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Food Waste Management Hotel Restaurant in Pontianak City

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ABSTRACT

The escalating challenge of food waste presents significant environmental and economic concerns globally, with the hospitality sector being a major contributor. This research aims to analyze Food Waste Management Hotel Restaurant in Pontianak City in star hotels, with a case study of Aston Pontianak Hotel Restaurant, as well as formulate alternative reduction efforts. The background of the research is the high generation of food waste in Indonesia and the absence of a special policy on food loss and waste, while hotels are significant producers of food waste. The research was conducted from September to November 2023 using a qualitative descriptive approach with purposive sampling techniques on chefs, waitresses, and breakfast visitors, supported by secondary data. Data were collected through observation, interviews, and questionnaires, then analyzed descriptively. The results showed that food waste occurred most at the receiving, storage, and production stages in the Operating Control Cycle, with the amount generated greatly influenced by the number of visitors and consumer behavior during the buffet (food taste was unsuitable and portions were excessive). Respondents considered reducing cutlery size and consumer education as the most preferred methods to reduce food waste. This study recommends improving menu management, strengthening kitchen training, and establishing a more sustainable food waste treatment system.

Keywords:

food waste; food management; star-rated hotel.

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INTRODUCTION

According to the 2017 Food Sustainability Index data released by The Economist Intelligence Unit (EIU), Indonesia is the second-largest producer of food waste in the world, after Saudi Arabia. In Indonesia, the estimated food waste produced reaches 300 kg per person per year, while in Saudi Arabia it reaches 427 kg per person per year (Index, 2017).

Until now, Indonesia does not have a special policy that specifically regulates food loss and waste. Existing regulations are still limited to the strategic policy of food and nutrition in Presidential Decree No. 83 of 2017, which focuses more on efforts to increase food production. According to Head of Division Rachmi Widiriani, the Food Security Council is preparing an update to the Presidential Regulation on Strategic Food and Nutrition Policy (KPSG). The Presidential Regulation will later contain regulations related to food affordability for 2020, including food waste handling.

The hotel and restaurant industry is an important component of tourism growth and a significant contributor to food waste (Dog, 2019; Usubiaga et al., 2018). Research in the hospitality sector has identified various factors and patterns of food waste generation. For instance, Kasavan et al. (2017) explored sustainable food waste management practices in hotels

within a UNESCO Global Geopark context, highlighting the operational stages involved. Papargyropoulou et al. (2014) examined patterns and causes of food waste in the hospitality sector in Malaysia, emphasizing the roles of overproduction, plate waste, and spoilage. Heikkilä et al. (2016) analyzed elements affecting food waste in the food service sector, identifying key drivers such as buffet-style service, forecasting errors, and consumer behavior. Furthermore, Dolnicar, Juvan, & Grün (2020) conducted a quasi-experimental study on reducing plate waste at hotel buffets, demonstrating the effectiveness of behavioral interventions.

While these studies provide valuable insights into food waste management and reduction strategies in the hospitality industry, there remains a gap in localized, in-depth analysis focusing on operational practices and consumer behavior interplay in specific urban settings, particularly in Indonesia (Heikkilä et al., 2016; Lin, 2016; Brigita & Rahardyan, 2013). Existing research often emphasizes broader sectoral patterns or interventions in controlled experiments, but less attention has been paid to the integrated analysis of the entire Operating Control Cycle (from procurement to disposal) coupled with consumer-driven waste factors in star-rated hotels within rapidly developing cities (Anriany & Martianto, 2013; Siaputra et al., 2019; Wulansari et al., 2019). Pontianak City, as a major urban center in West Kalimantan with a growing hospitality sector, presents a unique case where high waste generation meets evolving regulatory and sustainability awareness (Mabaso & Hewson, 2018; Sari, 2022).

In today's era, the hospitality industry needs to analyze every operational activity to reduce and manage waste, as well as implement new practices that can lower waste disposal costs, protect and preserve the environment, and increase guest loyalty. Without advanced treatment, waste can cause environmental pollution and contribute to global warming that causes climate change, as well as deplete energy, water, and other natural resources.

In a hotel, most of the income comes from the kitchen, which not only provides accommodation but also provides a variety of dishes. This leads to a considerable amount of food waste. The occurrence of waste and its management not only has an impact on hotel financial problems but also on the environment. Food waste is organic and requires large disposal space, increasing operational costs. In addition, food waste produces methane gas, which is a contributor to the greenhouse effect, and can cause the loss of flora and fauna around landfills due to the toxic substances produced.

