

CHARACTERISTICS OF ORGANIC WASTE IN HOTEL ASTON KARTIKA GROGOL

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Abstract

A hotel is a property that provides temporary accommodation, food and beverage services to guests with a variety of other facilities. Waste generation from hotels is equal between organic and inorganic waste, efforts are needed to deal with this problem. The purpose of this study was to analyze the composition of organic waste in the form of food loss and food waste and to plan a hotel organic waste. There are 2 variables considering the composition of the type of organic waste. The composition of the waste used was food loss and food waste. The results of the comparison of composting results with SNI 7763:2018 show that the water content exceeds the maximum value of the quality standard. The conclusion of this research is 50% organic waste with a recycling potential of 100%. The composition of organic waste at Aston Kartika Grogol Hotel in the form of food loss comes from restaurants, kitchens, and meeting rooms that are put together in kitchen trash bags as much as 13%. For food waste, Aston Kartika Grogol Hotel comes from the rooms, public areas, restaurants, kitchens, and there is waste from meeting rooms which are combined into kitchen waste bags as much as 36% of the total hotel waste.

Keywords: *hotel waste, organic, inorganic, food loss, food waste*

Introduction

The tourism industry in Indonesia continues to grow rapidly. According to the World Travel and Tourism Council (WTTC), the tourism industry is the world's largest industry with global revenues of more than \$3.5 trillion. As one of the important economic sectors, the tourism industry has a significant role in generating food loss and food waste. In Indonesia, the food waste has not been handled properly (Rachman and Septiana, 2020). According to the Food and Agriculture Organization of the United Nations (UN), a quarter to a third of the world's food is wasted

(Bellemare et al., 2017). Food loss is the remaining food that has not been processed into food that is eventually wasted because it cannot be consumed and or is food that is wasted due to negligence during the production, processing and distribution process. Food waste is leftover food that is ultimately wasted because it cannot be consumed. Hotels, including Aston Kartika Grogol Hotel, as part of the tourism industry, produce a considerable amount of organic waste every day. Aston Kartika Grogol Hotel is one of the hotels located in the Grogol area, West Jakarta. The operational activities of Aston Kartika Grogol Hotel certainly produce food loss and food waste that needs to be managed properly, because it can harm the surrounding environment (Betz et al., 2015). The problem of food loss and food waste has become a global concern and an increasingly urgent issue in various sectors, including the tourism industry (Xue et al., 2017). The amount of organic waste

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generated every day can be a burden for the existing waste management system and has the potential to pollute the environment if not managed properly. Thus, the characteristics of organic waste at Aston Kartika Grogol Hotel can solve waste problems, protect the environment, and potentially provide economic benefits.

The purpose of this study is to plan the processing of organic waste from hotel activities at Aston Kartika Grogol Hotel with the following objectives knowing the composition, generation rate, and recycling potential of hotel waste; analyzing the composition of organic waste in the form of food loss and food waste generated from hotel activities.

Research Methodology

Research Time and Location

The research included the measurement of organic waste generation which includes measuring the weight, volume and composition of plastic waste, using the load-count analysis method, according to the regulations listed in SNI 19-3964-1994 concerning Methods of Collection and Measurement of Urban Waste Generation and Composition. Sampling was carried out at Aston Kartika Grogol Hotel, West Jakarta for 8 consecutive days starting from May 30, 2023 –June 6, 2023.

Research Design

Aston Kartika Grogol Hotel has 95 employees, 189 beds, assuming the capacity per room is 1 person, 13 meeting rooms, and 12 other facilities. The determination of the number using the Slovin equations can be seen in Eq. (1).

$$n = \frac{N}{(1+N(e^2))} \tag{1}$$

where:

n = sampling size

N = amount of beds for each hotel

e = critical value

Based on this formula, the total obtained for Hotel Aston Kartika Grogol Hotel is:

$$n = \frac{189}{(1+189(0.1^2))} \quad n = \frac{189}{2.89}$$

$$n = 65.39 = 65 \text{ bed}$$

With 65 samples of hotel rooms, and other hotel facilities will be taken 1 sample per facility, the total samples to be taken are 80 samples, the table as in Table 1.

