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ANALYSIS OF FOOD WASTE MANAGEMENT STRATEGIES AT PANDORA LOUNGE GADING SERPONG

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Abstract

This qualitative study aims to analyze the strategies and effectiveness of food waste management in the kitchen operations of Pandora Lounge Restaurant, highlighting the issue of food waste as a critical concern in Indonesia's tourism sector. Data was collected through interviews with the Owner and Head Chef, observations, and documentation, and then analyzed using the Miles and Huberman model and SWOT evaluation. The research findings reveal that the food waste management strategies at the restaurant are not yet optimal, with strengths in the reuse of leftover ingredients and the separation of halal or non-halal waste, but limited by major weaknesses such as the absence of written standard operating procedures (SOPs), limited processing equipment, and insufficient staff awareness of the 3R methods (Reduce, Reuse, Recycle). While opportunities for collaboration with third parties and government incentives remain untapped, threats such as stricter regulations and competition from more environmentally friendly restaurants need to be addressed. The study concludes that a more systematic and integrated approach is essential, through the development of SOPs, technological investments, and staff training, to enhance the effectiveness of food waste management in support of sustainable tourism.

Keywords: Strategy, Processing, Food Waste, Restaurant

1. INTRODUCTION

Food waste data reported by the United Nations in Think Eat Save, included in the Food Waste Index Report 2024, shows that Indonesia is one of the countries with the highest food waste in Southeast Asia. The amount reaches 14.73 million tons, according to Good Stats (Yonatan, 2024). This factor proves that Indonesia is experiencing an emergency in handling food scraps and food waste. According to the Ministry of Environment and Forestry, in 2023, food waste in the Jakarta area reached 3,141,650 tons/year, with food waste accounting for 49.87% or 1,566,740 tons/year. The sources of this food waste are households, markets, offices, and hotels, restaurants, and cafes (HOREKA). This data proves that food waste management is necessary.

The tourism industry in Indonesia, through the Ministry of Tourism, is currently promoting sustainable tourism (Sustainable Tourism) in the Indonesian Ministry of Tourism revealed through the “Clean Tourism Movement (GWB)” as a program of the

Ministry of Tourism (Susanti, 2025) in Indonesia, which is a concrete step to create cleanliness in tourist attractions and help foster a spirit of collaboration towards quality and sustainable tourism in the Indonesian tourism industry (Susanti, 2025). Sustainable tourism itself is defined as tourism that takes into account the economic, socio-cultural, and environmental impacts of tourism, both now and in the future (Wibowo & Arviana Belia, 2023).

The problem of food waste requires appropriate and effective handling by the tourism industry. The process of reducing food waste can use waste management techniques. Food waste management is a measure taken by the community and businesses to address a global problem related to wastefulness in various ways, from food banks to the 3R program Maemunah et al. (2024) Food waste management is our way of reducing the global problem we face with waste, especially food waste.

This research was conducted at Pandora Lounge, located in Maggiore Grande in the Summarecon Serpong area, which is a densely populated residential area with shopping centers and public facilities, creating a large market potential for the F&B (Food and Beverage) industry. Pandora Lounge is located at Ruko Maggiore Grande D05 Gading Serpong. The Pandora Lounge restaurant has been in operation for approximately one year, since 2024.

Pandora Lounge initiated its food waste management program immediately upon opening and operates based on verbal standards without written SOPs, particularly in the waste sorting area and kitchen. Pandora Lounge is one of the MSMEs located in Gading Serpong that has a food waste management system in its restaurant, so this location was used as the location for this study and is in line with the research question, which is how to manage food waste in the Pandora Lounge kitchen. This study also provides an overview of the challenges and opportunities in improving an effective waste management system at Pandora Lounge.

The title of the research on food waste management strategies at Pandora Lounge Ruko Maggiore Gading Serpong was chosen because, given the conditions at Pandora Lounge, it is necessary to examine the food waste management strategy to serve as a model and provide input on the strategies that can be adopted by Pandora Lounge.