One type of waste that hotels generate is food waste. This waste, if not managed properly, can cause various problems, including threats to national food security. Fulfilling food needs is an obligation of the state because it reflects the resilience and welfare of the community. This is stated in Law No. 18 of 2012, which regulates the implementation of food towards food sovereignty, food independence, and food security.

Pontianak is one of the major cities in West Kalimantan Province as well as the capital of the province. With rapid population growth, the city's infrastructure is also growing rapidly, supported by the large number of hotels of various classes. Based on data, there are around 50 hotels spread across Pontianak City, and some of them provide restaurants for dining facilities (West Kalimantan Provincial Communication and Information Office, 2020).

Food waste is mostly produced by star-rated hotels in Pontianak, because non-starred hotels (jasmine hotels) generally do not have restaurant facilities. This causes the amount of food waste from star hotels to be much higher. Most of the waste is directly disposed of without prior treatment. The following is data on the amount of waste produced in Pontianak.

Table 1. Food Waste in Pontianak City
SIPSN l- National Waste Management Information System

Year	2020	**2019**
Household (tons)	99999,99	**99276,9**
Office (tons)	450,63	**444,5**
Market (tons)	27136,66	**26767,40**
Business (tons)	11279,95	**11126,46**
Public Facilities (tons)	1098,42	**1083,48**
Other (tons)	**211,24**	**208,36**

Source: National Waste Management Information System (2020)

Hotels are among the public facilities that contribute to waste generation and rank fourth in Pontianak. Even in this position, efforts are still needed to reduce waste from hotels, especially waste from the kitchen such as food scraps produced during the stages of purchase, processing, and serving.

Proper management is needed to reduce food waste starting from the stage of purchasing raw materials until the food reaches consumers. Food service planning in hotels not only focuses on the menu but also on the wants and needs of guests. Menus have a significant influence on operational factors. Food service providers have seven operational stages, known as the Operating Control Cycle: menu planning, purchasing, receiving, storing, issuing, production, serving, and service.

Based on this background, the researcher identifies problems in the form of wasted foodstuffs during the storage process, such as prolonged storage causing spoilage, excessive purchases without checking stock first, and the absence of further processing of leftover raw material parts that cannot be used, especially vegetables. In addition, at the presentation stage, consumer satisfaction is not fully considered, leading to food-throwing behavior.

Taking this into account, the researcher intends to investigate how Food Waste Management Hotel Restaurant in Pontianak City is carried out in star-rated hotels, so that solutions can be found to reduce the generation of food waste produced. The problem formulation in this study includes: how to manage food waste from the purchase of raw materials to the disposal of food waste in star hotels in Pontianak City, as well as what solutions can be applied to reduce food waste.

The purpose of the research is to identify the operational practices of hotel restaurants, from raw material procurement to food waste disposal, and to analyze food waste reduction solutions in star hotels in Pontianak. The problem scope is set to narrow the focus to only review food waste management in star-rated hotel restaurants in Pontianak City that have their own restaurant facilities, ensuring the research remains directed and does not expand beyond the set context.

RESEARCH METHOD

The research approach used a qualitative descriptive method to systematically describe food management practices from the purchase of raw materials to waste disposal. The research was carried out in September-November 2023 in Pontianak City using the purposive method, because the area is considered the most relevant to the focus of food waste research on star hotels. The study population included the Aston Pontianak Hotel and its visitors, while the sample was determined through purposive sampling involving informants such as the head of the kitchen, chef, waitress, and breakfast visitors. The data used consisted of primary data (through interviews and questionnaires) as well as secondary data from books, scientific journals, theses, and government policies. In addition, this study also identifies operational practices and the participation of hotel actors and consumers in efforts to reduce food waste.

The research variables consisted of independent variables including menu planning, purchasing, receiving, storage, issuing, production, serving, and service, while the bound variables were food waste. Data sources were analyzed using descriptive statistics through numerical presentation (mean, median, standard deviation) and data visualization (tables and graphs) to provide an overview of food waste patterns that appear in hotel operations. Through this approach, the study seeks to identify the critical points that cause food waste and assess the extent to which food management practices contribute to the high level of food waste in Pontianak star hotels.

