

EVALUATION OF SUSTAINABLE PRACTICES FOR FOOD WASTE MANAGEMENT AMONG SELECTED RESTAURANTS IN OSHODI-ISOLO LOCAL GOVERNMENT AREA OF LAGOS STATE

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Abstract:

This study evaluated sustainable practices for food waste management among selected restaurants in Oshodi-Isolo Local Government Area in Lagos State. It aims to identify the sustainable practices for reducing food waste in restaurants, examine the extent to which these practices are implemented and assess the environmental impacts of food waste from restaurants. The study employed a descriptive survey design, administering questionnaires to 120 randomly selected staff from ten restaurants. Data were analysed using frequency distributions and chi-square analysis with Statistical Package for Social Science (SPSS) version 28.0. Findings reveal that restaurant staff demonstrated strong awareness and positive attitudes toward key food waste management practices, including effective menu planning (78.3%), portion control (80.0%), proper storage (82.5%), and recycling (79.2%). However, practices such as composting (37.5%) and food donation (28.3%) received comparatively lower levels of implementation, indicating logistical and policy-related barriers. Respondents strongly agreed that poor food waste management contributes to environmental degradation, resource depletion, and financial loss. The chi-square analysis showed significant relationships between sustainable practices and both waste reduction and cost savings. The study concluded that while operational-level practices are well-embedded, broader strategies such as donation and composting require institutional and policy reinforcement. Enhanced training, infrastructure investment, and government incentives are recommended to scale sustainable practices in the sector.

Keywords: Food waste, Sustainability, Restaurant operations, Waste management, Lagos State.

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Introduction:

Food waste is a growing concern globally, particularly within the hospitality industry, which generates substantial quantities of organic waste. Restaurants, being significant contributors, are responsible for a considerable portion of this

waste due to overproduction, spoilage, and consumer plate waste (Griffin *et al.*, 2019; WRAP, 2022). In Nigeria, rapid urbanisation and evolving eating habits have further exacerbated food waste issues, especially in densely populated

areas such as Lagos State (Nwachukwu & Bello, 2022; Adeyemi *et al.*, 2023).

Improper management of food waste presents dual challenges: it contributes to environmental degradation and imposes economic burdens on restaurant operations (UNEP, 2023). Efficient food-waste-management practices not only mitigate these effects but also create opportunities for cost savings and improved sustainability (FAO, 2022). Globally, sustainable strategies—including source reduction, food donation, composting, and recycling—have been implemented to address food waste effectively (Marthinsen *et al.*, 2023).

This study examines the sustainable food-waste-management practices employed by selected restaurants in Oshodi-Isolo Local Government Area of Lagos State. Specifically, it evaluates the extent to which these practices are implemented and assesses the environmental impacts of restaurant food waste. By analysing these aspects, the study aims to generate insights that can inform more effective practices and policies in the restaurant sector, thereby enhancing both economic efficiency and environmental sustainability.

METHODOLOGY

Research Design

This study adopted a descriptive survey research design to evaluate the food waste management practices of selected restaurants within Oshodi-Isolo Local Government Area in Lagos State, Nigeria. The methodology was structured to capture both qualitative and quantitative data, enabling a comprehensive understanding of food

waste issues in the targeted hospitality settings.

Study Area

Oshodi-Isolo, one of the Local Government Areas in Lagos State, is a vibrant commercial hub characterised by a high density of restaurants and food vendors. It is culturally diverse and economically active, making it a suitable location for examining sustainable food waste practices.

Population and Sampling

The study population consisted of staff and management personnel from ten selected restaurants. A total of 120 respondents were selected using a simple random sampling technique. This included 80 operational staff and 40 management staff across the ten establishments.

Instrument for Data Collection

Data were collected through a structured, closed-ended questionnaire. The instrument was divided into sections covering demographics, awareness of food waste practices, extent of implementation, and perceived environmental and economic impacts.

Data Analysis

Responses were coded and analysed using the Statistical Package for Social Sciences (SPSS) version 28. Descriptive statistics such as frequencies and percentages were used to describe respondent characteristics and responses. Chi-square tests were employed to test the hypotheses regarding the relationship between sustainable practices and food waste reduction.

