The Implementation of Zero Waste Concepts in Operational Six Senses Uluwatu, Bali

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ABSTRACT

Waste generation in Bali has increased, it is because the waste generated is not managed properly. The impacts of this phenomenon affected climate change, such as loss of biodiversity, climate, growth of water and soil, pollution, deforestation, and waste of re-sources and materials from productive uses. The purpose of this study is to determine the implementation of the zero waste concepts in Six Senses Uluwatu, Bali. This study uses a qualitative descriptive method, conducted based on four scopes of application of the zero waste concepts; management, economic, organizational, and regulatory policy. Researchers use participatory observation, interviews, and documentation for the same data source simultaneously. This research uses the triangulation method which also tests the credibility of the data. The results of this study indicate that the implementation of zero waste concepts has reached 78 percent in accordance with company guidelines owned by Six Senses Uluwatu, Bali. The improvement of storage & separations indicators, recycle & disposal indicator, and human resources indicators on maintaining the provision of training program to the staffs are needed to carried out the waste management inside the resort. Action plans are needed to increase the percentage of zero waste concept implementation in operational at Six Senses Uluwatu, Bali which can be improved on compliance & monitoring indicators.

1. INTRODUCTION

Indonesia is one of the popular tourism destinations, as well as tourism, is one of Indonesia's biggest incomes. However, tourism generates a lot of waste, especially in tourist areas with a lot of seasonality, making waste management in the tourism business more difficult (Khan & Johl, 2019; Kumar, 2005; Mohan et al., 2017). In tourism, waste varies seasonally and is frequently generated in multiple congested places, putting a strain on waste management facilities, particularly during peak season, which has an impact on re-sources in addition to waste generated. Although waste generation in tourism and hospitality is unavoidable, there are techniques to limit it and manage it, lessening the negative environmental effects of waste disposal (Bartl, 2014; Hamid et al., 2020). Accommodation waste is comparable to mixed household waste in that it contains a wide mix of elements, including organic and toxic materials (Frleta & Zupan, 2020; Sujaï & Juwana, 2021). As a result, waste control is critical in the tourism industry.

As a popular tourist destination, Bali’s tourism sector is always growing rapidly, including the provision of accommodation. With the development of accommodation, especially in hotels, the number of tourists visiting Bali is increasing every year. Base on previous study found that arrivals of international tourists to decreased 99.97% compared to the record for the same period last year but increased by 183.02% compared to the previous month (month to month/mtm) (Astuti et al., 2019; Iwayan & Utama, 2016). This has an impact on increasing the number of guests, it can increase the need for re-sources and waste generated.

Waste generation from 2020 has increased in 2021, especially in Badung regency, where Six Senses Uluwatu, Bali is located. It shows that the volume of waste has increased. Waste is more often regarded as useless goods by society and even industry. This is a false understanding if people comprehend and recognize that waste has a price, but it can also affect the environment. The impacts of climate change, such as loss of biodiversity, climate, growth of water and soil, pollution, deforestation, and waste of re-sources and materials from productive uses, are widely accepted (Nizar et al., 2018; Rojas et al., 2021). Therefore, if the waste generated is not managed properly, it can cause environmental pollution and cause unpleasant
odors, so it can trigger the emergence of disease vectors. This is also related to the hotel industry, which provides accommodation services and provides food and beverage services.

Regarding the problems above, to be able to manage these resources and waste, a system is needed for processing and utilizing waste that can later be carried out optimally, so that it can be useful for operations, guests, and hotels. This is very necessary for competing and adapting to the progress of the tourism sector, especially hospitality, so the hotel management is required to be able to make innovations and applications in solid waste management to maximize the operational performance of all departments in a hotel (Radwan et al., 2012; Sujai & Juwana, 2021). Six Senses Uluwatu, Bali has committed to sustainability, which includes the elimination of plastic in all departments, organic gardens and farms, locally sourced ingredients, an on-site water bottling plant, food composting, water recycling using environmentally friendly chemicals, and other initiatives, as well as the commitment to zero waste.

Based on Zero Waste International Alliance, zero waste is the conservation of all resources, such as responsible production, consumption, reuse, and recovery of products, packaging, and materials (Jarman-Walsh, 2019; Matete & Trois, 2008). Using industrial symbiosis, recycling, or “up cycling,” the zero-waste goal is to use and consume resources within a circular economic model with little environmental damage, based on the “no-waste” principle from nature (Burlakovs et al., 2018; Ezeah et al., 2015; Hamid et al., 2020). The circular economic model, according to the Zero Waste International Alliance is a restorative industrial economy in which material flows are divided into two categories: biological nutrients that are meant to safely re-enter the biosphere, and technological nutrients that are meant to be recycled (Ernawati et al., 2020; Hottle et al., 2015; Pletzsch et al., 2017). Base on that problem the researcher interested in conducted research with aims to analyses the implementation of the zero-waste concept in Six Senses Uluwatu, Bali.

