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Employee Environmental Commitment and Food Waste Reduction Practices: Empirical Evidence From Star-Rated Hotels in Nairobi City County, Kenya

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Abstract

Food waste is an issue of concern in the global hospitality industry as it negatively impacts the operational efficiency of establishments in terms of increasing costs, reducing useful resources, and harming the environment. Although star-rated hotels may have policies and procedures for reducing food waste, their success depends largely on the employees who apply them during daily operations. Consequently, this study was conducted in star-rated hotels in Nairobi City County, Kenya and focused on hotel kitchen employees. It aimed to examine how kitchen employees' awareness of food waste, moral attitudes towards wasting food, and confidence in their ability to reduce waste influenced food waste reduction practices. Guided by the tenets of Attitude–Social Influence–Efficacy theory and Self-Determination Theory, a quantitative design was used. Analysis was performed using data from 268 usable questionnaires and comprised means and their corresponding standard deviations, as well as simple and multiple linear regression, to test the hypotheses. The three-aspect employee environmental commitment had a joint positive and statistically significant influence on food waste reduction practices, explaining about 47.7% of the variation in food waste reduction practices. The strongest aspect was self-efficacy ($\beta = .504$, $p < .001$), followed by awareness ($\beta = .215$, $p < .001$). The moral attitudes aspect of environmental commitment had a positive effect but was statistically non-significant ($\beta = .093$, $p = .111$). Based on the results, management of star-rated hotels in this study need to conduct practical training with kitchen employees on food waste reduction, hold regular discussions on food waste, institutionalise better food waste monitoring, and provide staff feedback channels.

Vol. 11, No. 06; 2026

ISSN: 2456-3676

Keywords: employee environmental commitment; food waste; food waste reduction practices; self-efficacy; star-rated hotels; Kenya.

1. Introduction

The hotel industry supports tourism, creates employment, and contributes to national economies (Malefors & Callewaert., 2019). Nevertheless, hotels use large amounts of food, water, and energy and produce considerable waste. Food waste forms a large share of the waste generated by hotels and restaurants (Abdulredha et al., 2018). Studies conducted in various locations, concur that food waste is not only an environmental concern, but also an everyday operational and cost problem facing hospitality businesses (Afzal et al., 2022; Bhajan et al., 2022).

Hospitality establishments in Kenya, especially star-rated hotels, are under immense pressure to ensure sustainable operations. However, progress in reducing food waste is uneven because some hotels lack adequate resources, and employees have little training on food waste reduction. These issues are relevant among star-rated hotels in Nairobi City County since they serve large and changing numbers of business and leisure guests; thus, they must produce enough food to meet demand without allowing unnecessary waste. According to the Tourism Regulatory Authority report of 2025, star-rated hotels are also expected to perform better, against the backdrop of the assumption that they have the resources and management systems needed to control waste.

Kitchen employees are closely involved in ordering, storage, preparation, production, portioning, and service, and their actions can either prevent waste or contribute to it. Scholars have argued that employees who are more likely to use waste reduction practices are those who recognize food waste and understand its environmental and financial effects (Amicarelli et al., 2021; Diaz-Farina et al., 2023). Knowledge may still not be enough, and employees also need to believe that reducing waste is the right thing to do and that they have the ability to take action. Drawing inferences from previous studies, employees' self-efficacy has been linked with a stronger intention to reduce food waste (Ding, 2022; Ding & Jiang, 2023), whereas moral attitudes may encourage more responsible handling of food (Elkhwesky et al., 2024; Ma et al., 2024).

