

FOOD WASTE REDUCTION STRATEGY IN RESTAURANTS AND BARS FOR ZERO WASTE (CASE STUDY IN UBUD BALI)

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Abstract

Environmental problems are currently an issue that is often discussed. The large use of plastic, especially in packing goods including food ingredients and ready-to-eat food, causes environmental problems. One of the contributors to waste is from leftover food (food waste). Ubud as a tourist destination also produce a lot of food waste. Nowadays there have been several movements in Ubud carried out by several parties related to food waste and zero waste, such as on 2019 Ubud Food Festival which actively promotes reduction of food waste, the rice barter waste movement in Lodtunduh Village, Ubud, and the emergence of shops that carry the zero waste theme. This movement is certainly good at reducing waste, especially food waste and can be used as an example for waste management in other tourism areas in Bali. Ubud can later be used as a comparative study for other destinations in Bali such as Kuta, Nusa Dua, Sanur, Canggu and many other tourist destinations that still do not manage their own waste and still hand over their waste management to partners or third parties. This is a simple quantitative research by conducting interviews with 10 restaurant and bar managers in Ubud Bali who were used as informants. This study found that From the discussion above it can be concluded that food waste reduction strategies aimed at achieving zero waste have been widely implemented in restaurants and bars in Ubud, Bali. Out of the 14 indicators for food waste reduction, 11 indicators have been effectively applied, with only 3 indicators not yet maximally implemented: "Give customer more option menu, compost food waste and Ask if customers want to take leftovers home . This is primarily because they need more equipment to composing the food waste and hey do not have it, and the left over meal they just give to local people for feeding the pig. Also the not creating new menu because they think their menu available already the best choices.

Keywords: Food Waste, Restaurant, Bar, Zero Waste.

A. INTRODUCTION

Environmental issues have become a frequently discussed topic today. The extensive use of plastic, particularly in packaging goods including food items and ready-to-eat meals, poses significant environmental challenges. The problem of waste, especially in the Sarbagita area (Denpasar, Badung, Gianyar, and Tabanan), has reached a critical level. Bali is currently facing a waste emergency, relying solely on the Suwung landfill. Moreover, the G20 event in 2022 has made waste management a top priority.

One major contributor to waste is food waste. Quoting from <https://mediaindonesia.com/nusantara/466241/> (downloaded March 27, 2022), food waste at waste processing sites (TPS) in Denpasar ranges from 115 kg to 184.67 kg per TPS per day. The accumulation of food waste is influenced by various factors, including population density, consumption patterns, age, knowledge, and the frequency of meals per day. The number of family members also significantly affects this," said I Nengah Muliarta, an academic from the Faculty of Agriculture at Warmadewa University, who was involved in the analysis of food waste research conducted by PPLH Bali. Muliarta explained that the current digital era affects food purchasing

patterns, contributing to the amount of food waste generated. The higher the average spending on food at one time, the greater the likelihood of producing more food waste.

Ubud, as a popular tourist destination, also generates a considerable amount of food waste. As a world-class destination, Ubud needs to address this issue, especially since it is filled with various tourism facilities, including restaurants that inevitably produce food waste. According to research by Gunawan et al. (2018) titled "Performance and Management Strategies of Star Hotels' Waste in Ubud Bali's Tourism Area," the SWOT analysis using a balanced scorecard indicated that waste management in star hotels in Ubud falls into the adequate and insufficient category, positioned in quadrant IV. This means that waste management in Ubud is defensive (weaknesses and opportunities), which includes developing standard operating procedures for waste management based on environmental regulations, improving waste management facilities, socializing waste management policies with employees, applying to the government for waste management training, and reporting on the performance of the waste management system. The findings from this research are indeed concerning, highlighting the need for concrete actions in waste management for the tourism industry in Ubud.

