

Implementation of Green Waste Management to Improve Hygiene and Environmental Health at Conrad Bali

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Abstract: The purpose of this study is to find out the implementation of green waste management and how the implementation of green waste management is conducted to improve hygiene and environmental health at Conrad Bali. Methods of data collection used are observation, interviews with key informants, and documentation. The data analysis method used is qualitative research through data reduction, data displaying and drawing the conclusion. The results of this study show that the Conrad Bali hotel has implemented green waste management with the 3R (reduce, reuse, and recycle) concept to improve hygiene and environmental health. Reduce includes visiting suppliers, reusing jerry cans for spices, collaborating with waste vendors, and avoiding the use of plastic waste during operations. Reuse includes the use of dispensers as a refill cleaning product, avoiding the use of single use materials, using plastic garbage bags for trash bins, using scraps of used cloth for cleaning equipment, and paper waste for writing and photocopying. Recycle includes processing organic waste into compost and non-organic waste into useful items. However, several things need to be considered, such as consistent waste sorting that needs to be done to make waste management easier, use environmentally friendly cloth bags instead of use plastic bags, pay attention to guests to reduce their use of plastic while on vacation to Conrad Bali, and continue to implement programs that related to waste management such as Beach Cleaning and Sustainability Food Festival Event.

Keywords: Green Waste Management, 3R Concept, Hygiene, Environmental Health

Informasi Artikel: Submission to Repository on September 2022

Introduction

The hotel industry certainly has a significant contribution to make in generating waste. If there are more visitors to a hotel, of course, the waste generated will increase. Conrad Bali is one of the 5-star hotels in Bali operates 24 hours a day and never stops producing waste. Green waste management which is waste management with the principle of reducing, reusing, and recycling (Hidayat, 2017) has been implemented by Conrad Bali to reduce the burden of waste on the landfill.

However, its implementation is still not optimal, during operation in restaurants, a landfill for solid waste (inorganic) and wet waste (organic) has been prepared. Some waste such as food scraps, paper, and bottles look not properly sorted and are still mixed. Sometimes the staff forgets to sort out the waste at the disposal site, this causes organic and inorganic waste to be mixed and will make it difficult later in the waste management process. Green waste management program must be maintained from the starting point of the waste being created which will maintain hygiene and environmental health around the hotel.

Green waste management is certainly very closely related to hygiene and environmental health. Hygiene and environmental health are important basic capital for human development because the quality of the environment will have an impact on the quality of human life itself (Mahirun & Kushermanto, 2021). The hospitality industry started by analyzing the need for waste reduction and they emphasized various new practices that could cut their waste disposal costs, protect and conserve nature and also increase guest loyalty. One of them is implementing an environmentally friendly waste management process. environment and return to using natural materials that do not damage the environment (Hanifah & Finzky, 2018).

Method

This research is located at Conrad Bali, which is located at Jl. Pratama 168, Tanjung Benoa, Badung, Bali. This research was conducted for 6 months, from March to July 2022. Data collection methods in this study are observation, interview, documentation and literature study. The types of data used in this study are qualitative data. Qualitative data is a type of data that is expressed in the form of words or sentences (Khosiah & Hajrah, 2017). The qualitative data used in this study are history, location, organizational chart, hotel products and facilities, the job description in the Food and Beverage Service Department, and the results of interviews with FB Manager and Outlet Manager regarding the implementation and success indicator of green waste management.

Data were collected through an interview with informant. Key informant also knows and understand the general conditions/phenomena in the community (Heryana, 2018). In this study, interviews were conducted with the FB Manager and Outlet Manager of the Food and Beverage Service Department. The sampling technique used is purposive sampling which is a sampling technique with certain considerations, for example, people, cases/organizations, events, and pieces of data. The research variable is an object that has been determined by the researcher to be studied in order to obtain information about the object. The variables used in this study are the 3R principle (reduce, reuse, and recycle). The data analysis technique used is based on the theory of Miles and Huberman such as data reduction, data display, and conclusion drawing and verification (Sugiyono, 2014).