Despite the attention it has received from hotels, researchers, and policymakers, food waste has remained a difficult problem and carries both environmental and financial implications (Amicarelli et al., 2021; Kim et al., 2022; Luu, 2020). Research has shown that the issue is even more urgent for hotels, linking it to the growth of tourism and the increasing number of people eating away from home (Okumus et al., 2020). However, much of the available research deals with waste management techniques or customer behaviour, with less attention accorded to hotel employees and to how their awareness, moral attitudes, and self-efficacy work together, particularly in developing countries (Filimonau & De Coteau, 2019; Filimonau & Matute., 2024). It is against this background that this study examined the influence of employee environmental commitment on food waste reduction practices among kitchen employees in star-rated hotels in Nairobi City County, and was guided by the following null hypotheses: $\boldsymbol{H_{01}}$: Employee awareness of food waste has no statistically significant influence on food waste

Vol. 11, No. 06; 2026

ISSN: 2456-3676

reduction practices; H_{02}: Employee moral attitudes toward food wasting have no statistically significant influence on food waste reduction practices; and H_{03}: Employee self-efficacy in food waste reduction has no statistically significant influence on food waste reduction practices.

2. Literature Review

2.1 Food Waste and Food Waste Reduction Practices in Hotels

Food waste comprises food that is left over, spoiled, or otherwise discarded. It is commonly classified as avoidable, partly avoidable, or unavoidable. However, what people consider edible may differ across cultures. It can arise in hotel kitchens when food is ordered, received, stored, prepared, cooked, portioned, or served, and can also come from guest leftovers, as hotels prepare food without having an exact number of bookings. Consequently, food may remain unused when actual demand is lower than expected; thus, reducing food waste requires attention to production planning, food handling, stock control, and service rather than a single action at the point of disposal. Reducing food waste is important as this can help hotels to enhance their operational efficiency at the same time supporting environmental sustainability. Okumus et al. (2020) argue that appropriate forecasting of bookings and preferences can help hotels to reduce food waste as they are associated with avoiding excessive purchasing and production. Other measures hotels can use to reduce food waste consist of menu planning, appropriate portions, correct labelling, stock rotation, seasonal purchasing, and the safe reuse or redistribution of surplus food.

2.2 Employee Environmental Commitment

Environmental commitment is a concept that interests many stakeholders, such as organisations, governments, and scholars. It focuses on environmental protection through sustainable development. Employees' awareness of environmental sustainability is driven by their commitment to the environment. Employee environmental commitment thus, refers to the willingness of employees to take part in actions that reduce environmental harm. Three related aspects were used to operationalise employee environmental commitment: (1) awareness of food waste, (2) moral attitudes towards wasting food, and (3) self-efficacy in reducing food waste.

2.2.1 Awareness of Food Waste

Awareness of food waste refers to employees' understanding of why food is wasted, the effects of this waste, and what they can do to reduce it. Awareness is associated with knowledge, which applies to the whole food-handling process in the hotel context. To reduce food waste, there is need for staff to be aware where waste occurs in the food ordering, delivery, storage, and production processes. Previous research argues that employees can be encouraged to support efforts to reduce food waste when they understand its environmental and financial implications (Filimonau & Todorova., 2020).

Although heightened awareness rarely guarantees behavioural change, previous research suggests that hands-on training directly connects daily kitchen decisions to waste outcomes (Diaz-Farina et al., 2023; Montesdeoca-Calderón et al., 2024). For instance, according to

Vol. 11, No. 06; 2026

ISSN: 2456-3676

(Filimonau & Tochukwu., 2020) a study in Lagos, showed that, while regular training helps staff manage portion control and safely repurpose leftovers, a lack of fundamental knowledge among both employees and guests frequently undermines waste management efforts, as seen in institutional contexts in Lagos. Other scholars have indicated that even highly knowledgeable staff face operational challenges regularly, ranging from inflexible guest demands to rushed service delivery and the wider workplace constraints (Okumus et al., 2020; Zrnić, 2026). The immediate work environment is crucial in increasing employees' awareness. Consequently, this study aimed to examine how employee awareness translates into actual waste reduction practices among star-rated hotels in Nairobi City County.