Currently, there are several initiatives in Ubud related to food waste and zero waste, but these efforts are still not enough to address the waste problem, particularly food waste. Initiatives like the Ubud Food Festival in 2019, which actively promoted food waste reduction, the rice barter waste movement in Lodtunduh Village, and the emergence of zero waste stores are positive steps towards reducing waste, especially food waste, and can serve as examples for waste management in other tourism areas in Bali. Ubud could eventually be used as a benchmark for other destinations in Bali, such as Kuta, Nusa Dua, Sanur, Canggu, and many other tourist spots that still do not manage their own waste and rely on partners or third parties for waste management.

These movements to tackle food waste are certainly beneficial, but more restaurants and eateries need to participate, and consumers must also recognize their role in reducing food waste. This research aims to understand the strategies employed by restaurants and bars in Ubud, Bali, to reduce their food waste, so these strategies can be replicated by other destinations in Bali, ultimately leading to a significant reduction in waste issues across the island.

B. RESEARCH METHOD

This type of research is a simple quantitative study that involves interviews with several restaurant and bar managers in Ubud, Bali and we also do the focus grup discussion with around 10 partisipant consist of restaurant manager, supervisor, waiter and also food waste activiest/owner restaurant in Ubud and gianyar area. . According to Ali and Yusof (2011), qualitative research is defined as: "any investigation which does not make use of statistical procedures is called 'qualitative' nowadays, as if this were a quality label in itself." This means that qualitative research emphasizes the absence of statistical tools in its methodology, making it easier to differentiate between qualitative and quantitative methods.

Quantitative methods rely on calculations and statistical analysis procedures, while qualitative methods focus more on observing phenomena and investigating the substantive meaning of those phenomena. The analysis and depth of qualitative research are heavily influenced by the power of the words and sentences used. Basri (2014) concludes that the focus of qualitative research is on the process and the interpretation of its results. McCusker and Gunaydin (2015) state that the choice to use qualitative methods in their research aims to understand how a community or individuals engage with a particular issue.

The population for this research includes all restaurants and bars in Ubud, Bali. From this population, 10 informants will be selected who are managers of restaurants and bars in Ubud. Qualitative research does not require a minimum sample size. Generally, qualitative studies use a

small number of samples; in some cases, only one informant may be used. There are at least two criteria that must be met when determining the number of informants: adequacy and relevance (Martha & Kresno, 2016). This research conducted in Ubud, Gianyar, Bali, for several reasons: Ubud are the centers of tourism in Bali, Ubud is a popular destination. Data for this study was also collected through observations at the research site, specifically by observing waste management processes in restaurants and bars in the Ubud area.

Table 1 : List of Restaurant Obserb

No.	Name of Resturant/Bar	Adsres
1	Nagi Kitchen Coffee and Sushi	Jalan Raya Andong No.88X, Petulu, Ubud
2	Sawo Bali Ubud	Jalan Sukma Kesuma, Peliatan Ubud
3	Laddu Restaurant	Jalan Sri Wedari Br. Tagallantang Ubud
4	The Kumbuh Resturant	Jalan Banjar Kumbuh Ubud
5	Sawah Indah Resto	Jalan Raya Goa Gajah Peliatan Ubud
6	Herb Library Restaurant	Jalan Jembawan Ubud
7	Moksa Plant Base Restaurant and Permaculture Garden	Jalan Puskesmas, Sayan, Ubud
8	The Night Rooster Ubud	Jalan Goutama Selatan, Ubud
9	Kepitu Restaurant	Banjar Kepitu Desa Kendran Tengalalang The Kayon Resort Ubud
10	Sawah Resto	Jalan Raya Goa Gajah Peliatan Ubud

Based on data obtained from interviews with tourism practitioners, specifically those involved in the restaurant and bar industry managing establishments in the Ubud area of Gianyar, Bali, the following demographic data of the respondents was collected. It can be observed that the socio-demographic aspects of this study indicate that 60% of the informants are male and 40% are female. In terms of age categories, the largest group comes from the 32 to 41-year age range (60%), followed by the 21 to 31-year group, and then the 42 to 51-year and 52 years and above groups, each making up 10%. The positions of the informants in their workplaces are quite varied, including roles such as waiter, bartender, senior waiter, assistant FB manager, FB manager, resort manager, operational manager, and even owner of the restaurant and bar. From the interview with informants and also from FGD the result of this study are from 14 indicators of food waste, this is the answer:

1. ****Indicator: Avoid over buying stock****

Based on the data, all informants answered yes, indicating that the restaurants/bars where they work avoid over-purchasing ingredients to save costs, control supplies, avoid food waste, and adjust purchases based on room occupancy. This is certainly positive as it is one way to reduce food waste and ultimately lower food and beverage costs.