Result and Discussion

Qualitative analysis is used to answer the first research question which is how the implementation of green waste management at Conrad Bali. Green waste management is an effort to manage waste to create zero waste conditions by applying the 3R concept such as reduce, reuse, and recycle (Ismi et al., 2020). Conrad Bali, which is one of the hotels that applies the green concept, in the waste management process, has implemented the 3R (reduce, reuse and recycle) concept. The implementation of green waste management at Conrad Bali is as follows:

Table 1. Data Tabulation of Implementation of Green Waste Management at Conrad Bali

| Green Waste Management | Description |
|------------------------|--|
| Reduce | Do supplier visit regarding product selection |
| | Use jerry can for spices |
| | Collaboration with waste vendor named Mekar Sari |
| | Avoid using plastic during operation |
| | Have pre order system and program named Clean Your Plate |
| Reuse | Use refillable cleaning products by using dispensers |
| | Avoided use single use materials |
| | Use plastic garbage bag for waste collection |
| | Reuse scraps of used cloth for cleaning tools |
| Recycle | Use 2 sides of the paper for writing and photocopying |
| | Process organic waste into compost |
| | Process non organic waste into something useful |

(Source: Processed data, 2022)

1. Reduce

In concept of reduce, Conrad Bali do supplier visit regarding product selection, this visit is carried out once a month by the F&B, culinary, and purchasing teams. The focus is to see how the product is sourced or the origin of the item, such as fish, whether it is caught using non-destructive nets. In the kitchen there are several products that use plastic or tumblers, which are required to use for hygiene purposes and use again to store food ingredients such as spices. Conrad Bali have a collaboration with Mekar Sari, one of the waste vendors for

picking up waste that has been sorted at the hotel and will later be sent to Surabaya, where plastic waste will be recycled into plastic seeds. Conrad Bali have avoided the use of plastic in restaurants during operations. Using paper straws when carrying drinks.



Figure 1. Picking Up Waste by Waste Vendor

Conrad Bali also provide take away cups and take away boxes made of paper for guests who want to bring their food and drinks to their room or to other places around the hotel. Conrad Bali also have pre-order, that the guests have their own preferences and can make food requests early. Food and Beverage Department will prepare what guests ask for and don't prepare everything, that later there will be no leftover food that ends up in the trash. Conrad Bali have a program which involves employees during break in the canteen called "Clean Your Plate", this program has the aim of appreciating food, taking only what is needed and if you don't need it, don't take it, it doesn't increase the production of waste later.

2. Reuse

In concept of reuse, Conrad Bali try to use refillable cleaning products by using dispensers, the process just refills them again at chemical dispenser, and then just have to take them from the faucet. Conrad Bali also use dispensers to serve drinks such as ice water, infused water, and chilled juice. For hot coffee, hot tea and hot milk for breakfast purposes will use jugs.



Figure 2. Dispensers for Ice Water and Juice

Conrad Bali have avoided use single use materials such as use paper straw instead of plastic. However, when deliver food to guests through room service, for the sake of hygiene and safety, when bringing it, staff have to cover it with plastic wrap, so that the food and drinks don't spill later and stay clean. And also, staff have been reminded to use cloth bags that can be used continuously. The waste collection process still uses the garbage bag, for now there is no solution not to use the garbage bag. In reducing waste, Conrad Bali must use a garbage bag for wet waste to avoid leakage, but for dry waste still in the process of not using a garbage bag, where the damaged linen will be processed again into a trash can.

Conrad Bali use again cloth that is no longer used, if it can't be cleaned anymore. In the back of the house, it will be used for cleaning tools. Restaurant bar also use scraps of used cloth for the doormat, because the AC water keeps dripping there, they have to use a used cloth to clean the water droplets that fall so they don't get

too wet. Conrad Bali use 2 sides of the paper for writing and photocopying. For office, if there are documents that are not used must be placed in the recycle bin, and will print them again using the second side. In restaurant, if there are documents that are no longer used usually will be used it to make captain orders, food disclaimer form, and food tags for buffets because it saves more cost.

3. Recycle

In concept of recycle, Conrad Bali definitely process organic waste into compost. Compost is the result of weathering organic materials such as leaves, straw, reeds, garbage, grass, and other similar materials whose weathering process is accelerated by human assistance (Sidabalok et al., 2014). For organic waste from the kitchen, Conrad Bali process some of it into eco enzymes, the manufacture of organic waste processing from the kitchen and even then, not all can be used as eco enzymes. In the sense that if it has been processed into food mixed with oil or with spices, it will not be able to become organic (eco enzyme). The leftover food from the restaurant that is not mixed with oil will later be processed into animal food.

For the non-organic waste process, such as plastic, Styrofoam, plastic bottles, tin cans, damaged cloth and used paper, Conrad Bali have already sorted and donated it to Suwung Community, later the craftsmen there will process this non-organic waste into something useful or can be used again such as apron. And also, Conrad Bali will send the non-organic waste later to the waste vendors who have been invited to cooperate, namely Mekar Sari. The waste that have disposed of in landfills will later be re-sorted by them, then sent to Surabaya, where non-organic waste, especially plastic waste, will be processed into plastic seeds.

