

From Waste to Value: Leveraging Leftover Food into Traditional Snacks at Gallery Prawirotaman Hotel

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Abstract. From Waste to Value: Leveraging Leftover Food into Traditional Snacks at Gallery Prawirotaman Hotel. The hospitality industry plays a vital role in the tourism sector, not only by providing accommodation but also by providing food and beverage services. One of the most pressing challenges in hotel kitchen operations is the large volume of food waste, particularly from buffet breakfasts. This study explores the utilization of leftover food in traditional snacks at the Gallery Prawirotaman Hotel, Yogyakarta. A descriptive qualitative method was employed using observation, in-depth interviews, documentation, and literature review as data collection techniques. The findings reveal that the hotel has implemented Standard Operating Procedures (SOPs) for storing, reprocessing, and repurposing leftover food into products such as talam ubi, carang gesing, bread pudding, and gandasturi. However, the challenges include limited storage space, lack of staff training, and insufficient creativity in developing new menus. To address these issues, the hotel has strengthened staff training, developed written guidelines, and provided innovation spaces. These initiatives highlight the hotel's commitment to reducing food waste, while creating added value through traditional culinary innovations rooted in local wisdom.

1 Introduction

The tourism industry is closely related to the hospitality industry. Along with the rapid development of technology, the economy, industry, and tourism, the hotel and restaurant industries have also experienced significant growth. The hotel industry focuses not only on room sales but also on food and beverage services, which are strongly associated with guest satisfaction. The Food and Beverage Department is responsible for fulfilling the needs and satisfaction of hotel guests, both preparing and serving food and beverages. The role of this department can be seen through the availability of restaurants, bars, or coffee shops within the hotel, which serve as facilities to meet guests' basic needs for food and beverages.

An executive chef led the Food and Beverage Department. One of the main responsibilities of executive chefs is to ensure smooth kitchen operations. The tasks of an Executive Chef include designing and arranging menus, supervising food procurement, planning the kitchen equipment layout, determining the type and amount of kitchen utensils required, assigning tasks to each position, maintaining cost stability to prevent waste, and ensuring the overall efficiency of kitchen operations[1].

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The duties of a chef vary depending on their respective divisions but generally include menu planning, supervising the cooking process, monitoring subordinates, and developing new menu items. A chef plays a very important role in kitchen operations, supporting the entire food and beverage service in the hotel. In the process of planning and preparing food, there are often discrepancies between the planned calculation and actual outcome, resulting in food waste. This may be due to several factors, such as poor menu planning, oversized portions, or guests' consumptive behavior. The Food and Agriculture Organization (FAO) reported that one-third of the food produced for consumption is wasted during harvesting and consumption, known as food loss and food waste[7].

Indonesia ranked 70th among 117 countries with a serious level of hunger, with 22 million Indonesians experiencing hunger[8]. FAO categorizes food waste into two categories: time and probability. Food waste, based on time, is divided into three stages: pre-consumer waste, post-consumer waste, packaging waste, and operational supplies. Food waste based on probability is classified into three types: avoidable waste, avoidable waste, and unavoidable food waste.

Pre-consumer waste occurs during production when ingredients are discarded before being processed into menu items, because they do not meet quality standards. Post-consumer waste refers to leftovers from guests' plates after meals. Packaging waste and operational supplies consist of discarded food packaging that is used during production. In terms of probability, avoidable waste refers to food discarded intentionally, but not required in production, such as bread crusts. *Avoidable waste* arises from human error or negligence during food preparation, rendering the product inedible. *Unavoidable food waste* consists of items that are naturally inedible, such as bones, eggshells, and fruit peels.

Gallery Prawirotaman Hotel also faces similar issues, where food waste occurs both during production and from guest leftovers, especially during breakfast. The buffet breakfast system contributes significantly to food waste as this pattern tends to occur continuously. The types of leftover food commonly wasted during daily breakfast at hotels include buffet items, particularly traditional dishes such as mung bean porridge, tapioca pearl porridge, boiled sweet potatoes, boiled corn, and boiled bananas. If such food waste can be managed properly, it could potentially add value to food waste management in hotels while maintaining product safety and quality standards.