Table 2. Operational Definition of Bound Variables

Variabel	Operational Definition	Indicator	Source	Measurement
Food Waste	Leftovers that are actually edible but are thrown away for some reason	• More food waste is produced in the kitchen. • More food waste is produced by consumers. • The use of waste into compost. • Have a waste management team. • Pursue food waste reduction programs.	Kasavan et al. (2017)	1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Always

Source: Processed from Kasavan et al. (2017)

RESULTS AND DISCUSSION

Overview of Research Areas

Geographical Conditions

Based on its geographical location, Pontianak City is right crossed by the Equator. Therefore, Pontianak is a tropical region with relatively high air temperatures and high humidity levels. Pontianak City is the capital of West Kalimantan Province with an area of 107.82 km², which is divided into 6 sub-districts and 29 sub-districts.

The sub-district with the largest area is North Pontianak District (34.52%), followed by West Pontianak District (15.71%), Pontianak Kota District (14.39%), Southeast Pontianak District (13.75%), South Pontianak District (13.49%), and the smallest is East Pontianak District (8.14%). Overall, Pontianak City is directly adjacent to Mempawah Regency and Kubu Raya Regency.

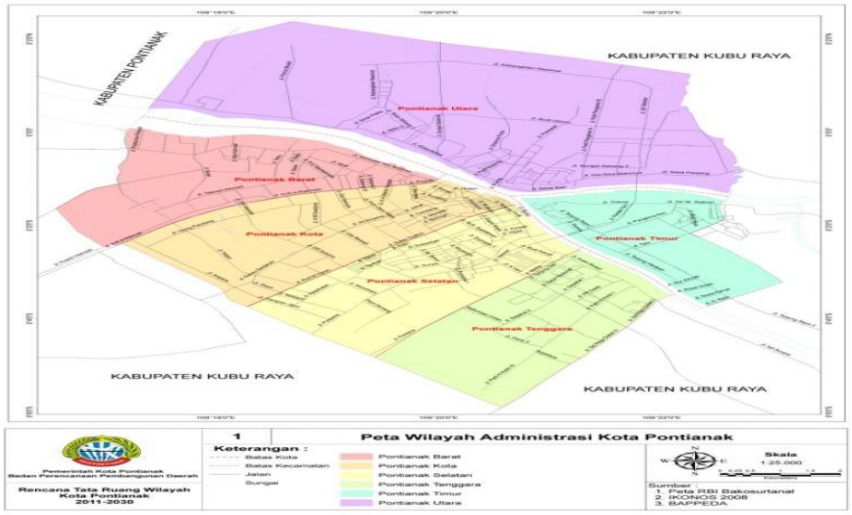


Figure 1. Map of Pontianak City Area

Source: Pontianak City Spatial Planning and Public Works Agency, 2022

Demographic Conditions

The demographic aspect describes the condition of the population based on the sub-district area in Pontianak City for five years, namely 2016 to 2020. On average, population growth reached 1.59% per year (in 2016 as many as 618,388 people and in 2020 it increased to 658,685 people). In 2020, the highest number of people was in West Pontianak District (146,700 people), while the lowest population was in Southeast Pontianak District (49,127 people).

The sub-district with the highest average population growth rate is East Pontianak District at 3.67% per year, followed by North Pontianak District at 3.59% per year. The significant increase in the two sub-districts was mainly due to a surge in population between 2019 and 2020. In East Pontianak District, the population increased from 96,029 people (2019) to 105,787 people (2020), or an increase of 10.16%. Meanwhile, North Pontianak District has increased from 130,344 people (2019) to 143,204 people (2020), or an increase of 9.87%. In previous years (2016–2018), the increase in the population was relatively stable and not too large.

There are two sub-districts in Pontianak City that have a negative average population growth rate, namely South Pontianak District (-0.51%) and Southeast Pontianak District (-0.40%). This negative growth occurred because in 2019–2020 there was a decrease in the number of population. In South Pontianak District, the population decreased from 97,202 people (2019) to 90,839 people (2020), or a decrease of 6.55%. Meanwhile, in Southeast Pontianak District, the number of people decreased from 52,326 people (2019) to 49,127 people (2020), or a decrease of 6.11%. In previous years (2016–2018), these two sub-districts experienced an increase in population with stable growth.

Table 3. Number of Population of Pontianak City in 2016-2020

District	Total Population (souls)				
	2016	2017	2018	2019	2020
South Pontianak	92.952	94.250	95.867	97.202	90.839
Southeast Pontianak	50.038	50.736	51.597	52.326	49.127
East Pontianak	91.830	93.112	94.676	96.029	105.787
West Pontianak	136.805	138.715	141.095	143.060	146.700
Pontianak City	122.118	123.823	125.924	127.700	123.028
North Pontianak	124.645	126.835	128.546	130.344	143.204
Pontianak City	618.388	627.021	637.723	646.661	658.685

Source: Central Statistics Agency (BPS) of Pontianak City, 2021

Economic Growth

Economic growth shows an increase in production capacity and services over a certain period of time. In general, the economic growth of Pontianak City is below the national economic growth (Andriyas, 2021; Khusniyah et al., 2022). However, in 2020 Pontianak City has higher economic growth compared to the national economic growth and West Kalimantan Province. This is due to the economic structure of Pontianak City which is dominated by large trade and retail sectors. During the pandemic, the number of retail traders actually increased in Pontianak City due to changes in the type of work and the amount of government assistance for traders and MSME actors.