The study entitled “Legal Policies on Food Loss and Waste Management through the USDA (United States Department of Agriculture and Public Domain Policy)” by (Laeliyah et al., 2024), states that despite having policies and programs in place, Indonesia faces major challenges in reducing FLW, namely a lack of public awareness, infrastructure, and relevant regulations.

The study entitled “Food Waste Management in Restaurants in Jakarta” by Nathalia et al. (2024) shows that not all restaurants separate food waste. Restaurants cannot control the behavior of guests, and on the other hand, it is quite challenging to raise staff awareness of the importance of reducing food waste, and restaurant owners need to play a role in food waste management.

The study “Food waste management in Shanghai full-service restaurants: A senior managers' perspective” written by Filimonau et al. (2020) found that waste comes from the preparation stage in the kitchen and food leftovers on consumers' plates. The main cause is the Chinese dining culture (Mianzi), where consumers tend to order large amounts of food to show generosity and social status, resulting in a lot of leftovers. Although restaurants are trying to reduce waste such as reusing food ingredients and giving leftovers to staff—efforts to involve consumers are still limited.

Another study, "Mapping pre-consumer food waste in quick service restaurants on a university campus: Two Australian case studies" by Jayasekara et al., 2024, discusses that the results of this study reveal that food waste management strategies in quick service restaurants (QSR) need to focus on two main areas: first, specific interventions for identified waste, namely used coffee grounds, which contribute significantly (up to 68.5%) and require recycling or reuse solutions outside of landfill disposal. This also creates a sudden increase in waste patterns, requiring more effort to manage.

A study titled "Reducing Food Waste in Restaurants Through Waste Retribution Regulations" by Murni et al. (2020) discusses waste management and finds that the most abundant food waste in this study is consumer waste, and that regulations are needed to manage waste independently.

The issue of food waste has become quite serious internationally and in Indonesia, especially in the tourism sector. This requires practical solutions from various sectors, especially those involved in tourism (HORECA). Restaurants, as an integral part of the tourism sector, play a crucial role in waste management. Therefore, appropriate and effective strategies are needed to address this issue. This study aims to analyze the strategies implemented by restaurants in managing food waste, as well as to identify their level of effectiveness.

From the strategies that will be analyzed in a restaurant kitchen in this study, we will see how strategic management factors are applied, namely in three points: strategy formulation, strategy implementation, and evaluation of what will be obtained in this study (Aditya et al., 2025). This will produce the results and discussion of this study.

2. LITERATURE REVIEW

2.1 Food Waste

food waste is food that is not used to its full potential, thus becoming waste (Barnhill & Civita, 2020). Another definition of food waste is edible food and its consumable parts that are discarded for processing (Sirohi et al., 2025). Food waste is one of the problems that can cause environmental issues, especially in the tourism sector. In processing waste, one of the tourism service business sectors, namely food and beverage providers, is included in the types of tourism businesses listed in Law No. 10 of 2009 on Tourism. With that, restaurants are one of the providers in the tourism sector and therefore one of the tourism business fields that can process food waste.

Food waste is divided into three types according to Legrand in a study entitled Analysis of Food Waste Management Implementation at Restaurant "X" in Surabaya, namely:

a. Pre-Consumer Waste

   Waste can be defined as trimmings, spoiled food, and other products originating from the kitchen that are ultimately discarded before being processed into a menu item to be served to restaurant customers.

b. Post-Consumer Waste

   Food waste that remains when consumers are consuming food and is not finished resulting in food waste.

c. Packaging Waste and Operating Supplies

   Mainly in the form of plastic that cannot be decomposed naturally. Operating supplies are all materials used and become waste in food service operations, such as cooking oil and lamps, because they are part of a kitchen.

2.2 Food Waste Management

The problem of food waste requires appropriate and effective handling by the tourism industry. Food waste reduction can be achieved through waste management techniques. Food waste management is a measure taken by the community and businesses to address the global issue of waste through various means, from food banks to the 3R program (Maemunah et al., 2024).

