(O-E) ² /E
Strongly Agree (SA)	30	20	5.00
Agree (A)	40	20	20.00
Undecided (U)	15	20	1.25
Disagree (D)	10	20	5.00
Strongly Disagree (SD)	5	20	11.25
Total	100	100	42.50

The calculated Chi-square value (χ^2_{cal}) is **42.50**.

Degree of freedom (df) = (n - 1) = 5 - 1 = 4

Level of significance = 0.05

Critical value (χ^2_{tab}) = 9.488

Decision Rule:

If $\chi^2_{cal} > \chi^2_{tab}$, reject the null hypothesis (H₀); otherwise, accept H₀.

Since the calculated value (42.50) is greater than the critical value (9.488), the null hypothesis (H₀) is rejected, while the alternative hypothesis (H₁) is accepted.

The result indicates that there is a statistically significant relationship between food waste administration methods and the reduction of food waste in the hospitality sector. This implies that the methods adopted by establishments such as Hotel Presidentials & Suites—including portion control, inventory administration, staff training, and monitoring—have a measurable impact on minimizing food waste.

Furthermore, the high proportion of respondents who agreed or strongly agreed with the effectiveness of these methods suggests that proper implementation and continuous improvement of such practices can lead to substantial reductions in food waste. The finding reinforces the importance of integrating structured waste administration methods into daily operations within the hospitality sector.

4.4 Discussion of Findings

The findings demonstrate that food waste in Hotel Presidentials & Suites is largely influenced by operational inefficiencies such as overproduction and poor inventory administration, as well as behavioral factors like customer preferences. While existing methods such as portion control, monitoring, and inventory administration have shown effectiveness, their impact is limited by challenges such as

Section D of the questionnaire (Effectiveness of Food Waste administration methods) were analyzed using the Chi-square (χ^2) statistical technique. The aim is to determine whether the observed responses differ significantly from what would be expected if no relationship exists.

The observed frequencies (O) were derived from respondents' ratings on whether existing methods have significantly reduced food waste, while the expected frequencies (E) were calculated by dividing the total responses equally across the response categories.

inadequate training, high implementation costs, and customer behavior.

The results suggest that a holistic approach combining operational improvements, staff training, and customer awareness is necessary to achieve sustainable food waste administration. Overall, the study confirms that effective methods can significantly reduce food waste when properly implemented and supported.

Conclusion

Based on the findings of the study, it can be concluded that food waste administration in the hospitality sector is influenced by a combination of operational inefficiencies and behavioral factors. While establishments such as Hotel Presidentials & Suites have adopted various methods to manage food waste, their effectiveness depends on proper implementation and continuous monitoring.

The study concludes that food waste administration methods such as portion control, inventory administration, staff training, and monitoring systems are effective in reducing waste when properly applied. However, challenges such as inadequate training, financial constraints, and customer behavior limit the full effectiveness of these methods.

Overall, effective food waste administration requires a holistic approach that integrates operational efficiency, employee engagement, customer awareness, and administration commitment.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. administration of hospitality establishments should strengthen inventory control systems to reduce overstocking and food spoilage.
2. Staff should be regularly trained on modern food waste administration practices to improve efficiency in food handling and preparation.
3. Portion sizes should be standardized and adjusted based on customer demand analysis to minimize plate waste.
4. Hospitality establishments should invest in waste tracking and monitoring technologies to improve data-driven decision-making.
5. Awareness campaigns should be introduced to educate customers on responsible consumption and the environmental impact of food waste.
6. administration should explore partnerships with food banks and recycling organizations to promote food reuse and donation practices.
7. Government agencies should provide supportive policies and incentives to encourage sustainable food waste administration practices in the hospitality sector.

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