Table 1. Number of Sampling

Facilities	Number of Facilities	Total	Sample size	Sample Determination for Each Facility
Studio Style	35	214	80	65
Studio Plus	128			
Suite	25			
Aston Suite	1			
Edelweis 1	1			
Edelweis 2	1			
Edelweis 3	1			1
Edelweis 5	1			
Edelweis 6	1			
Anyelir 1	1			
Anyelir 2	1			
Anyelir 3	1			
Grand Rasamala	1	1		
Ballroom	1			
Rasamala 1	1			
Rasamala 2	1	1		
Rasamala 3	1			
Pool	1			
Asoka Dining Restorant	1	1		
Aster Executive Lounge	1			
Parking Area	1			
Fitness Center	1	1		
Spa	1			
Business Center	1			
Al-Iman Mosque	1	1		
Mezzanine	1			
Front Office	1			
Lobby	1	1		

The research process began with sample collection consisting of food loss and food waste.

The method applied in sampling the waste generation and composition of hotels refers to the SNI 19-3964-1994 standard on Methods of Taking and Measuring Examples of Urban Waste Generation and Composition. The following are the steps taken in the implementation and sampling: determine the sampling location; sampling was conducted for 8 consecutive days; prepare the equipment that has been determined; distributing plastic bags that have been marked to the source of waste the day before collection; recording the number of units of each waste generator; collecting the plastic bags that have been filled with waste; transporting all plastic bags to the measurement site; taking measurements by recording the weight of the waste; conducting waste sorting based on waste composition components; weighing waste based on waste composition components; measuring and recording the weight of waste composition components.

Tools and Materials

Table 2 shows the research tools that have been used in this research.

Table 2. Research Tools

Tools Name	Specification	Total
Plastic	60 cm × 40 cm	3
Plastic	60 cm × 100 cm	3
Waste Plastic Label	-	
Digital Scales	50 kg	1
Meters		1
Knife		1
Rubber Gloves		1
Litter Box		1
Pickup Car		1

The materials needed in this study are organic waste obtained from Aston Kartika Grogol Hotel. The collection of materials needed in this study was obtained from waste from hotel facilities, then collected every day at the Aston Kartika Grogol Hotel laystall.

Waste Management of Aston Kartika Grogol Hotel

Waste management at Aston Kartika Grogol Hotel begins with the collection of waste sourced from Aston Kartika Grogol Hotel activities. Waste is collected in the garbage containers that have been provided in each facility. Waste from the room using a 12 L garbage container, will be taken after the guest checks out, namely at 12.00 - 14.00 West Zone Indonesian Time (WIB) using a trolley in which there is a 120 L clear plastic bag.

The waste transportation process in meeting rooms and other hotel facilities is carried out based on the conditions in the waste container, where transportation will be carried out after the waste container is filled or before the amount of waste is too much. In the meeting room facilities use 35 L and 50 L garbage containers which will then be collected in a dustbin in which there is a 120 L black plastic bag. In public area facilities use two types of garbage container sizes, namely 35 L garbage containers and 50 L garbage containers which will then be collected in a trolley in which there are 120 L clear plastic bags. In spa facilities 12 L garbage containers are used which are then collected in a trolley in which there are 120 L clear plastic bags. In kitchen and restaurant facilities use a type of 120 L dust bin container which is lined with 120 L black plastic bags.

Waste collected using trolleys and dustbins will then be taken to the Aston Kartika Grogol Hotel temporary shelter. Laystall Aston Kartika Grogol Hotel has two separate waste collection rooms marked by yellow and blue doors in each room. Waste sources from rooms, public areas, and spas that have been collected using a trolley are put into the laystall room with a yellow door. While waste sources from meeting rooms, kitchens and restaurants that are collected using

a dust bin then will be put into the laystall room with a blue door.

