

Green Hotel Management Implementation with Waste Liquid Use to Reduce Clean Water Use at Hotel Vila Ombak Gili Trawangan Lombok

Adam Malik ^{1*}, Gede Ginaya ², I Nyoman Rajin Aryana ³

¹ Study Program of Tourism Business Management, Department of Tourism, Politeknik Negeri Bali

² Study Program of Tourism Business Management, Department of Tourism, Politeknik Negeri Bali

³ Study Program of Tourism Business Management, Department of Tourism, Politeknik Negeri Bali

*Corresponding Author: bakong69@gmail.com

Abstract: This study aimed to determine the implementation of Green Hotel Management by utilizing liquid waste to reduce the use of clean water at Hotel Vila Ombak Gili Trawangan. To find out how significant the efficiency of implementing Green Hotel Management with liquid waste is to reduce the use of clean water at Hotel Vila Ombak Gili Trawangan. Data collection methods are observation, documentation, structured interviews, and literature study. The analysis techniques used in this research are univariate analysis and simple linear regression analysis. The results showed that Hotel Vila Ombak Gili Trawangan had implemented the concept of Green Hotel Management. This can be seen in treating waste, using environmentally friendly products, even treating waste, and using clean water efficiently. Based on the linear analysis of wastewater treatment analysis, it is predicted that clean water efficiency can be as much as 95%. It can be seen from 50 m³ of treated waste producing 47.5 m³ clean water. Based on the analysis using the product moment formula, it is known that there is a correlation between waste treatment and clean water efficiency and that they obtained a value of $r = 0.336$ in the low category. Waste treatment at Hotel Vila Ombak is very good and has a positive impact, especially on the surrounding environment. The first impact is that it does not damage the surrounding environment because the waste is treated properly. Second, it can reduce the use of clean water.

Keywords: green hotel management, sewage treatment, clean water efficiency, the impact of waste treatment, Gili Trawangan

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Introduction

The hotel industry has an important role in developing the tourism industry sector (Wiyasha, 2007; Bagyono, 2014). Judging from the economic benefits of the hotel industry, it can be said that this industry has a fairly strong role in the economy (Handra, 2014). The hotel business is growing rapidly to the point where each hotel must compete fiercely to continue to grow and develop. The competition starts with various services and complete facilities, even from the various rates offered (PERMENPAR No.PM.53/HM.001/MPEK/2013).

The hotel industry has become one of the industries that can develop an area's economy (Murti, 2017). However, along with the development of the hospitality industry, various conflicts come from the community. One concerns the negative environmental impact of the hotel's construction (Kates et al., 2016; Soemarwoto, 2003). This leaves the government with two choices: increase local revenues or save the environment. The hotel industry significantly impacts the surrounding environment (Murti & Rofi, 2017; Putra, 2019). This can be seen from the energy consumed and water needs, which are quite high. The water needs in hotels are many times greater than the water needs in ordinary households (Jaya, 2004). The growth and development of various hospitality businesses, especially in urban centers and tourist areas, will produce various wastes, one of which is liquid waste. The liquid waste must be treated according to its characteristics to keep the environmental conditions clean and healthy. The fast-growing hotel business has resulted in increased pollution from year to year. Liquid waste originating from hotels can be classified as domestic or household waste. However, the difference is that the amount of waste that comes from hotels is much more

than the amount of waste that comes from households. Therefore, it is necessary to make and develop an effort to overcome or reduce these activities' negative impacts (Kencanawati, 2016).

Improper treatment of liquid waste will negatively impact the environment and give the impression of being dirty, slumbering, and having a strong stench. If that happens, there will certainly be no guests who want to stay at the hotel. Suppose all liquid waste generated from various activities, including hotel activities, is disposed of directly into water bodies or only discharged directly into the ground without being treated first. In that case, this will cause pollution to water bodies and soil. As a result, groundwater is no longer suitable for consumption, and the soil may no longer be fertile. Hotel liquid waste can also be inundated, causing a foul odor and disturbing the surrounding community's comfort.