The economic growth of Pontianak City in 2020 fell to -3.97% compared to 2019 which was 4.14%. The largest decline in growth rate occurred in the accommodation and food and beverage sector, which fell by 20.11%. The decline also occurred in the transportation sector by 14.36% and the large trade and retail, car and motorcycle repair sectors by 13.50%. The sectors that experienced an increase in economic growth were the health services sector by 50.50%, the electricity and gas procurement sector by 25.56%, and the information and communication sector by 17.11%. The decline in economic growth in general was influenced by the Covid-19 pandemic and the implementation of Large-Scale Social Restrictions (PSBB) in Pontianak City (Prasetyo, 2019).

Overview of Hotel Aston Pontianak

ASTON Pontianak Hotel & Convention Center is a modern 4-star international hotel located in the heart of Pontianak, adjacent to Gajah Mada District, 15 minutes from Supadio International Airport and Rahadi Usman Port. Aston Pontianak Hotel & Convention Center offers easy access to various tourist attractions and shopping malls in the vicinity. Visitors can easily explore the famous Equator Monument, the rhythmic Central Market, and the beautiful Kapuas Square Park. The hotel offers 155 spacious rooms that are ideal for both business and leisure travelers.

Each room at Aston Pontianak Hotel & Convention Center is designed with an alluring design. The modern and contemporary interior design creates an elegant and comfortable atmosphere. Each piece of furniture is carefully selected to create comfort for guests. Luxurious touches such as crystal lamps, thick curtains, and soft pillows add a luxurious feel to these rooms. Not only is the design attractive, but the rooms at Aston Pontianak Hotel & Convention Center are also equipped with the best facilities. Each room is equipped with a backscreen TV,

air conditioning, minibar, personal safe, and free Wi-Fi access. You can also enjoy 24-hour room service, so they can order food or drinks whenever they want. With all these facilities, you can feel comfortable and entertained during your stay at this hotel.

Not only good room facilities, but there is also a restaurant at Aston Pontianak Hotel & Convention Center. The restaurant offers delicious international and local dishes, with fresh ingredients and authentic flavors. With a wide selection of dishes, lamps can pamper their taste buds with a wide variety of foods. The restaurant also provides a cozy atmosphere and friendly service, creating a pleasant dining experience for guests.

In addition to these two facilities, there are many other facilities that are no less luxurious, such as meeting facilities, fitness centers and spas, swimming pools, and lounges or *bars*.

Food Waste **At Hotel Kota Pontianak**

From the results of observation, food waste data was obtained from food scraps on consumers' plates at the Aston Pontianak Hotel. Technically, the calculation of food waste is immediately separated by components after consumers leave the hotel restaurant area. On average, food waste generation is grouped on weekdays and weekends. Saturday and Sunday are weekends with the average number of visitors to the hotel's restaurant reaching more than double that of the work run. The results of the calculation of average food waste and visitors on weekdays and weekends are presented in Figure 5.

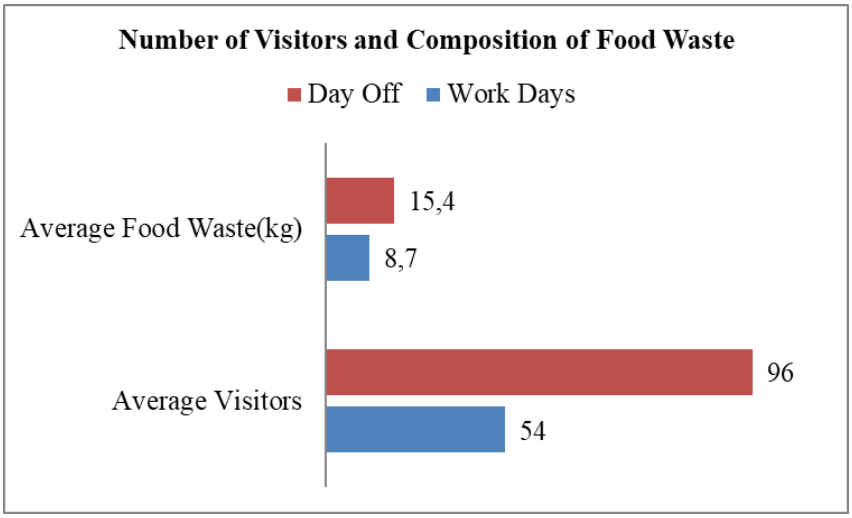


Figure 1. Average number of visitors and composition of food waste
Source: Primary Research Data (Direct Observation), 2023