2. ****Indicator: Practice stock rotation regularly****

In this indicator, all informants answered yes, stating that the restaurants/bars where they work implement regular stock rotation to maintain ingredient freshness, apply FIFO (First In, First

Out), reduce food waste, and prevent spoilage. Keeping food and beverage ingredients fresh is crucial for producing quality food and drinks and ultimately helps reduce food waste.

3. ****Indicator: Control temperature****

This indicator received 100% affirmative responses from the informants because it is essential for maintaining the quality of food and beverage ingredients. Proper temperature control in storing food and beverage items is vital and must correspond to the type of ingredient to prevent spoilage. Spoiled ingredients lead to waste and increased food and beverage costs. For example, bananas should not be stored in the fridge as they will turn black and look unappealing. Incorrect storage can result in wasted bananas and food waste.

4. ****Indicator: Keep a stock inventory****

According to the interview results, 100% of informants indicated that their workplaces maintain ingredient inventories to ensure the quality of ingredients and the dishes served. By keeping inventory, a systematic control of stock outflow can be established, such as FIFO, allowing perishable items to be used optimally and avoiding spoilage and expiration. This is also a strategy for reducing food waste.

5. ****Indicator: Inspect all deliveries against the order specification****

This indicator received affirmative responses from all informants, who stated that their workplaces inspect all ingredient deliveries to ensure they match the ordered specifications. This is important for maintaining food costs, ensuring adherence to recipes, avoiding food waste, and guaranteeing food quality. Inspecting all deliveries to ensure they match specifications is crucial to maximize usage and minimize waste. For example, if a restaurant/bar orders fruit for garnish, it is essential to ensure uniformity in size and quality for optimal garnishing.

6. ****Indicator: Keep a close eye on portion control****

This indicator received 100% affirmative responses, as it is important to ensure food pricing and portion sizes align with standards, recipes are followed, food waste is minimized, and nutritional intake for customers is good. Monitoring food and beverage portions helps significantly in reducing food waste. Proper portioning—neither too little nor too much—benefits guest health.

7. ****Indicator: Donate leftovers to a local charity****

90% of informants answered no/not yet because there are no charitable organizations available; instead, leftovers are given to local residents for pig feed or composting, ensuring no food waste, while 10% said yes, indicating that some leftovers are given to third parties under contract for animal feed. This indicator could indeed serve as a solution to reduce food waste, making leftover food more beneficial than simply being used as animal feed. For example, leftovers from buffets could be donated to charities. However, due to the absence of charities, this indicator is not fully effective in reducing food waste.

8. ****Indicator: Anticipate the demand with care****

90% of informants said yes, as it helps maintain ingredient quality and stock availability, relating to costs, while 10% did not understand the question. By carefully analyzing demand from each outlet and reviewing past demand history, stock levels can be maximized.

9. ****Indicator: Give customers more menu options****

In this indicator, 70% of informants said yes, to provide guests with more menu variety, new upselling options, while 30% said no to avoid confusing guests and to ensure selected items are the best and of high quality. Offering customers a wider variety of menu options allows chefs and bartenders greater flexibility in preparing food and beverages. Leftover ingredients can be repurposed into other dishes, which helps reduce excess stock in the kitchen, bar, and storage.

10. ****Indicator: Incorporate leftovers and use food efficiently****

100% of informants said yes, to make ingredients more beneficial, save costs, and aim for zero waste. In bars, some ingredients like leftover fruit peels can be used to create alcoholic beverages or dried for tea mixes. This strategy maximizes ingredient usage, helping reduce food costs and food waste.