2.2.2 Moral Attitudes Toward Food Wasting

Moral attitudes are important in food waste reduction because employees who feel they have the responsibility to reduce food waste undertake efforts ensuring that it does not occur. These moral attitudes act as intrinsic drivers encouraging employees to reduce food waste. Employees inherently handle ingredients with greater care across preparation, cooking, and service lines when they perceive food waste not only as a financial issue, but also an ethical one as it ignores the principles of food security and compromises professional standards. Scholars such as Elkhwesky et al. (2024) have documented the relationship between moral values and positive environmental behaviours in the hospitality industry. Existing empirical evidence portrays a positive effect of employees' personal accountability and participation in reducing food waste (Lu & Ko, 2023; Ma et al., 2024). In contrast, evidence exists showing that moral attitudes are not enough alone in encouraging food waste reduction among employees. Research shows that some employees' food waste reduction behaviour is driven by the financial implications rather than ethical appeals, and the translation of moral belief into tangible practice remains heavily dependent on operational variables such as instructional clarity, practical skill levels, and service demands (Chawla et al., 2022; Pearson et al., 2025).

2.2.3 Self-Efficacy in Food Waste Reduction

Self-efficacy is grounded in an individual's belief in their capacity to effectively deal with tasks (Bandura, 1986). Within the realm of culinary, self-efficacy manifest as an employee's confidence in executing food waste reduction behaviour. In the context of hotel kitchen, self-efficacy reflects the capability of employees to identity the sources of food waste, undertake measures to reduce waste, and in inspiring colleagues to reduce waste. Existing evidence shows positive correlations between self-efficacy and employees' proactive behaviour in reducing food waste (Ding, 2022; Ding & Jiang, 2023; Filimonau et al., 2024). However, much of existing empirical evidence has focused on guests' behaviour toward food wasting instead of the influence of workplace dynamics of hospitality employees. Accordingly, this study sought to narrow this gap by examining the direct influence of self-efficacy on food waste reduction behaviour among kitchen employees.

Vol. 11, No. 06; 2026

ISSN: 2456-3676

3. Theoretical Frameworks

3.1 Attitude–Social Influence–Efficacy Theory

This study is anchored on the Attitude–Social Influence–Efficacy (ASE) model, which is a model rooted in the Theory of Reasoned Action (Ajzen & Fishbein, 1980) that clearly integrates cognitive self-efficacy (Bandura, 1977). Based on the ASE model, how individuals behave is driven by their intrinsic motivation, perceived social pressures, and agency (De Vries & Mudde, 1998). The attitude component of ASE model has been operationalised in this study through the moral attitudes of employees towards food wasting. The efficacy aspect of the model captures employees' perceived capacity to undertake food reduction actions. While the three aspects of ASE model are crucial, this study introduces awareness as an important cognitive driver shaping how employees interpret the impacts of food waste while recognising ways to reduce it. Drawing on the ASE model, strong food waste reduction behaviours among employees occurs when they have higher levels of awareness to acknowledge food waste, develop the urge to deal with it, receive support, and maintain self-efficacy to undertake reduction practices.

3.2 Self-Determination Theory

This study also draws on Self-Determination Theory (SDT) to understand the relationships among the variables. According to SDT, sustained human behaviour relies on satisfying three core psychological needs: (1) autonomy, (2) competence, and (3) relatedness (Deci & Ryan, 1985), which shape employees' intrinsic commitment to sustainability in professional kitchen environments. The autonomy aspect mirrors employees who are empowered to deal with food waste; competence reflects their technical ability to implement mechanisms laid down to address food waste. The relatedness aspect reflects shared environmental values employees have with their managers/supervisors and co-workers. This theory complements the ASE model as it explains how workplace environments converts employees' motivation into taking action, and thus reveals that while personal awareness and attitudes form the foundation, long-term food waste reduction requires an enabling workplace climate that fosters genuine psychological buy-in.