Based on the data obtained, the average number of restaurant visitors on weekends (Saturday and Sunday) reached more than double compared to weekdays (Monday-Friday). This comparison is in line with the average food waste generated. This can be said to be a factor that affects the average amount of food waste is hotel restaurant visitors. The more hotel visitors, the greater the food waste generated will be.

From the results of the interview with the chef of the Aston Pontianak hotel, several statements were obtained about the Operating Control Cycle, namely menu planning, purchasing, receiving, storing, issuing, production, service and serving:

1) Menu Planning

At the *menu planning* stage, the Aston hotel always pays attention to the costs incurred for a type of food product so that the use of foodstuffs is carried out effectively and efficiently so that overcosting does not occur. Aston Hotels has also evaluated menus that are rarely ordered by consumers so as to reduce the amount of cost used for foodstuffs.

2) Purchasing

At the purchasing stage, the Aston hotel only makes purchases when there is a low stock of foodstuffs, the meaning of the word is low here when the amount of stock is less than 10% of the total shopping for one foodstuff. Food ingredients that run out of stock quickly are wet foods such as eggs, vegetables, corn, carrots, and onions because these ingredients are often used. As for dry foodstuffs such as sauces, soy sauces, etc it is less used. Dry food items that have expired due to being stored for a long time will be returned to the food seller to be replaced with new food items (Amicarelli et al., 2022; Kasavan et al., 2017; Mohan et al., 2017).

3) Receiving

At the receiving stage, the Aston hotel inspects the incoming foodstuffs whether the raw materials are defective or damaged. Then the materials received from the supplier are cleaned by the receiving employee or trimming the damaged parts, but sometimes the Aston hotel receiving employees neglect to check materials that have poor quality are still received and stored so that they finally cause food *waste. In addition* , once when receiving foodstuffs from suppliers, the shelf containing eggs carried by the transport car broke due to the shock of the car when going down the slope from the basement, but it was very rare and the number of broken eggs was not too much.

4) Failure

At the storage stage, the storage of foodstuffs has been done well, the Aston hotel packs and wraps the foodstuffs and provides labels in the form of information on the date of purchase and the name of the foodstuffs. The placement of foodstuffs also seems neat by applying the FIFO (First in first out) method. The Aston Pontianak hotel always ensures that foodstuffs are stored at a good temperature such as meats in the freezer. Employees in charge of the storage department also routinely clean the food storage area every day. However, sometimes the officers use foodstuffs that have just been received from the supplier and do not use foodstuffs that have entered the storage room first on the grounds that the ingredients are no longer fresh. This can cause food *waste* in the category of avoidable food waste.

5) Issuing

At the issuing stage, the Aston Pontianak hotel limits employees who are allowed to take foodstuffs to cook, for example, from other branches who want to take foodstuffs, there is only one person who has the right to enter the storage room so that this can be called efficient so that there are no other employees who arbitrarily take foodstuffs. Employees who take groceries are also required to record when and what materials they take while in the storage room.

6) Production

At the production stage, there is food waste produced at this stage such as eggshells, vegetable trimming, bones, and fruit peels. Food processing is carried out according to the standard recipe set by the hotel so that it can determine the use of foodstuffs. There is already a portion size written in the menu so that it is easier to make the food to be produced.

7) Service

At the service stage, the temperature of the food product served is as it should be, whether it is hot or cold. In terms of timing *of service* , consumers do not need to wait too long for the food products ordered. If there has been a misunderstanding between consumers and waiters about the food products ordered and finally replaced with new ones so that it increases costs and reduces the stock of food ingredients used.

8) Food Waste Processing

The Aston hotel does not yet have a team to process food waste produced by consumers. The Aston Pontianak hotel only separates waste based on its type, namely between wet waste and dry waste. Wet waste is waste that comes from foodstuffs and dry waste comes from used bottle holders. The party who picks up garbage at the Aston Pontianak hotel is a party from the Pontianak City Environmental Agency which is carried out every day.