RESULTS

Demographic Characteristics

Table 1: Socio-Demographic Characteristics of the Respondents

VARIABLES	FREQUENCY	PERCENTAGE (%)
Gender		
Male	42	35.0
Female	78	65.0
Age		
18-20 years	12	10.0
21-28 years	14	11.7
29-36years	30	25.0
37-44	39	32.5
45-52	18	15.0
53years and above	7	5.8
Marital status		
Single	35	29.2
Married	67	55.8
Divorce	13	10.8
Widow	5	4.2
Educational qualification		
WASC / GCE	10	8.3
OND/NCE	31	25.8
HND/B.Sc	47	39.2
MSC/MBA	18	15.0
Prof Cert.	14	11.7
Rank / level in the organization		
Top Management	31	25.8
Middle Management	50	41.7
Lower Management	39	32.5

Source: Field Survey Report, 2025.

From Table 1 above, it was shown that the majority of respondents were female (65%), with the highest proportion (35%) falling within the 37–44 age group. Most respondents (55.8%) were

married, and 39.2% held an HND or B.Sc qualifications. Middle management staff comprised the largest segment at 41.7%, followed by lower (32.5%) and top management (25.8%).

Sustainable Practices for Reducing Food Waste

Table 2: Frequency and Percentage Distribution on Sustainable Practices for Reducing Food Waste

Practice	SA F(%)	A F(%)	N F(%)	D F(%)	SD F(%)
Effective menu planning	58 (48.3)	36 (30.0)	14 (11.7)	7 (5.8)	5 (4.2)
Proper food storage & handling	66 (55.0)	33 (27.5)	9 (7.5)	7 (5.8)	5 (4.2)
Portion control	64 (53.3)	32 (26.7)	10 (8.3)	9 (7.5)	5 (4.2)
Regular staff training	60 (50.0)	34 (28.3)	13 (10.8)	8 (6.7)	5 (4.2)
Reuse ingredients	57 (47.5)	38 (31.7)	11 (9.2)	9 (7.5)	5 (4.2)
Recycling	59 (49.2)	36 (30.0)	12 (10.0)	8 (6.7)	5 (4.2)
Food donation	51 (42.5)	36 (30.0)	15 (12.5)	13 (10.8)	5 (4.2)
Composting	50 (41.7)	35 (29.2)	16 (13.3)	14 (11.7)	5 (4.2)

Source: Field Survey Report, 2025.

The results from Table 2 above indicate that most respondents strongly agreed or agreed with key practices such as effective menu planning, proper food storage, and recycling. The strongest support was for 'Proper food storage and handling' (82.5%), while 'Food donation' and 'Composting' received relatively lower support, highlighting potential gaps in external or long-term

sustainability practices. This implies that while internal practices are widely adopted and appreciated, **external or long-term sustainability practices** (e.g., composting and donation) may require **additional institutional support, policies, or partnerships** for better implementation.

Extent to Which Food Waste Management Practices Are Implemented by Restaurant Operations

Table 3: Frequency and Percentage of Implementation Levels by Practices

Practices	High F(%)	Moderate F(%)	Low F(%)	Ranking
Proper food storage and handling	55 (45.8)	44 (36.7)	21 (17.5)	1
Effective menu planning	54 (45.0)	44 (36.7)	22 (18.3)	2
Portion Control	53 (44.2)	48 (40.0)	19 (15.8)	3
Recycling	52 (43.3)	47 (39.2)	21 (17.5)	4
Regular Staff Training	50 (41.7)	46 (38.3)	24 (20.0)	5
Reuse Ingredients	48 (40.0)	46 (38.3)	26 (21.7)	6
Composting	45 (37.5)	50 (41.7)	25 (20.8)	7
Food Donation	34 (28.3)	48 (40.0)	38 (31.7)	8

Source: Field Survey Report, 2025.

It was shown from Table 3 above that 'Proper food storage and handling' and 'Effective menu planning' received the highest 'High' ratings, with 45.8% and 45.0% respectively. In contrast, 'Food Donation' had the lowest high implementation rate at 28.3%, suggesting a gap in external sustainability practices.

Moderate implementation levels were observed across most practices, particularly in composting and food donation. These findings reflect a strong focus on operational controls but a need for improvement in collaborative and systemic practices. These implementation levels align with global trends, where infrastructural and

knowledge-based interventions often outperform charitable food distribution in developing nations (Nwachukwu & Bello, 2022; UNEP, 2023).