Furthermore, the waste in the hotel's lay stall will be transported by a third party using a dump truck with a capacity of 2,200 L. Third party by using a dump truck with a capacity of 2,200 L, then the waste will be processed by a third party.

Waste Generation

The source of waste generated by Aston Kartika Grogol Hotel comes from employees, the number of hotel guests, both those who stay overnight and those who use meeting rooms and other facilities. The waste transportation of Aston Kartika Grogol Hotel is carried out by a third party using a dump truck, then the waste will be taken and processed by the third party. The dump truck picks up waste at the hotel's laystall which is located next to the back of the hotel building every day, around 22.00-23.00 WIB.

Result and Discussion

In practice, the number of samples exceeds the sample determination calculation that has been made, because Aston Kartika Grogol Hotel no longer uses garbage bags in each room and there are garbage bags that are combined in several facilities such as meeting room garbage bags and kitchen garbage bags. To get the waste generation, composition, and recycling potential of hotel waste, the waste taken is organic waste.

Waste generation data was obtained from the results for 8 days from all facilities of Aston Kartika Grogol Hotel. Sources of waste from Aston Kartika Grogol Hotel are distinguished by labels attached to each garbage bag for each source of hotel facilities. The division of facilities is divided into six: bedrooms, which consists of waste from the garbage containers in each used room; meeting rooms, which consists of waste from activities that take place in each meeting room and grand ballroom; public area,

which consists of waste from other hotel facilities such as lobby, swimming pool, fitness room; food loss, consists of leftover food waste from restaurants, kitchens and there is waste from meeting rooms that are combined into kitchen waste bags; food waste, consists of food waste from rooms, public areas, restaurants, kitchens, and there is waste from meeting rooms that are combined into kitchen garbage bags; spa, spa plastic bags are marked with unlabeled clear plastic bags, because waste from spa facilities is not the responsibility of hotel housekeeping.

Table 3 shows the largest total waste generation of 81.84 kg/day which comes from the public area, with the total waste generation at Aston Kartika Grogol Hotel obtained from each facility activity of 210.84 kg/day.

Table 3. Waste in the Hotel

Waste Source	Waste (liter/day)	Waste (kg/day)	Waste (ton/day)
Bedroom	548.42	36.19	0.036
Meeting Room	135.73	3.61	0.004
Public Area	454.70	81.84	0.026
Food loss	405.71	39.21	0.039
Food waste	474.66	45.39	0.045
Spa	146.94	4.60	0.005
Total	2541.76	210.84	0.21

Table 4. shows the percentage composition of hotel waste with the percentage of organic waste at Aston Kartika Grogol Hotel is 50%.

Table 4. Waste in the Hotel Ingredients

Waste Ingredients	Persentase
Organic	
Food Loss	13%
Foodwaste	36%
Total Organic	50%

The composition of organic waste is divided into food loss and food waste with a total recyclable organic waste of 882.90 kg, 100% of the total organic waste of Aston Kartika Grogol Hotel

can or should be recycled. The largest recyclable waste generation comes from organic waste amounting to 882.90 kg with 100% potential for recycling. Those food waste and food loss may be derived from pre-kitchen, kitchen and post-kitchen stages (Salsabila et al., 2023).

Conclusions

The composition of waste generated by Aston Kartika Grogol Hotel is 50% organic waste with a recycling potential of 100%, and 50% inorganic waste.

The composition of organic waste at Aston Kartika Grogol Hotel in the form of food loss comes from restaurants, kitchens and there is waste from meeting rooms that are put together in kitchen trash bags as much as 13%. For food waste, Aston Kartika Grogol Hotel comes from the rooms, public areas, restaurants, kitchens, and there is waste from meeting rooms which are combined into kitchen waste bags as much as 36% of the total hotel waste.

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