When viewed as a whole, the food waste produced by Aston Pontianak Restaurant mostly comes from the avoidable food waste category that should still be usable (Coughlin, '2017; Legrand, '2017). The stages that produce food waste most often in Aston hotel restaurants are receiving, storing, lean production. This is seen based on the level of probability of food waste appearing in the three stages (receiving, storage, production) compared to other stages. At the receiving stage, it can be said that it always produces food waste because every alkaline material is sent by the supplier, the material will be cleaned and the bad parts will be discarded. At the storage stage, the possibility of materials, especially vegetables, being damaged is also quite large because of the lack of consumer interest in vegetables. At the production stage, food waste will always exist because of the trimming process in making broth, because during the trimming process meat, vegetables, or fruits always produce waste such as potato skins, bones, and fruit peels.

Food waste is said to almost always be produced in these three stages , in contrast to other stages that do not always produce food waste. At the purchasing stage, no food waste is produced because the food ingredients are still not there because there is still a supply chain. At the issuing stage, food waste does not always exist because the occurrence of material damage during line transportation does not always occur. At the service stage, there is not always a misunderstanding between the consumer and the waitress.

Food Waste Hotel Visitors In Pontianak City

Interviews were conducted with consumers who had breakfast at the Aston Hotel with the concept of a buffet carried out for one week (Dolnicar et al., 2020; Lin, 2016; Demetriou, 2022). The questionnaire was divided into six parts, namely the concept of a hotel buffet, the reason why consumers leave food, the types of food that consumers often throw away, efforts

to reduce food waste in hotel restaurants, knowledge about food waste, and demographic characteristics of respondents. From questionnaire interviews with hotel consumers who had breakfast at Aston hotels, the following data were obtained:

Respondent Characteristics

In the first part, visitors to the Aston hotel were asked several questions about themselves ranging from gender, age, last level of education, income and purpose of stay. This is to find out the socio-demographic state of Aston Hotel Visitors.

Table 4. Socio-Demographics of Aston Hotel Visitor Respondents

Variabel	Category	Respond	
		n (total)	% (percentage)
Gender	Man	29	67
	Woman	14	33
Age	<18-25 years old	6	14
	26-35 years old	10	24
	36-45 years old	18	42
	>45 years old	9	20
Last Education Level	Junior High School	7	16
	D3/S1	31	72
	S2	4	9
	S3	1	2
Revenue Per Month	< 2 million	3	6
	2-5 million	7	16
	6-10 million	25	58
	> 10 million	8	18
Purpose of Stay	Holiday	15	34
	Work	28	65
	Other	0	0

Source: Primary Research Data (Questionnaire), 2023

During the questionnaire distribution period, 43 respondents were overwhelmed by men. The most common age group is the range of 36-45 years. Most of the respondents are Bachelor's or Diploma graduates. The most respondents have a monthly income of 6-10 million. The purpose of respondents staying at hotels for work was more chosen than for vacation. This is because at the time of the distribution of this questionnaire it was carried out during working hours and not yet on vacation dates, so hotels were more widely used for seminars or meetings.

Aston Pontianak Hotel Buffet Concept

Respondents were asked questions about the concept of buffet in hotel restaurants. All 43 hotel respondents liked the buffet concept. After that, respondents were asked why they liked the buffet concept. The results are obtained in figure 2.