4. Methodology

4.1 Research Design and Study Area

A correlational research design was utilised in this study which focused on star-rated hotels (ranging from two- to five-star establishments) operating within Nairobi City County. The target sampling frame encompassed 50 hotels, comprising nine two-star, 15 three-star, 16 four-star, and 10 five-star properties. Nairobi was purposively selected in relation to its position as East Africa's famous commercial and tourism hub, and has the concentration of international and domestic star-rated hotels.

Vol. 11, No. 06; 2026

ISSN: 2456-3676

4.2 Population, Sampling, and Sample Size

This study targeted 1270 employees working in hotel kitchens. These individuals were selected in relation to their hands-on role in food preparation, handling, and service, which are operational stages where the risk of food waste is most acute (Diaz-Farina et al., 2023; Kasavan et al., 2022). Stratification was used to ensure a balanced empirical representation of kitchen employees across hotel star ratings. Following this stratification, systematic sampling was used to select individual kitchen professionals relying on the list of employees provided by the human resource managers of the participating hotels. Using a finite population of 1,270 and a 5% margin of error, Slovin's (1960) formula was applied and the derived survey sample was 304 employees. This sample was shared across the hotel categories as shown in Table 1.

Table 1: Sample Size per Hotel Category

Hotel Category	**Number of Hotels**	**Pretesting Hotels**	**Hotels for Actual Data Collection**	**Sample Size per Hotel Category**	**Completed Questionnaires**
5-star	10	1	9	59	48
4-star	16	1	15	99	92
3-star	15	1	14	93	88
2-star	9	1	8	53	43
Totals	**50**	**4**	**46**	**304**	**271**

NOTE: *Three returned questionnaires had substantial missing information, hence, analysis was based on* ***268*** *usable questionnaires only.*

4.3 Research Instruments, Validity, and Reliability

A structured questionnaire contained background items and five-point Likert measures of awareness of food waste, moral attitudes toward food wasting, self-efficacy in food waste reduction, environmental policy, and food waste reduction practices. The questionnaire was pretested with 30 employees, approximately 10% of the target survey sample. The pre-test hotels were excluded from main data collection.

Face and content validity were assessed through review by supervisors and hospitality practitioners. Cronbach's alpha assessed internal consistency. Reliability was acceptable for the overall employee environmental commitment scale (α = .823), awareness (α = .778), moral attitudes (α = .810), self-efficacy (α = .772), environmental policy (α = .892), and food waste reduction practices (α = .881).

4.4 Data Collection and Analysis

Quantitative data were collected through self-administered paper and online questionnaires. Depending on hotel preference, physical questionnaires were distributed with envelopes, or a hotel-specific Google Forms link was used. Participant characteristics were summarised using

Vol. 11, No. 06; 2026

ISSN: 2456-3676

frequencies and percentages. Means and standard deviations were used to describe the main study variables. H_{01}, H_{02}, and H_{03} were each tested using simple linear regression. Multiple linear regression was used to examine the unique contribution of awareness, moral attitudes, and self-efficacy when entered in the same model.

4.4.1 Assumption Checks

To ensure that the results of data analysis were reliable and credible, several key linear regression assumptions were tested. These included the normality test, linearity test, homoscedasticity test, multicollinearity test, and absence of outlier cases. **Normality** was tested to ascertain that the regression errors were normally distributed. The study used histograms of standardized residuals and the normal Probability-Probability (P-P) plots. The visual inspection of these plots for each regression model indicated that residuals were nearly normally distributed, indicating that the normality assumption was met. **Linearity** was tested through a scatterplot of standardized predicted values against standardized regression errors. A visual inspection did not indicate any discernible pattern, indicating that the assumption of linearity was met **Homoscedasticity** was ascertained through a scatterplot of standardized residuals against standardized predicted values. A visual inspection of the plots showed a random spread of points, which suggested homoscedasticity. This study used **Variance Inflation Factor (VIF)** and the associated tolerance value to judge the absence of **multicollinearity**. All the tolerance values were above 0.10, and VIF values were below 10, demonstrating absence of multicollinearity in this study. This study used Cook's Distance to examine this assumption. Values of Cook's Distance were all below 1.00, demonstrating that the assumption of absence of influential cases was satisfied, and that observed influences in the regression models were a true reflection of the influence of respective predictors rather than distorted by outlie