Referring to the background described above, the formulation of the research problems in this study is as follows: (1) How is the Standard Operating Procedure implemented in utilizing food waste, particularly in buffet breakfast at Gallery Prawirotaman Hotel? (2) What obstacles are encountered in implementing the Standard Operating Procedure for food waste utilization at the Gallery Prawirotaman Hotel? (3) How are the efforts made to overcome the obstacles that arise when food waste is processed into traditional snacks at the Gallery Prawirotaman Hotel?

Based on the background and scope that have been presented, the research objectives are formulated as follows: (1) To identify the Standard Operating Procedure used in utilizing food waste, particularly in buffet breakfast at Gallery Prawirotaman Hotel. (2) To identify the challenges faced during the implementation of the Standard Operating Procedure for food waste utilization at the Gallery Prawirotaman Hotel. (3) To analyze the efforts of the Gallery Prawirotaman Hotel in overcoming obstacles during the process of utilizing food waste.

2 Literature Review

2.1 Food and Beverage Product

Food and beverage products refer to the entire range of processed foods and beverages produced by an organization, particularly in the hospitality industry, encompassing aspects such as taste, aroma, presentation, pricing, and serving techniques.[5] Furthermore, hotel food varieties include Nusantara dishes rich in spices and influenced by both local and foreign cultures, Asian food representing the culinary diversity of the region, fusion food that combines elements from various countries with modern techniques, and traditional snacks made from local ingredients and inherited across generations. This indicates that hotel food and beverage products are not merely for consumption needs but also reflect cultural values and creativity in their presentation.

2.2 Food Waste

Food waste refers to leftover food and beverages that are still suitable for consumption but are discarded for various reasons, either before or after serving. Waste can consist of raw materials, primary or semi-finished food products, or ready-to-eat dishes. It is mostly generated by sectors, such as households, restaurants, and retailers. This indicates that food waste is a significant problem arising from human error, inefficiencies in production processes, or perceptions of certain food parts. Therefore, proper management and utilization are required to minimize its impact on the environment and food resources.

The composition of this type of waste is relatively high, reaching almost 50

3 Method

3.1 Research Design

The research method applied in this study is qualitative. Qualitative research is used to examine a condition by exploring what, why, and how a phenomenon occurs[4]. Qualitative research aims to analyze the phenomena that occur in the field, various types of complaints that arise, employee behavior in dealing with complaints, and how employees effectively resolve such complaints. This approach is used to describe and explain in a structured, factual, and accurate manner the efforts of utilizing food waste into traditional snacks at Gallery Prawirotaman Hotel.

This study aimed to identify the processes carried out in food waste utilization, the obstacles encountered, and the strategies implemented to overcome these obstacles based on the Standard Operating Procedures (SOP) applied in the hotel.

3.2 Research Location and Subject

The research location was the Prawirotaman Hotel Gallery. The selection of informants was performed using purposive sampling techniques with the following criteria:

3.3 Data Collection Techniques

3.3.1 In-depth Interviews

Interviews are used as a data collection technique when conducting preliminary studies to identify research problems as well as when researchers aim to obtain more in-depth information from respondents, especially when the number of respondents is limited [6]. In this study,

the researcher conducted interviews with several parties directly involved in the food processing activities at the hotel, such as Mr. Dimas Abimanyu (Sous Chef of Gallery Prawirotaman Hotel), Mr. Nur Aga Ardani (Cook Pastry), and Mr. Hafidz Nur Rahman (Daily Worker Pastry).

3.3.2 Participant Observation

An observation is an activity conducted by researchers on a process or object to understand or obtain information about a phenomenon based on existing ideas. Observation is the structured monitoring of the factors that emerge within the phenomenon being studied [9]. The researcher conducted direct observations of kitchen operations, particularly during daily breakfast buffets, to identify the types of food waste generated and how they are managed.

3.3.3 Documents Analysis

Documentation was employed to obtain data and information, usually in the form of records, printed books, articles, and journals, to support the implementation of the study or analysis related to research problems[10]. Data collection was carried out through internal hotel documentation, such as Standard Operating Procedure documents on food waste management as well as photographs taken in the kitchen and restaurant areas during daily breakfast activities. This was conducted to strengthen and complement data obtained from previous observations and interviews.