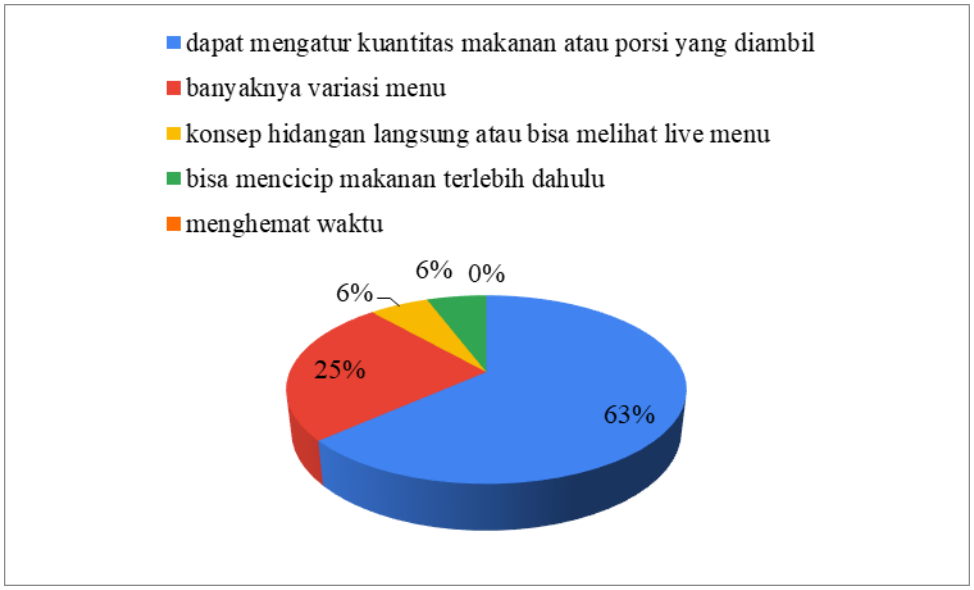


Figure 2. Reasons respondents like the buffet concept

Source: Primary Research Data (Questionnaire), 2023

Some of the most popular reasons for liking the buffet concept are being able to manage the quantity of food or portions taken (63%), followed by a lot of menu variations (25%), the concept of direct dishes or being able to see live birds (6%), and being able to taste the food first (6%). Because the choice can regulate the quantity of food or the portion taken is the largest choice, it can be known that with the freedom to take portions, consumers arbitrarily take the amount of food that they themselves do not know can finish the portion they take or not. Therefore, this can cause food waste from consumers.

Reasons for Consumers to Leave Food Behind

The next question is related to the habit of leaving food on the plate. In the introduction to the questionnaire, the definition of food waste used in this study has been explained, namely it can be consumed on consumer plates.

The combination of reasons given in this study is the reason that encourages the emergence of food waste from both producers and consumers. Manufacturer-related reasons include poor food conditions and imperfect cooking processes. Meanwhile, the reasons from the consumer side include taking too many portions and not enough time in consuming the food taken. The taste of food that is not suitable is a combination of consumer preferences and the fulfillment of consumer expectations by producers. Of the 43 respondents, 38 respondents answered that they had left food and that there were 5 respondents who had never left food, the three biggest reasons for leaving food were found to be unsuitable food taste, taking too many portions of food and not enough time / being in a hurry (Figure 3).

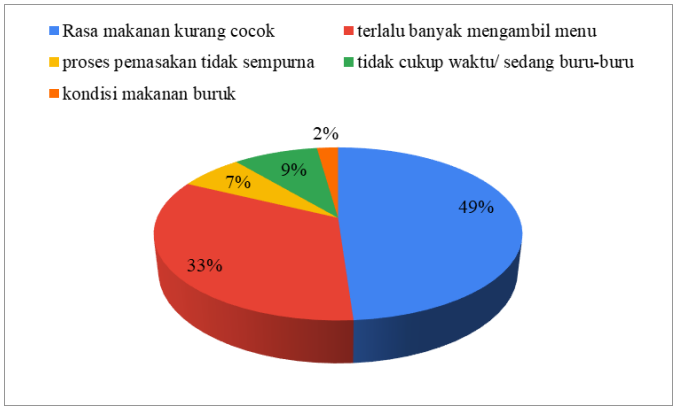


Figure 3. Reasons for Consumers to Leave Food Behind

Source: Primary Research Data (Questionnaire), 2023

Reasons for food taste that are less suitable account for almost half of the other reasons (49%). These results show that there is a gap between meeting consumer expectations and the capacity of menu presentation by hotels. Often consumers have a taste standard for a particular dish before choosing food, and there is a possibility that the taste does not match expectations can cause food waste.

Furthermore, another reason that causes consumers to leave food is because they take too many menus (33%). This reason shows that there are still many consumers who do not manage the food needed by their bodies, there are still many consumers who are "hungry" because of the many menus served. Not enough time is the reason why most choose (9%). This reason shows the respondents' lack of ability to manage time in hotel activities, especially at mealtimes. Another possibility is that hotel visitors do not prioritize meal time as part of their purpose of their activities at the hotel.

Types of Food Consumers Throw Away

In this study, respondents were asked to recall the types of food they often throw away. The types of carbohydrates are separated into two groups, namely rice-based carbohydrates (white rice, fried rice, porridge, and ketupat) and carbohydrates other than rice such as noodles, and vermicelli.