3. RESEARCH METHODS

This study was conducted using a qualitative approach. Qualitative research is one way to seek truth and solutions to a problem in a descriptive manner (Waruwu, 2024). This study uses a descriptive research method, which is a research method based on postpositivism philosophy, where objectivity is applied with the researcher as the key instrument to answer the problems in this study (Sugiyono, 2024). In this study, the researcher used informants who had knowledge about food waste management at the Pandora Lounge restaurant, namely the owner and head chef.

Qualitative research has a unique feature, which according to Spradley is that the population is not a term but rather a social situation (Sugiyono, 2024). The social situation results in a technique for finding objects in this study using techniques based on location, actors, and activities. This study used a sample of head chefs and owners who play a role in restaurant operations, especially in the kitchen.

The social situation technique has an approach that covers the place, actors, and activities to find out how to relate to the issues discussed with actors who know the flow of food waste management strategies. This study collected data using triangulation, a technique of collecting data by validating the research conducted by researchers, namely structured interviews. The data collection technique involved asking sources clear questions to find the information needed (Sugiyono, 2024). In addition, observation is a data collection technique that involves looking around and not relying on the interviewees (Sugiyono, 2024). After that, the documentation process is used as evidence that a study is being researched, which is valid data to be included in this study (Sugiyono, 2024).

The analysis technique used after obtaining the data needed to answer the existing problems is the Miles and Huberman data analysis model, namely through data collection, data reduction, data display, and conclusion drawing (Sugiyono, 2024).

The data that has been presented and verified is then incorporated into a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis. This is a technique used as a strategic planning tool and to evaluate the components within the SWOT itself (Riyanto, 2021) which is then analyzed by comparing internal and external factors, namely a way to identify/evaluate both internal factors, namely strengths and weaknesses, and external factors, namely opportunities and threats, how to analyze using these two factors (Legionosuko et al., n.d.).

4. FINDINGS AND DISCUSSION

From the results of interviews and findings in the field regarding food waste management practices focused on a restaurant location, namely kitchen operations. Through the SWOT (Strengths, Weaknesses, Opportunities, Threats) framework. Each component in this SWOT analysis was developed and validated through a data triangulation process sourced from in-depth interviews with key personnel in the kitchen (head chef) and the owner of Pandora Lounge. This discussion presents the findings descriptively. The aim is to formulate strategic implications that can serve as a basis for

formulating concrete recommendations to optimize food waste management and improve overall operational efficiency.

The results of interviews with the owner and head chef revealed several findings, namely how Pandora Lounge manages food waste, as shown in Figure 1 and Figure 2. The results of the interviews can be analyzed using SWOT analysis, as shown in Table 1.

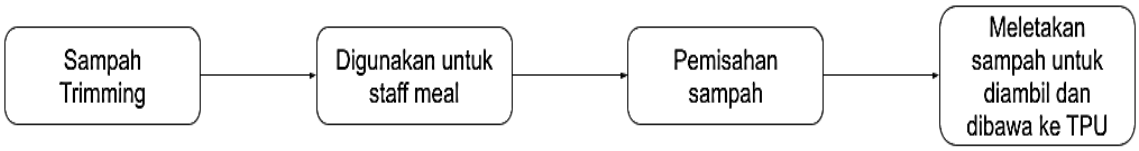


Figure 1. Pre-Consumer Waste Processing Flow at Pandora Lounge
Source: Researchers (2025)

The interview results based on the pre-consumer waste indicator show that Pandora Lounge processes waste by using meat and vegetable scraps that are still fit for consumption as staff meals, while meat and vegetable scraps that cannot be used are separated into halal and non-halal waste, as well as dry and wet waste.