4 Findings and Discussion

Gallery Prawirotaman Hotel is a property that combines luxurious and modern facilities with distinctive colonial architecture. In addition to its name, which is derived from the street where it is located, the site of the hotel was once the headquarters of the Prawirotaman Soldiers in the 19th century. The hotel's maroon-colored logo is also inspired by the Prawirotaman Soldiers' belt. Officially inaugurated on March 10, 2014, the hotel was a four-star establishment. It is strategically located in Jl. Prawirotaman 2 No. 839, Brontokusuman, Mergangsan, Yogyakarta. The location is not only central to the city but also serves as a prominent destination for tourists visiting Yogyakarta.

In line with its tagline, "Welcome you with heartily" Gallery Prawirotaman Hotel is committed to warmly welcoming and wholeheartedly serving its guests to ensure comfort and happiness throughout their stay. The Gallery Prawirotaman Hotel is a four-star establishment built on a land area of 2,775 square meters with a total building area of 1,821 square meters. The hotel combines leisure and business concepts as its key advantages. It offers 94 rooms, consisting of 20 superior rooms, 71 Deluxe rooms, and 3 suite rooms. The hotel also supports Meetings, Incentives, Conferences, and Exhibitions (MICE) activities.

4.1 Stadart Operational Prosedure (SOP) Food Waste Gallery Prawirotaman

The Standard Operating Procedure (SOP) is a written regulation specifically designed to organize, streamline, and facilitate work by providing clear and structured instructions. In the context of hotels, SOP function as a guideline for every employee to ensure that work is carried out in accordance with the established procedures, thereby guaranteeing consistency and efficiency in operations. SOP also regulate several aspects, such as standardization, efficiency, quality, error reduction, performance evaluation, training, role clarity, and legal compliance.



Figure 1. Gallery Prawirotaman

Thus, it can be concluded that the existence of SOPs has a significant impact and plays an important role in ensuring the smooth operation of an industry. The objectives of implementing SOPs are to create standardized work procedures, ensure that every employee or team works in the same manner, and minimize errors and negligence.

The Gallery Prawirotaman Hotel is committed to minimizing food waste, particularly from buffet breakfast. Therefore, any food residue generated continues to be processed until the end of the process. The following are the Standard Operating Procedures (SOP) for food waste utilization at the Gallery Prawirotaman Hotel.

4.1.1 Inventory management

This process is carried out by storing food using the method commonly known as First In, First Out (FIFO), in which the items received first are also used first and placed at the front. Conversely, for certain types of ingredients, the Last In, First Out (LIFO) method may be applied, in which the most recently received items are immediately used. This principle is applied to both raw food materials to be processed and ready-to-serve food items that have a short shelf life.

4.1.2 Guest occupancy level

The volume of food production was adjusted according to the number of guests staying at the hotel. This information can be monitored through a visitor's logbook. Guests with a room-only package do not receive breakfast facilities from the hotel, whereas guests with a room and a breakfast package are entitled to breakfast. The number of guests with the room and breakfast package then serves as a reference for determining the quantity of food production for the following day's breakfast.

4.1.3 Food waste processing

Food waste is further managed and repurposed as coffee break menus or traditional snacks. Edible food waste from hotels may also be sold through the Surplus Platform Food-Commerce application in Indonesia, an application focused on food waste mitigation, aiming

to prevent food that is still consumable from being discarded. In addition to being processed into traditional snacks or resolds, food waste may also be repurposed as menu items in the Employee Dining Room (EDR) for hotel staff.

4.1.4 Food waste disposal

Food waste disposal is considered the last option for food that is no longer suitable for consumption, in accordance with established standards. Such food waste is processed into compost, which is then utilized in fruit and vegetable gardens within the Gallery Prawirotaman Hotel area. Harvests are distributed to staff members, shared with the local community, or processed into meals for hotel employees.

4.2 Implementation of standard operating procedures for food waste utilization

In implementing Standard Operating Procedures (SOP) for food waste utilization at the Gallery Prawirotaman Hotel, several common challenges are encountered. Based on interviews with staff members, such as the Pastry Cook and Daily Worker, the obstacles identified include issues related to operational techniques and human resources.