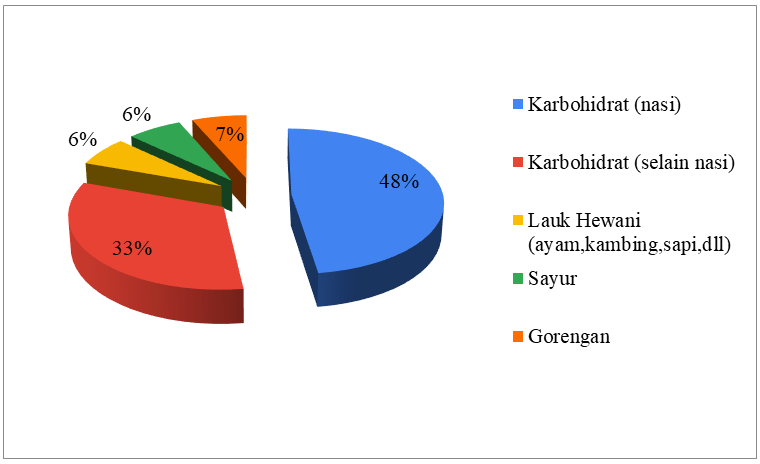


Figure 4. Types of food that consumers throw away

Source: Primary Research Data (Observation and Questionnaire), 2023

Based on observations, the most wasted food component is rice-based carbohydrates (48%). Of all the components of food waste, fried rice provides the dominant mass.

After fried rice, the types of dishes that are wasted every day are porridge and white rice. As a staple, these three types of dishes are available in hotel restaurants every day during data collection. In addition, one of the foods that is found wasted almost every day is fried foods. The cause of the large number of fried foods that are wasted is due to the taste of food that is not suitable.

Efforts to Reduce Food *Waste* in Hotel Restaurants

Respondents were given several choices of hotel resto methods in reducing the potential for food waste. It is intended to ask respondents which method is in accordance with the expectations to be applied by the hotel presto. In addition, the background of this question asked to the respondents is because basically hotels need to ensure consumer comfort in their services. Furthermore, the answers to the questions aim to provide an overview to consumers and producers that food waste is a shared responsibility. The method chosen by the consumer is shown in Figure 9.

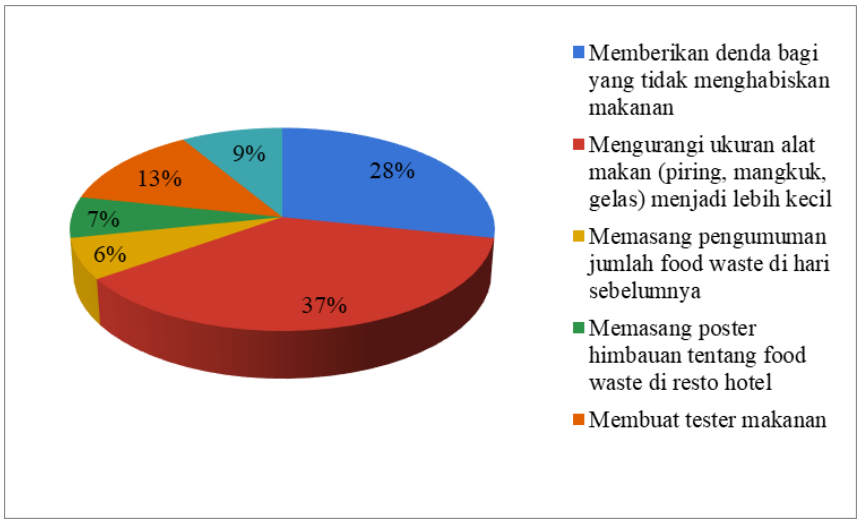


Figure 5. Methods used by hotels to reduce food *waste*

Source: Primary Research Data (Questionnaire), 2023

The results of the analysis revealed that as many as 37% of participants chose to reduce the size of cutlery (plates, bowls, glasses) to smaller. The next reason chosen was the application of fines for those who do not consume food (28%) and making food testers (13%). In addition, respondents also added various other media and content that can be used to appeal to consumers regarding food waste issues ranging from videos, breakfast vouchers, and tables, to providing an overview of the food process created.

CONCLUSION

Hoteliers face challenges in achieving zero food waste due to the nature of the hospitality sector, but sustainable food waste management—from purchasing to disposal—can maximize resource efficiency and reduce operational costs. Success in this area requires strong collaboration with stakeholders including customers, suppliers, NGOs, governments, and the community. Research at Aston Pontianak Hotel Restaurant shows that the receiving, storing,

and production stages generate the most food waste, influenced by consumer numbers and factors like unsuitable taste and excessive portions. Common waste reduction methods include using smaller cutlery, but public awareness remains low. Limitations include a focus on a single hotel without broader comparisons. Future research could expand to multiple hotels to validate findings and explore stakeholder collaboration models to enhance sustainable food waste management across the sector.

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