4.5 Ethical Considerations

Ethical approval **(*Ethics Approval No. 857593*)** and the necessary research permissions **(*Licence No. NACOSTI/P/25/4181576*)** were obtained before fieldwork began. Each participant was informed about the purpose of the study and what participation involved. Consent was obtained, participation was voluntary, and participants were free to withdraw without being penalised. Names were not entered on the questionnaires records. The data were stored securely and could only be accessed by the research team.

5. Results

5.1 Response Rate and Participant Profile

The researcher distributed 304 questionnaires and received 271, giving a response rate of 89.1%. Three returned questionnaires had substantial missing information and were excluded. The analysis was therefore based on 268 usable questionnaires. These included 48 responses from five-star hotels, 92 from four-star hotels, 88 from three-star hotels, and 43 from two-star hotels.

Vol. 11, No. 06; 2026

ISSN: 2456-3676

Most survey respondents were male (56.7%), while 43.3% were female. The largest age group was 30–39 years (41.4%), followed by 20–29 years (33.2%), 40–49 years (19.4%), and 50 years and above (6.0%). Half had bachelor's degrees, 43.3% held diplomas, 5.2% held certificates, and 1.5% had secondary education. Most respondents were married (55.6%) or single (38.4%). Regarding tenure, 44.0% had worked in their hotels for one to five years and 32.5% for six to ten years. Cooks constituted 37.7% of the sample, followed by chefs (24.3%), dishwashers (13.4%), storekeepers (13.1%), and porters (11.6%).

5.2 Descriptive Results

Table 2. Construct-level descriptive statistics

Construct	Items	Mean	SD	Interpretation
Food waste reduction practices	10	3.79	0.64	General agreement
Awareness of food waste	10	3.98	0.56	Moderate-to-high awareness
Moral attitudes toward food wasting	10	4.13	0.53	Strong moral disapproval of waste
Self-efficacy in food waste reduction	10	3.89	0.58	General confidence

Note. Constructs were measured on a five-point scale. (Likert, 1932)

Food waste reduction practices recorded a composite mean of 3.79 (SD = 0.64). The highest-rated practices were prioritising perishable ingredients (M = 4.18, SD = 0.74), Prevention of spoilage & waste (M = 4.12, SD = 0.76), consciously reducing waste in employee meals (M = 4.06, SD = 0.82), monitoring portion sizes (M = 4.03, SD = 0.82), and following standard operating procedures during preparation (M = 4.00, SD = 0.86). Participation in food donation programmes (M = 3.21, SD = 1.17), providing feedback on food waste (M = 3.49, SD = 1.02), and communication of current reduction practices (M = 3.57, SD = 1.00) were reported with relatively lower mean ratings. Other items of food waste reduction practices with lower mean ratings were the reuse or repurposing of leftovers (M = 3.61, SD = 0.99) and participation in training (M = 3.65, SD = 0.97).

Regarding employee awareness, the overall mean score of the construct was 3.98 (SD = 0.56). Specifically, results indicated that employees were most familiar with the importance of proper food storage (M = 4.19, SD = 0.74), correct labelling (M = 4.18, SD = 0.72), and understanding portion control (M = 4.14, SD = 0.76). However, they were least informed about the financial implications of food waste to the hotel (M=4.03,SD=0.84) and the methods used to monitor waste (M = 3.63, SD = 1.02), showing that employees knew more about the practices they used directly in the kitchen than about wider programmes organised by their hotels.