Qualitative analysis is used to answer the second research question which is how does the implementation of green waste management improve hygiene and environmental health at Conrad Bali. Conrad Bali as one of the 5-star hotels that have implemented the green hotel concept is certainly very concerned about this with aim to reduce the impact of environmental damage caused by the development of the tourism industry. Green waste management is a concept of environmentally friendly waste management by applying the 3R concept, namely reduce, reuse, and recycle which is applied to the community is conducted to improve hygiene and environmental health.

Table 2. Data Tabulation of Green Waste Management Improve Hygiene and Environmental Health at Conrad Bali

| Green Waste Management | Description |
|------------------------|---|
| Reduce | Consistent efforts in reducing the amount of waste |
| | Requires assistance from the community itself for recycle process |
| | Cooperate with local market |
| Reuse | Maintain and repair equipment |
| | Do the right waste segregation |
| Recycle | Sorted waste is used to make new products |
| | Reduce the incidence of air pollution |
| | Donate unserved food and daily needs to those in need |
| | Waste Management |

(Source: Processed data, 2022)

1. Reduce

Based on the results of interviews, observations, and theories obtained in the journal, there are 3 things that conducted to improve hygiene and environmental health at Conrad Bali in terms of reduce such as:

a. Consistent efforts in reducing the amount of waste

The trend in the amount of waste also follows how many people are in the hotel, especially for guests. Because plastic waste is usually brought by guests when they order food and drinks from outside the hotel, and also raw materials that must use plastic for hygiene. Conrad Bali certainly have tried to reduce the amount

of waste such as plastic waste, food waste, and garden waste. The staff has been given awareness that it is better to bring cloth bags than crackle bags, leftover food that has been thrown away will be processed into animal food, and garden waste will process into compost. There are two parties must involve in its implementation, namely from the waste vendor and the hotel itself.

b. Requires assistance from the community itself for recycle process

There is Sustainability Food Festival Event, this event held by Bali Hotel Association by promoting the concept of sustainable and environmentally friendly and allow participating members to showcase the innovative work to a more sustainable way of operating, from improving skill levels of team member, to building new or improving existing relations with local supplier, and working on waste reduction action. The festival also focuses on reducing waste by composting, segregating recycling items, using sustainable materials by using product sustainability, and reduce the use of imported product, because imported product from have packaging and transportation to the hotel. This transportation also creates waste such as polluting waste, this event aims to use local transportation and local product.

c. Cooperate with local market

In the effort advocating responsible fishing, Conrad Bali sources the freshest sea catch only from local fisherman. Conrad Bali cooperate with local market such as the Kedonganan fish market. to increase the use of local products. In addition to empowering the surrounding community and it is also for waste management. Kedonganan fish market one of the fresh fish markets in Bali located at Jl. Pantai Kedonganan. This market is a center for buying fresh fish for all Balinese people such as red snapper, grouper, shark, squid, clam and mahi-mahi, either as a basic food ingredient or as a daily side dish. Beside as one of the landing and marketing places for fresh fish, also as a culinary place in the form of fish-based cafes, such as grilled fish, grilled shrimp, grilled squid and various other types of fish. In the effort advocating responsible fishing, Conrad Bali sources the freshest sea catch only from local fisherman.

2. Reuse

Based on the results of interviews, observations, and theories obtained in the journal, there are 2 things that conducted to improve hygiene and environmental health at Conrad Bali in terms of reuse such as:

a. Maintain and repair equipment

Conrad Bali also maintain and repair equipment to make it durable and function efficiently. Each department must check the work equipment used during operations, if there is any damage, this will be handled by Public Operation. Conrad Bali always check the hotel's equipment, if something is damaged will quickly record it and then will take it to Public Operation to be repaired, so that it can be reused, such as maintenance and repair of all installations, machine tools, buildings and other hotel facilities.



Figure 3. Restaurant Table Fixed at Public Operation

b. Do the right waste segregation

The staff need a process to provide education in order to reduce the production of waste, the key is to do the right segregation, Waste when it will be put in a container must already be separated between organic and non-organic waste (Suwarno, 2013). Example when operating at the restaurant, garbage storage for wet waste, dry waste and plastic waste have been prepared, the staff must remember in the waste sorting process to make it easier for waste vendors when picking up.