Environmental Effects of Poor Food Waste Management

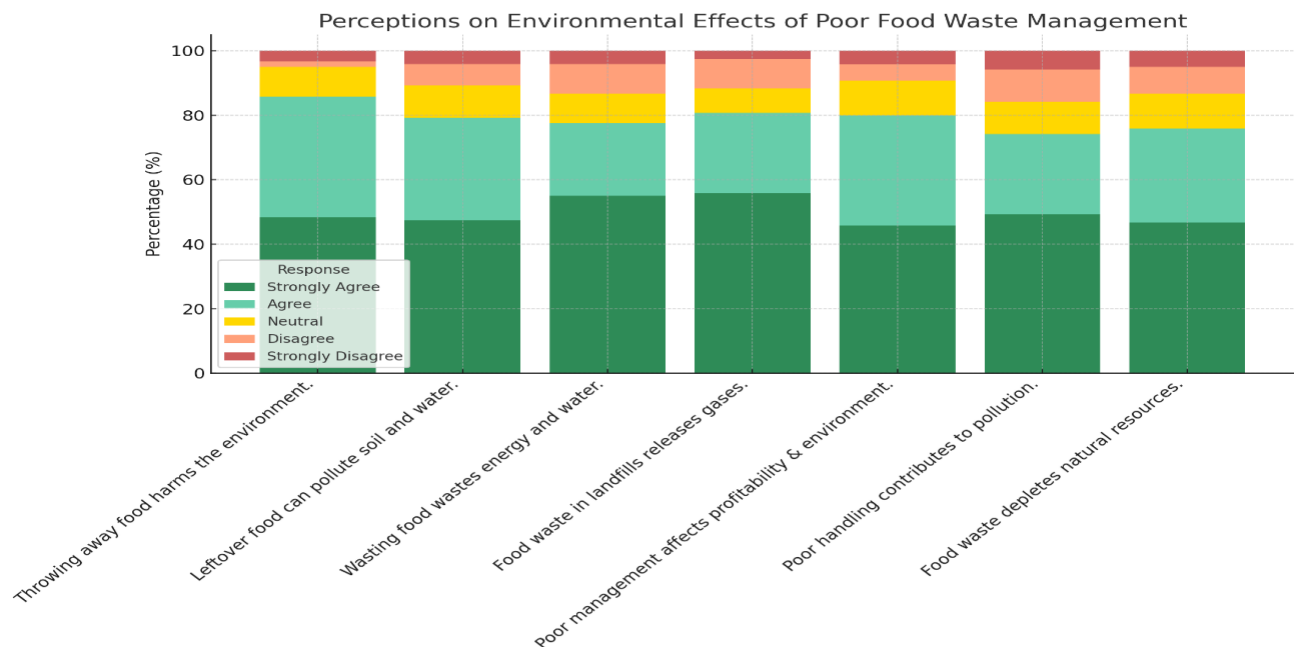
Table 4: Frequency and Percentage of Environmental Effects of Poor Food Waste Management

Statements	SA F(%)	A F(%)	N F(%)	D F(%)	SD F(%)
Throwing away food harms the environment.	58 (48.3)	45 (37.5)	11 (9.2)	2 (1.7)	4 (3.3)
Leftover food in the bin can pollute the soil and water.	57 (47.5)	38 (31.7)	12 (10.0)	8 (6.7)	5 (4.2)
Wasting food means more energy and water are wasted in making it.	66 (55.0)	27 (22.5)	11 (9.2)	11 (9.2)	5 (4.2)
When food waste rots in landfills, it releases harmful gases into the air.	67 (55.8)	30 (25.0)	9 (7.5)	11 (9.2)	3 (2.5)
Poor food waste management negatively affects restaurant profitability and the environment.	55 (45.8)	41 (34.2)	13 (10.8)	6 (5.0)	5 (4.2)
Poor food waste handling contributes to air, land, and water pollution.	59 (49.2)	30 (25.0)	12 (10.0)	12 (10.0)	7 (5.8)
Food waste leads to the unnecessary use and depletion of natural resources (e.g., water, fuel, land).	56 (46.7)	35 (29.2)	13 (10.8)	10 (8.3)	6 (5.0)

Source: Field Survey Report, 2025.

It was revealed from Table 4 that the majority of respondents strongly agreed that “when food waste rots in landfills, it releases harmful gases into the air” (55.8%) and that “wasting food

means more energy and water are wasted in making it” (55.0%). Similarly, 48.3% strongly agreed that “throwing away food harms the environment,” with an additional 37.5% agreeing



Test of Hypothesis

Ho: Implementing sustainable food waste management practices does not lead to cost savings for restaurants.

Chi-square to test the significance of the hypothesis

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	81.331 ^a	3	.001
N of Valid Cases	120		

Source: Field Survey Report, 2025.

Since the P-value 0.001 is not less than 0.02. This implies that we shall reject the Ho and accept Hi which means implementing sustainable food waste management practices leads to cost savings for restaurants.