4.2.1 Challenges

Operational Techniques include limited storage space, and the author directly observed the limitations in terms of the number of chillers and the restricted freezer capacity available. Difficulty in sorting food waste arises when staff members have different perspectives in determining which food remains are still suitable for reuse and which are no longer consumable. Another contributing factor is the lack of time, which restricts daily operational activities related to food waste management.

Human resource constraints: limited skills and knowledge; some staff members still lack adequate skills and knowledge regarding proper food waste processing and the application of food safety standards, which can affect the effectiveness of waste utilization. Inconsistency in implementation and in following Standard Operating Procedures (SOP) is also a common issue, as not all staff apply the same procedures when handling food waste. High workload, the workload faced by staff in the kitchen division often makes food waste management a lower priority compared to the primary task of preparing meals for guests

4.3 In implementing the Standard Efforts to overcome challenges in utilizing food waste into traditional snacks at gallery prawirootaman hotel

Food waste will eventually become waste if it is not properly managed by hotels. Based on an interview with Mr. Dimas, the Sous Chef, it was revealed that leftover food in good condition, aside from being sold through the Surplus application, could also be reprocessed into coffee break menus or traditional snacks. The types of food waste that are often discarded include boiled corn, sweet potatoes, bananas, egg whites, white bread, pastry products, and traditional porridge. These practices demonstrate the hotel's efforts to reduce waste generation and promote more sustainable food management, although several challenges remain in ensuring consistent implementation.

4.3.1 Corn

The method of processing corn into *talam jagung* (corn pudding cake) begins by cooking hunkwe flour mixed with coconut milk, sugar, and salt until it reaches boiling point. Boiled corn kernels were then added to the mixture. Finally, the batter was poured into molds that were lightly greased with oil. Once set, *Talam Jagung* is ready to be served.

4.3.2 Mong bean porridge

Cooked mung bean porridge can be further processed into a traditional Betawi snack, known as *Gandasturi*. The preparation steps are as follows: First, prepare the cooked mung bean porridge, ensuring that it is mashed smoothly and kneaded until the firm is sufficiently shaped. A portion of the mung bean mixture was taken, formed into a ball, and flattened. Next, the batter was made from rice flour, tapioca flour, water, and salt, and mixed until it was well combined. Dip the mung bean dough into the batter, then deep-fry it in hot oil until it becomes golden brown. To obtain a thicker outer layer, the dipping process was repeated before frying. Once cooked, excess oil is removed and drained.

4.3.3 White bread and pastry

Leftover white bread and pastries, such as croissants, can be reprocessed into bread pudding. The preparation began by cutting the bread into small cubes and placing them in a baking pan lined with baking paper. In a separate bowl, a mixture of milk, eggs, sugar, and vanilla was prepared and poured over bread cubes. The mixture was gently pressed to ensure that the custard was well absorbed by bread. Toppings such as raisins, cinnamon, or granulated sugar are added before baking in an oven at 170°C until fully cooked.

5 Conclusion

The Gallery Prawirotaman Hotel is a four-star property distinguished by its architectural uniqueness, combining Dutch colonial design with modern elements, supported by comprehensive facilities. The Gallery Vine Restaurant offers a wide range of dishes from Indonesian to international cuisine, as well as various traditional Indonesian snacks. Nevertheless, the implementation of Standard Operating Procedures (SOP) for food waste utilization faces several shortcomings, particularly in terms of storage and food waste management, which have not yet been optimized.

Based on interviews and observations, the identified challenges can be classified into two categories: operational techniques and human resources. From an operational perspective, these obstacles include limited storage space, difficulties in sorting edible and non-edible food waste, and time constraints during working hours. From a human resources perspective, challenges involve an insufficient number of staff, a lack of awareness and consistency in adapting to updated SOPs, and limited staff creativity in processing food waste.

The Gallery Prawirotaman Hotel has actively undertaken systematic and consistent strategies to address these challenges. Efforts include more efficient organization of storage facilities, establishment of written guidelines on criteria for edible food waste, and enhancing staff awareness of the importance of food waste utilization. Furthermore, the hotel promotes innovation by processing leftover food into a variety of traditional snacks such as *kue talam jagung*, *carang gesing*, bread pudding, *empek-empek sutra*, and *gandasturi*. This approach not only contributes to reducing food waste, but also creates added value, thereby demonstrating the hotel's commitment to sustainability principles and innovation within the hospitality industry.

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