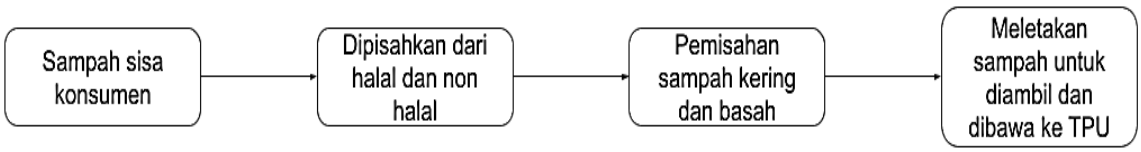


Figure 2. Post-Consumer Waste Processing Flow at Pandora Lounge
Source: Researchers (2025)

Meanwhile, post-consumer waste is collected through interviews based on Pandora Lounge indicators, which separate wet and dry waste as well as halal and non-halal waste, which is then disposed of in trash bins that are later taken to the landfill.

Table 1. SWOT Matrix for Food Waste Management at Pandora Lounge

Internal Factors External Factor	Strengths 1. Implementing one of the 3Rs, namely reuse, when there are leftover ingredients used for staff meals. 2. There is an awareness to separate halal and non-halal waste.	Weaknesses 1. Lack of awareness on how to manage waste using the 3R method. 2. No written SOPs, only verbal SOPs. 3. Limited tools for processing food waste, including bones, plants, and food scraps.
Opportunities 1. Potential to collaborate with parties that can process/utilize waste generated in restaurants. 2. Use technology to process food waste with machines (waste disposal machines). 3. Further increase awareness among staff and consumers about food waste processing. 4. Follow government regulations regarding food waste processing.	Strategy S-O 1. Establish cooperation with third parties in terms of food materials to be used as compost that can be reprocessed. 2. Sort waste and then use tools to process the food waste produced.	Strategy W-O 1. Providing training through third parties on food waste management using the 3R concept. 2. Overcoming equipment limitations through cooperation so that waste can be processed by third parties.

Threats	Strategy S-T	Strategy W-T
1. Potential for tighter government regulations on waste sorting and management in the future. 2. Increase in operational costs related to waste disposal and financing of waste treatment equipment. 3. Other restaurants that have better waste management systems (ECAPS Jakarta).	1. Utilizing the non-halal and halal waste sorting system as a tool to deal with changing government regulations. 2. Using the 3R technique as a tool to reduce operational costs.	1. Create clear and written SOPs so that they can be clearly implemented in the lounge. 2. Implement all 3R techniques; do not implement only 1 or 2 of the 3R indicators.

Source: Researchers (2025)

4.1 Internal Conditions: Strengths and Weaknesses Waste Management in Kitchen Operations

Internal factors that form the basis for food waste management practices in kitchens can result in restaurant management policies. This analysis includes an evaluation of operational procedures, as well as the existing infrastructure and technology at Pandora Lounge. Through SWOT analysis, strengths and weaknesses are identified, supported by evidence from interviews and analyzed to understand how the system used by Pandora Lounge works.



Figure 3. Condition Kitchen at Pandora Lounge
Source: Researchers (2025)

Based on an interview with the owner, he said that there is indeed an SOP for waste separation and disposal, but the SOP is only verbal and not clearly written, so it may not be followed by staff. The interview also revealed that Pandora Lounge does not have the equipment to process the waste produced by the restaurant. The head chef added that only bones are separated from post-consumer waste, while for pre-consumer waste, the head chef said that leftover meat, poultry, and vegetable scraps can be used as staff meals, but anything that cannot be used is simply discarded and not further processed. This is in line with Filimonau et al. (2020) research, which states that processing ranges from pre-customer waste to consumer plates, and based on findings in Indonesia, there are already places that carry out processing, namely Pandora Lounge Gading Serpong.

4.2 Analysis of External Conditions: Threats and Opportunities for Waste Processing in Kitchen Operations

Factors originating from outside the kitchen environment. These external factors, which include local community conditions and regulatory frameworks, are beyond the direct control of a restaurant. However, a deep understanding of these factors is crucial because they can present significant opportunities for improvement or, conversely, pose serious threats to operational stability and efficiency.