In Gili Trawangan now, the population is dense, starting from residents and people who work in hotels, restaurants, and tourists who come every day. The more people on a small island, the more liquid waste is inevitable and can pollute the environment around the island (Utami, 2013; Jaizuli, 2020). If this liquid waste is not handled or treated properly, environmental pollution will be very bad. Seeing the conditions faced today, which are full of pollution, it is not easy to obtain clean water, especially around tourist areas, especially in Gili Trawangan, Lombok (Azizah, 2013). If the best solution is not found, the area will no longer be able to find clean water or clean water sources.

Method

The research was conducted at Vila Ombak Hotel, located at Gili Indah Village, Pemenang District, North Lombok Regency, West Nusa Tenggara. The research object in this study is "Implementation of Green Hotel Management by Utilizing Liquid Waste to Reduce Clean Water Use at Hotel Vila Ombak Gili Trawangan Lombok".

The variables in this study can be divided and identified as independent and dependent variables. The independent variable in this study is (X), while the dependent variable in this study is (Y). According to Sugiyono (2016:39), the dependent variable is a variable that is influenced or the result of an independent variable. The dependent variable in this study is the use of clean water, which later, after the utilization of liquid waste, the use of clean water can be reduced or more efficient. While the independent variable is a variable that affects or is the cause of the change or the emergence of the dependent variable (bound), the independent variable in this study is the use of waste, namely by utilizing residual materials from residential and industrial activities that use water as raw material and have a characteristic that is determined by the physical, chemical, and biological characteristics of the waste.

The primary data collection was carried out at the Lombok Public Health Laboratory by examining the sample for residue parameters (TSS), PH, BOD, COD, ammonia, oil, and fat would be compared with PERMENKES No. P.68/Mnlhk/Setjen/Kum.1/8/2016. There are two types of data used in this research, qualitative and quantitative. Qualitative data is data in the form of sentences or words so that it is not in the form of numbers (Siregar, 2017). Qualitative data in this study is from observations regarding liquid waste treatment at the Vila Ombak Hotel, Lombok. Quantitative data is data in the form of numbers (Siregar, 2017). Quantitative data is obtained from questionnaire data given to guests who receive reception services. Quantitative data can be processed or analyzed using statistical calculation techniques.

The data sources used are primary data sources and secondary data sources. Primary data is collected by individuals or an organization directly or as original data or first-hand information. The primary data in this study is data from observations and documentation. Secondary data is obtained from previous studies and published by various agencies, usually in pre-existing journals and research. Secondary data is obtained through the engineering department's organizational structure.

In obtaining the data needed in this study, there are three methods for data collection. The first uses the observation method. This method collects data by observing directly at the research site, such as the wastewater treatment plant (WWTP) at Hotel Vila Ombak. This is done to determine how the aeration method works for wastewater treatment. The second uses the Documentation method. This method is done by looking for data about things or variables through notes, books, newspapers, magazines, or the internet. Documentation studies are complementary to the use of the observation method in qualitative research. The third is by interview. An interview is an activity carried out to obtain information directly by asking questions about the problem being studied, namely the implementation of Green Hotel Management to reduce the use of clean

water. Interviews were conducted with the Chief Engineering and Finance Controller to strengthen the research data further. In this study, the authors used several data analysis techniques as follows. The first is univariate analysis. The data obtained from the laboratory examination of wastewater quality were descriptively analyzed using a table, then compared with the quality standards of domestic wastewater according to PERMENKES No. P.68/Mnlhk/Setjen/Kum.1/8/2016, described in the form of a narrative, and a conclusion was reached. The second is simple linear regression analysis. This analysis is used to determine the type of relationship between the variables studied. The simple regression equation X against Y is as follows:

$$Y = a + bX$$

where:

Y = Dependent Variable (Clean water consumption/predicted value)

X = Independent Variable (Waste utilization)

a = Constant number (Y if X = 0)

b = Regression coefficient (value increase or decrease)

Result and Discussion

Implementation of Green Hotel Management by utilizing liquid waste to reduce the use of clean water at Hotel Vila Ombak Gili Trawangan. Based on the results of field observations that researchers made, it is certain that the Vila Ombak Hotel in Gili Trawangan, Lombok, has implemented the concept of green hotel management since 2016. This can be seen from the cleanliness and how to treat the waste in the hotel. One example of the application of Green Hotel Management at Hotel Vila Ombak is processing kitchen waste, water treatment, and composting to keep the area clean. All Ombak Group hotels have committed to the environment by providing mineral water in-room glass bottles or refillable gallons of water at private villas, hotel composting systems, water-saving notices, programs to reuse sheets and towels, and replacement linen every three days for long-stay guests. The hotel encourages all guests to participate in this environmental program while staying at Hotel Ombak. The application of green hotel management of normality test is shown in Table 1.

Based on the results of research carried out at the Vila Ombak Hotel in the waste treatment carried out by the Vila Ombak Hotel, the following is presented in tabular form. The variables in this study, namely (X) variable for Waste Utilization (Treated Waste) and (Y) variable for the Use of Clean Water (Efficiency). Table 2 shows the data collected for 30 days of treated waste in the hotel. This can be seen from Table 2, the result of waste processing in April 2022. From this data, Hotel Vila Ombak processes around 904 m³ of monthly waste. Hotel Vila Ombak Gili Trawangan is implementing Green Hotel Management by utilizing liquid waste to reduce the use of clean water at the hotel. Waste treatment at Hotel Vila Ombak is very good and has a positive impact, especially on the surrounding environment. The first impact is that it does not damage the surrounding environment because the waste is treated properly. Second, it can reduce the use or use of clean water because treated water can be used to water the gardens in the hotel and can also be used for flushing toilets; thirdly, it can reduce the purchase of clean water. So the Vila Ombak Hotel's waste treatment has many advantages, including not polluting the environment and being able to streamline clean water and reduce water purchases because the processed waste can be reused optimally.

Table 1. Application of green hotel management of normality test

No	Concept of Green Hotel Management at Hotel Vila Ombak
1	Processing kitchen waste
2	Water treatment
3	Composting systems
4	Providing mineral water in-room glass bottles or refillable gallons of water
5	Water saving notices
6	Programs to reuse sheets and towels and replace linen every three days for long-stay guests

Table 2. Waste treatment daily report

Date	Processed Waste (m ³)	Clean Water Efficiency (m ³)
1	24	10
2	23	10
3	26	11
4	24	10
5	35	14
6	40	16
7	35	14
8	24	10
9	26	11
10	27	11
11	28	12
12	38	15
13	45	18
14	30	12
15	23	9
16	25	10
17	24	10
18	20	8
19	37	15
20	42	17
21	35	14
22	22	9
23	20	8
24	24	10
25	30	12
26	42	17
27	45	18
28	35	14
29	30	12
30	25	10

Conclusion

Based on the results of research on the implementation of Green Hotel Management with the use of liquid waste to reduce the use of clean water at Hotel Vila Ombak Gili Trawangan, the hotel has implemented it very well, so it is necessary to maintain and even improve the concept that the hotel has implemented because it will be able to increase the attraction of the hotel considering that it is one of the hotels with international standards. Always innovate, especially in implementing the concept of Green Hotel Management, and can utilize waste that can efficiently use clean water.

In addition to several advantages, several obstacles are still faced by Hotel Vila Ombak Gili Trawangan, related to licensing issues, which are difficult and expensive, making it difficult to process and dispose of waste. The technical constraints faced are also the salt content in raw water, which makes it difficult for bacteria to live, so waste treatment is not optimal.

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