DISCUSSION OF FINDINGS

These findings indicate a strong awareness among participants regarding the negative environmental implications of food waste. Most notably, the recognition of methane emissions from landfills and resource waste during food production suggests a high level of environmental literacy. However, some respondents (less than 10%) were neutral or disagreed, highlighting the need for targeted education in waste reduction and

sustainability practices within the food service sector.

The findings from this study underscore the importance and effectiveness of sustainable food waste management practices in restaurant operations. High levels of agreement with practices such as effective menu planning, proper food storage, portion control, and recycling reflect a strong operational commitment among restaurant staff in the study area. These findings are in line with studies by FAO (2022) and Marthinsen *et al.* (2023), which emphasise the role of food handling and planning in minimising waste generation.

The lower ratings for composting and food donation reveal critical gaps in broader, community-based sustainability strategies. This aligns with Adeyemi *et al.* (2023), who found that while internal waste controls are widely adopted, external practices often suffer due to logistical constraints, lack of policy support, and limited infrastructure. Similarly, WRAP (2022) reported that food businesses are less likely to implement donation and composting initiatives unless supported by external stakeholders.

The strong perception of food waste as environmentally harmful and economically inefficient resonates with the United Nations Environment Programme (UNEP, 2023), which estimates that up to 10% of global greenhouse gas emissions stem from wasted food. Survey results from this study support this perspective, with most respondents agreeing that poor food waste management contributes to pollution and resource depletion. The link between waste reduction and cost savings also confirms the economic rationale for sustainability, as argued by Griffin *et al.* (2019) in their study of full-service restaurants.

CONCLUSION

This study assessed sustainable practices for food waste management among selected restaurants in the Oshodi-Isolo Local Government Area of Lagos State. The findings revealed that while restaurants have integrated several operational-level sustainability practices—such as effective menu planning, portion control, proper food storage, and recycling—there remains a significant gap in community-oriented practices like food donation and composting. These gaps can be attributed to infrastructural challenges, weak policy frameworks, and limited collaboration between restaurants, government agencies, and environmental organizations (Nwachukwu & Bello, 2022; Adeyemi *et al.*, 2023).

The research confirms that sustainable food waste management contributes not only to

environmental conservation but also to operational efficiency and cost reduction (FAO, 2022; Griffin *et al.*, 2019). The statistical results, which demonstrated a significant relationship between waste management practices and cost savings, underscore the economic advantage of sustainability in the hospitality industry (UNEP, 2023). Furthermore, the high awareness among restaurant staff regarding the environmental consequences of poor waste management highlights growing environmental literacy within the sector (Marthinsen *et al.*, 2023).

However, the study emphasizes that awareness alone is insufficient. Achieving long-term sustainability requires stronger institutional frameworks, enhanced regulatory enforcement, and targeted capacity-building programmes. Collaborative partnerships with food banks, recycling companies, and agricultural composting initiatives would further extend the sustainability chain beyond restaurant premises (Yeboah & Mensah, 2021). Government-led incentives—such as tax reliefs or grants for eco-friendly operations—could also enhance compliance and encourage more restaurants to adopt advanced food waste management techniques (Akindele & Ojo, 2022).

In conclusion, sustainable food waste management should be regarded as a strategic priority in Nigeria's hospitality industry, not merely an environmental obligation. By integrating efficient waste reduction systems, fostering public-private partnerships, and promoting continuous staff training, restaurants can strengthen their economic resilience while contributing to broader environmental goals such as reducing greenhouse gas emissions and achieving the United Nations Sustainable Development Goals (SDGs) 2, 12, and 13 (UNEP, 2023; Zhang & Yang, 2024).

RECOMMENDATIONS

Based on the findings and conclusions of this study, the following recommendations are

proposed:

1. Training and Capacity Building: Restaurant management should conduct regular training sessions for all staff on sustainable food waste practices to improve compliance and foster environmental responsibility.
2. Policy Incentives: Government agencies should introduce incentives such as tax rebates or subsidies for restaurants engaging in composting or food donation.
3. Infrastructure Support: Investment in cold storage facilities, food tracking systems, and compost bins can enable restaurants to extend shelf life, reduce waste, and properly dispose of organic matter.
4. Community Partnerships: Restaurants should collaborate with food banks, waste recycling firms, and environmental NGOs to strengthen food donation and sustainable disposal networks.
5. Monitoring and Evaluation: Institutions should implement tracking systems to evaluate the quantity and sources of food waste, guiding evidence-based improvements in operations. Collectively, these measures can enhance sustainable outcomes, improve efficiency, and position Nigeria's hospitality sector as a leader in responsible food waste management.

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