Figure 4. ECAPS Café use Waste4Change
Source: Researchers (2025)

In terms of opportunities, there is the possibility of collaborating with third parties who directly manage waste from restaurants to turn it into new products, and within restaurants, in terms of technology, this can be done by using tools that can destroy food waste to be used as compost. In terms of government, Banten Regency Regulation No. 1 of 2023 states that businesses that process food waste can receive funds to finance the processing. In terms of threats, one example is ECAPS Cafe in Jakarta, which promotes a zero waste theme. According to Waste4change, ECAPS uses a third party as a partner to process the waste produced by the restaurant. The existence of ECAPS could pose a threat because it is a cafe that has implemented better waste management, which could be used as a benchmark for Pandora Lounge. In terms of government, there is a threat in the form of regulations that can change at any time when there is a change in leadership and sanctions that can harm the company.

4.3 SWOT Analysis of Pandora Lounge's Strategy

a. Strength-Opportunity (S-O) Strategy: The S-O strategy is an internal strength to take advantage of external opportunities.
   - Strengths in sorting waste into halal or non-halal and dry and wet waste. Processing capacity can be utilized by establishing partnerships with third parties (such as composting service providers or recycling companies). This collaboration not only provides waste processing but also helps reduce food waste in landfills.
   - Consistently sorting waste and utilizing waste processing equipment can be a long-term investment. This strategy positions Pandra Lounge as a restaurant that is ready to collaborate in a broader waste management scheme, while also increasing the effectiveness of waste processing.

b. Weakness-Opportunity (W-O) Strategy: The W-O strategy focuses on overcoming internal weaknesses by taking advantage of external opportunities.
   - Overcoming weaknesses in competence and knowledge can be done by collaborating with third parties to organize training programs for staff. This serves to improve understanding of the 3Rs (Reduce, Reuse, Recycle).
   - Limitations in processing tools and technology can be overcome by collaborating with third parties. Instead of investing heavily in waste processing equipment, waste processing can be carried out by third parties with adequate processing facilities, allowing food waste to be processed professionally without incurring significant costs at the outset or during operation.

c. Strength-Threat (S-T) Strategy: The S-T strategy uses existing strengths to counter or mitigate external threats.
   - The strength of waste processing has a waste sorting system (especially the separation of halal and non-halal waste) that can be used as a tool to anticipate and adapt to dynamics if there are changes in government regulations, which often pose a threat. This well-organized system makes it easier to adapt to current policies.
   - The application of the 3R technique is not only a sustainable practice but also serves as a tool to reduce losses in restaurant operations. Faced with the threat of rising costs, this strategy can reduce expenses related to waste disposal and the purchase of new materials through reuse and recycle.

d. Weakness-Threat (W-T) Strategy: The W-T strategy is defensive in nature, aiming to minimize internal weaknesses and avoid external threats.

- To overcome weaknesses in consistency of implementation and avoid the threat of non-compliance with regulations, the development of clear and written Standard Operating Procedures (SOPs) is an indicator of the effective implementation of a rule. SOPs serve as guidelines for staff to ensure that waste management processes are carried out correctly and in accordance with regulations.
- The threat to reputation from being outcompeted by other restaurants that fully implement all 3R principles can be turned into an advantage and become a model for other restaurants.