Figure 4. Garbage Storage

3. Recycle

Based on the results of interviews, observations, and theories obtained in the journal, there are 4 things that conducted to improve hygiene and environmental health at Conrad Bali in terms of recycle such as:

a. Sorted waste is used to make new product

Conrad Bali must ensure that sorted waste of organic waste and non-organic waste is used to make new products such as from organic waste is processing garden waste into compost. and turn the stems of plants into wood powder which can be used to hold the soil so it doesn't disappear during the rainy season. For non-organic waste such as plastic waste will be brought by waste vendor that Conrad Bali have collaborated with namely Mekar Sari, this plastic waste will be sent to Surabaya then converted into plastic seeds.

b. Reduce the incidence of air pollution

The efforts that have been made by the hotel in maintaining air pollution, such as Conrad Bali currently prioritizes the use of local products rather than imported products. If you use imported products, of course, you will incur more costs because there is packaging and transportation used to deliver the product. Conrad Bali also uses a vehicle called buggy car. In Front Office Department, this buggy car is used to take guests who have just checked in in the lobby to guest room which is quite far from the lobby, namely in the Suite Building. In Food and Beverage Service Department, buggy car is used for room service when delivering food and beverage to the Suite Building instead of using a trolley which will certainly waste a lot of time in delivery.



Figure 5. Buggy Car

c. Donate unserved food and daily needs to those in need

During the Sustainable Food Festival Event that held by Bali Hotel Association, Conrad Bali invited Bali Scholar of Sustenance to support the festival, providing options for participating hotels and restaurants to donate prepared, unserved food for better use. Conrad Bali donate unserved food such as scraps of fish or meat, pastries and donuts and daily needs such as rice, cooking soil, sugar, milk, fresh vegetable, fruits, nutritious meals and eggs.



Figure 6. Conrad Bali Donate Daily Needs and Unserved Food to Bali Scholar of Sustenance

For foods such as pastries and donuts that are not eaten will be stored in a cold chiller for hygiene before donating. For food such as scraps of fish or meat, it will be stored in hot chiller to keep it warm before donating.

d. Waste Management

Conrad Bali have a waste management activity with aims to educate the public, provide an understanding of the dangers of waste, and how they can reduce waste production. In organic waste, food leftovers will be disposed of in the wet waste container, later this leftover food will be processed into animal food. Conrad Bali have eco enzyme program for organic waste, this eco-enzyme can also be used in the composting process by placing it layer by layer in the soil. The eco-enzyme liquid itself can also be used as chemical such as a very effective floor cleaner for cleaning floors, a disinfectant that can be used as an anti-bacterial in the bathroom, and an insecticide used to eradicate insects by mixing enzymes with water and used in the form of spray (Dewi et al., 2021).

In non-organic waste will be re-selected and recycling by waste vendor that is Mekar Sari. Plastic waste will be recycled back into plastic seeds so that it can be reused to make new products. Used cooking oil from kitchen will be processed into biodiesel by PT Lengis Hijau. Biodiesel is a fuel promising alternative, friendly environment, has no effect on health that can be used as fuel motorized vehicles that can reduce emissions when compared to diesel oil. Biodiesel can be used pure or mixed and specifically for diesel engines. Biodiesel is used to reduce diesel consumption (Devita, 2015).

Conclusion

Based on the results of the analysis and discussion regarding the implementation of green waste management to improve hygiene and environmental health at Conrad Bali, it can be concluded that Conrad Bali has implemented the 3R (reduce, reuse and recycle) concept which is do supplier visit and choose the product that do not use plastic. Conrad Bali have a collaboration with waste vendors for picking up waste and have a program to minimize the production of waste called "Clean Your Plate" and have pre order system. Conrad Bali using refillable cleaning product by using dispenser, reuse scraps of used cloth for cleaning tools and doormats, paper waste for writing and photocopying in the office.

Organic waste from garden and kitchen will be process into compost and in organic waste will be recycling by waste vendor. All the staff must have consistent efforts in reducing waste and requires assistance from the community itself, educate the public how to manage household waste. Conrad Bali always maintain the hotel's equipment, giving awareness to staff to do the right waste segregation, ensure that the waste is used to make new products and this implementation has to reduce the air pollution. Conrad Bali donate unserved food to those who need and have waste management activity with aims to educate the public how they can reduce waste production.

Acknowledgment

The author would like to thank all the staff Food and Beverage Service Department of Conrad Bali who have been willing to help support the provision of the data needed in this research, and the reviewers from State Polytechnic of Bali for their help in reviewing this article.

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