Generally, descriptive results of the moral attitudes construct revealed the highest composite mean (M = 4.13, SD = 0.53). The results specifically showed that employees strongly agreed that wasting food was disrespectful to less fortunate people (M = 4.33, SD = 0.72), was morally

Vol. 11, No. 06; 2026

ISSN: 2456-3676

wrong (M = 4.25, SD = 0.81), and should be treated as a priority in hospitality operations (M = 4.22, SD = 0.82). The lowest mean score was reported for the item measuring personal guilt regarding discarded food (M = 3.95, SD = 0.91). Employees expressed greatest confidence in several items, including proper storage (M = 4.10, SD = 0.79), contributing to hotel sustainability goals (M = 4.07, SD = 0.82), managing portions (M = 4.06, SD = 0.83), and identifying reduction opportunities (M = 4.02, SD = 0.82). Confidence was, however, lower for their ability to influence colleagues (M = 3.63, SD = 0.99), monitoring and reporting waste (M = 3.65, SD = 0.98), and suggesting improvements (M = 3.58, SD = 1.00). All constructs were measured on a five-point Likert scale (Likert, 1932) ranging from1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree

5.3 Inferential Results

The results of hypothesis testing using simple linear regression analysis are summarized in Table 3. Each employee-commitment dimension significantly predicted food waste reduction when tested separately. Awareness explained 33.3% of the variance in food waste reduction practices (R^2 = .333), and its effect was positive and significant (β = .577, p < .001). Moral attitudes explained 43.1% of the variance (R^2 = .431) and had a positive significant effect (β = .657, p < .001). Self-efficacy explained 40.5% of the variance (R^2 = .405) and also had a positive significant effect (β = .637, p < .001). H01, H02, and H03 were thus rejected in the separate models.

Table 3. Simple Regression Results for the Three Dimensions of Employee Environmental Commitment

Predictor	**R^2 (Adj. R^2)**	**F (1, 266)**	**B (SE)**	**β**	**t**	**p**	**Decision**
Awareness of Food Waste	.333 (.330)	132.537	.618 (.054)	.577	11.512	<.001	Reject H01
Moral Attitudes Toward Food Wasting	.431 (.429)	201.701	.609 (.043)	.657	14.202	<.001	Reject H02
Self-Efficacy in Food Waste Reduction	.405 (.403)	181.290	.676 (.050)	.637	13.464	<.001	Reject H03

5.4 Joint Influence of Environmental Commitment Dimensions

Results of the multiple linear regression analysis testing the joint influence of each aspect of employee environmental commitment are summarised in Table 4.

Vol. 11, No. 06; 2026

ISSN: 2456-3676

Table 4. Multiple Regression of Food Waste Reduction Practices on Employee Environmental Commitment Dimensions

Predictor	**B**	**SE B**	**β**	**t**	**P**
Constant	.561	.211	—	2.659	.008
Awareness of food waste	.245	.061	.215	4.032	<.001
Moral attitudes toward food wasting	.112	.070	.093	1.600	.111
Self-efficacy in food waste reduction	.552	.064	.504	8.625	<.001
Note. R = .691; R^2 = .477; adjusted R^2 = .471; F (3, 264) = 80.331, p < .001.					

The regression model was statistically significant and explained 47.7% of the variance in food waste reduction practices. The influence of self-efficacy was positive and statistically significant (β = .504, $p < .001$), followed by awareness (β = .215, $p < .001$). The influence of moral attitudes had a weak positive but non-significant unique effect (β = .093, $p = .111$), meaning that moral attitudes were strongly associated with food waste reduction in the separate model but did not explain additional variance after awareness and self-efficacy were controlled. According to the study results, the strongest predictor of food waste reduction among employees was self-efficacy.

6. Discussion

The findings of this study underline the importance of employees' awareness, self-efficacy, and moral attitudes in shaping their behaviour toward food waste. Regression results showed that the three aspects accounted for nearly 50% of the variation in food waste reduction, suggesting that, adhering to strict ordering, operational controls, and modern disposal systems alone may not help reduce food waste; employees' awareness, self-efficacy, and moral attitudes matter. Results further showed that self-efficacy is the strongest predictor of food waste reduction in both simple and multiple regression models. Furthermore, this empirical link reinforces the broader literature, validating that targeted training programs are essential for empowering hospitality staff to identify hidden waste streams and actively champion reduction protocols (Diaz-Farina et al., 2023; Filimonau et al., 2020; Montesdeoca-Calderón et al., 2024).