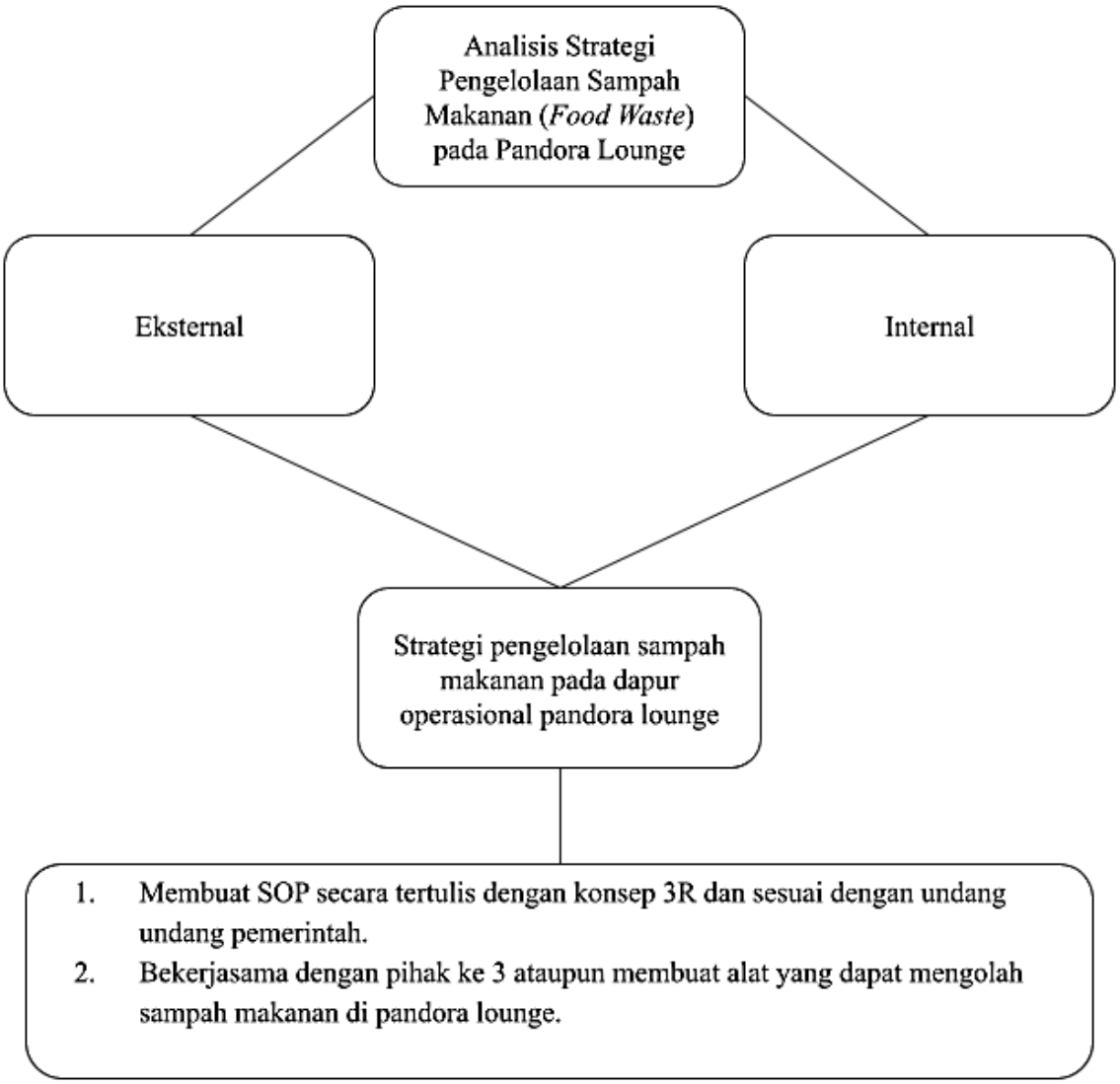


Figure 5. Food Waste Management Strategy at Pandora Lounge Kitchen
Source: Researchers (2025)

Based on the results obtained, Pandora Lounge can implement a more comprehensive 3R strategy, not just one, to be more effective and collaborate with third parties in processing food waste at Pandora Lounge restaurants. This is an application of Nathalia et al. (2024) statement that not all restaurants process and are aware of food waste, and Pandora Lounge has implemented a waste management movement.

5. CONCLUSION

Based on a SWOT analysis of food waste management practices in the Pandora Lounge kitchen, it can be concluded that the internal foundation is still weak and not yet optimal. A strong foundation is essential for creating a good company, and within this company there are several shortcomings, namely in terms of waste management regulations and the use of waste management technology.

Based on the above conclusions, here are some strategic and practical recommendations for Pandora Lounge management. In the short term, this could be done by investing in waste processing equipment, determining written SOPs, designing and implementing SOP modules on waste management, and conducting training on waste management for staff.

This study has limitations in that it only describes two dimensions used to examine food waste management at Pandora Lounge, namely pre-consumer waste and post-consumer waste, while packaging waste and operational supplies are indicators of plastic use for takeaway and consumer use.

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