11. ****Indicator: Compost food waste****

60% of informants said yes, to utilize waste as fertilizer, support sustainable programs, and reduce waste in collaboration with local communities, while 40% said no because it requires specific tools, waste is handled by cleaning staff, and it is given to local residents for animal feed. Composting food waste is an excellent way to reduce food waste and can contribute towards achieving zero waste.

12. ****Indicator: Ask if customers want to take leftovers home****

60% of informants said yes, to reduce food waste, enhance guest satisfaction, and evaluate portion sizes, while 40% said no because leftovers are often used for animal feed or guests typically finish their meals. This strategy is excellent for reducing food waste because allowing guests to take home their uneaten food minimizes waste, potentially leading to zero waste.

13. ****Indicator: If you have a buffet or self-service counter, do not provide trays****

In this indicator, 90% of informants answered no, as they serve à la carte, and the resort has few rooms, while 10% answered yes, prioritizing hygiene. This is only applicable if the restaurant serves food buffet-style; thus, it is essential not to provide trays in a buffet setting to prevent guests from taking too much food.

14. ****Indicator: Train employees in how to reduce waste****

For this indicator, 90% of informants answered yes, as it helps reduce food waste, save costs, control expenses, and supports sustainability, showing that the restaurant/bar cares about the environment, while 10% said no, specifying there are no specific training sessions but emphasizing minimizing food waste. Training restaurant and bar staff on waste reduction is crucial to cultivate awareness among employees about minimizing waste.

Referring to the interview results above, it can be said that several restaurants and bars in the Ubud area of Bali have been making efforts to implement food waste reduction strategies at their respective establishments, and there is a growing awareness about minimizing food waste. This is evident from the 14 indicators we inquired about regarding food waste reduction strategies:

7 indicators received a 100% positive response indicating they are already implemented, 2 indicators received a 90% affirmative response, 1 indicator received a 70% positive response, and 2 indicators received a 60% affirmative response. Only 2 indicators received a 90% negative response, indicating they have not yet been implemented.

The indicators that have not been maximally implemented are the "Donate leftovers to a local charity" and "If you have a buffet or self-service counter, do not provide trays." This situation occurs because there are currently not many charities in Ubud ready to accept food waste. It does not mean that restaurants or bars do not want to participate; rather, it is due to the lack of available charitable organizations that can accommodate food waste. Additionally, most restaurants in Ubud do not provide buffet services, so the indicator regarding not providing trays at buffet tables has not been implemented.

In Ubud, there has also been improved waste management by the local customary village, which helps reduce waste and raises community awareness about sorting household waste, separating organic and plastic waste, making it easier for cleaning staff to manage waste more effectively. The use of biopori systems in each restaurant, hotel, bar, and household should also be further promoted to recycle organic waste.

Based on the results of the Focus Group Discussion (FGD) held on September 2, 2022, at Sawah Indah Resto Ubud, it was found that many residents in various villages in Ubud understand the importance of waste management, particularly household waste, which can ultimately help reduce food waste as well. For example, in Babakan Village, waste is sorted into organic and non-organic categories. Some restaurants in Ubud, such as Sawah Indah Resto, have already implemented biopori systems, and waste is collected with the assistance of the government. Food waste is typically given to local residents who raise pigs. Overall, the Ubud area is beginning to manage its waste, including food waste.

C. CONCLUSION

From the discussion above it can be concluded that food waste reduction strategies aimed at achieving zero waste have been widely implemented in restaurants and bars in Ubud, Bali. Out of the 14 indicators for food waste reduction, 11 indicators have been effectively applied, with only 3 indicators not yet maximally implemented: "Give customer more option menu, compost food waste and Ask if customers want to take leftovers home. This is primarily because they need more equipment to composting the food waste and they do not have it, and the left over meal they just give to local people for feeding the pig. Also the not creating new menu because they think their menu available already the best choices.

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