Results further indicated that moral attitudes had the strongest influence when alone in the regression model, which corroborated previous studies emphasizing the importance of moral responsibility in dealing with food waste (Elkhwesky et al., 2024; Ma et al., 2024; Özkan et al., 2024). However, when considered together with self-efficacy and awareness of food waste, the effect of moral attitudes dropped, which does not mean morality is irrelevant, but rather must be backed by actionable agency. These findings mirror previous studies indicating that employees respond more effectively to cost transparency, operational practicalities, and consistent messaging than to moral appeals alone (Chawla et al., 2022; Pearson et al., 2025).

Vol. 11, No. 06; 2026

ISSN: 2456-3676

Self-efficacy emerged as the strongest predictor in the final model, strengthening Bandura's (1986) theory that belief in one's capability dictates action, and also mirrors hospitality research connecting self-efficacy to waste reduction intentions and behaviours (Ding, 2022; Ding & Jiang, 2023; Filimonau et al., 2024). In a busy hotel kitchen, believing that food waste is wrong does not always lead to action. Employees also need confidence in their ability to plan food preparation, store food safely, control portions, and work with colleagues to reduce waste.

7. Conclusions and Recommendations

This study found that employees' environmental commitment was associated with food waste reduction practices in star-rated hotels in Nairobi City County. Awareness and self-efficacy were significant predictors, with self-efficacy showing the strongest relationship. These findings suggest that employees need to understand the consequences of food waste and feel confident in their ability to prevent it during daily kitchen operations. Although employees generally considered food waste morally wrong, moral attitudes were not a significant independent predictor after awareness and self-efficacy were taken into account. These findings show that ethical beliefs matter but cannot ensure consistent food waste reduction on their own. Hotel managers should support employees through, clear waste reduction procedures, staff participation, and adequate resources. Such support helps employees turn their values into daily actions that reduce food waste.

The findings support the ASE model's emphasis on attitudes and efficacy, although social influence was excluded. Self-Determination Theory offers a complementary explanation of how workplace competence, autonomy, and relatedness may help employees translate motivation into waste-reducing behaviour.

Findings showed that, Employee Self-Efficacy was the strongest predictor of Food Waste Reduction Practices, implying that employees need hands-on training on portion control, proper food storage, labelling, stock rotation, production planning, safe reuse, and monitoring waste
Awareness of Food Waste was also found to have a positive and statistically significant effect on Food Waste Reduction Practices. In light of this, short, regular briefings can help staff review waste, identify causes, and agree on improvements. Waste reduction responsibilities should involve executive chefs, cooks, trainees, stewards, porters, and storekeepers so that every stage of food handling is covered. Managers should support these efforts with suitable tools, helpful feedback, and recognition of useful staff suggestions. This shared approach can make waste reduction part of consistent and everyday kitchen practice.

10. Limitations and Future Research

This study has several limitations. Its cross-sectional design cannot establish causality or track changes over time. Although the non-response rate was low, the possibility of minor non-response bias cannot be ruled out completely. Data was collected using mixed mode survey (online and paper based questionnaires) this may have introduced mode effects as respondents

Vol. 11, No. 06; 2026

ISSN: 2456-3676

answers can vary depending on the mode of administration and level of privacy. Employee self-reports may contain recall errors or socially desirable responses. Findings from Nairobi's star-rated hotels may not apply to other settings. Future research should combine employee reports with direct waste measurements, include purchasing, procurement, and store management teams, and use longitudinal studies and controlled training interventions to assess lasting behavioural changes. Studies in Mombasa, Kisumu, and Nakuru, alongside unrated hotels, could test whether these findings hold across different hospitality settings and wider operational contexts.

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Vol. 11, No. 06; 2026

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