2. METHODS

The data type that used in this research is qualitative data. Qualitative data is the data in the form of words, sentences, charts, pictures, and photos, where the research data is more related to the interpretation of the data found in the field (Sugiyono, 2013). Qualitative data in this research are history, location, organizational chart, hotel products and facilities, the job description in the operational department data, especially their Head of Department (HOD), and the results of interview. This research uses the triangulation method, where the data collection technique combines various data to obtain data from the same source collection techniques and existing data sources, which also tests the credibility of the data. Researchers use participatory observation, interviews, and documentation for the same data source simultaneously.

3. RESULTS AND DISCUSSIONS

The Implementation of The Zero Concept in The Scope of Management

Currently, the actions taken by Six Senses Uluwatu, Bali to support zero waste in waste prevention is to collaborate with third parties, especially the local community. As for items that are resell to third parties, those are local communities and vendors, there are used cooking oil which will then be processed into biodiesel. Therefore, there is also take-back program with vendors for containers for chemical, room supplies, and bottles. In addition, there are actions carried out between internal departments, namely exchanges. The items that are exchanged with internal departments are OO (out of order) linen from Housekeeping that used as tote bag, coffee grounds from Food & Beverages and Spa departments that used as natural fertilizer for the organic garden, and unused paper obtained from administrative activities that used as recycled paper.

In addition, in an effort to prevent and reduce waste, Six Senses Uluwatu, Bali also makes its own mineral water. This is included in zero disposable gear (i.e., no plastic water bottles/cutlery, food containers, disposable cups and plates, etc.). This effort is carried out by reducing the use of plastic bottles which are one of the sources of waste that cannot be exposed. This policy applies to both employees and operations to guests. Six Senses Uluwatu, Bali uses the Reverses Osmosis system (RO), where this system is the manufacture of water using several stages of filtration to filter groundwater and rainwater that is accommodated. The mineral water from this RO treatment will be put into a glass bottle with the Six Senses logo, which will be distributed to guest rooms and restaurants. Then, for employees, the resort through the Sustainability department appeals to all hosts to use a tumbler or a reusable drinking bottle. Hosts or staffs can refill their drinking water at the drinking water station. Reverse of Osmosis system is show in Figure 1.

The implementation of sustainable consumption at Six Senses Uluwatu, Bali starts from ordering according to operational needs. All departments at Six Senses Uluwatu, Bali required to be selective in choosing vendors that support the concepts of sustainability and zero waste. The vendors who are invited
to cooperate should support the sustainability guideline in Six Senses Uluwatu, Bali, such as to reduce packaging made from plastic that can produce waste. Recycle is one of the waste management actions to manage the waste that has been generated. Six Senses Uluwatu, Bali implements the recycle program as an effort to realize the zero-waste program in supporting sustainability in its operations.

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Figure 1. Reverse Osmosis System

The Implementation of The Zero Concept in The Scope of Economic

Regarding to economic cost, the benefit of zero waste concept implementation toward cost/budget in overall reduces the budget spent. However, for some other departments, such as Housekeeping, the budget spent is more expensive for guest amenities, because it prioritizes materials that can be recycled and reduces plastic. For example, shaving kit using wood as materials costs IDR 18.000/pcs, meanwhile the basic shaving cream that used plastic as the materials costs IDR 7.000/pcs. However, simultaneously, the benefits of implementing zero waste towards operations can be felt at the end of the process or when the waste is generated. Where, less waste is generated, so it does not cause waste to landfill and saves the space needed for waste management. In other words, the hosts or staffs acknowledge that benefits from zero waste implementation are not obtained directly through benefits in the form of budget emphasis. The application of zero waste gives impacts in nature conservation.

The zero-waste implementation also implemented in the scope of administration operation, which all departments at Six Senses Uluwatu, Bali encouraged for the use of recycled paper and black ink. The internal administrative activities suggested to use of paper is used back and forth or both sides of the paper, and the use of black or colorless ink to print paper. The goal is to paper savings and reduce the cost of colored ink which is more expensive than black ink. Nevertheless, under some circumstances such as administrative activities involving external parties, such as new staff employment contracts and papers to be given to guests, the administrative operation used new paper and colored ink if needed.

The application of zero waste in operations at Six Senses Uluwatu, Bali has been implemented by all departments. This is related to the management of waste produced and its effect on revenue. The impact of the implementation of zero waste in operations on revenue in Six Senses Uluwatu, Bali is that the application of zero waste provides additional revenue. This revenue is obtained from resell activities carried out with third parties or local communities for used cooking oil. The sale of used cooking oil generates additional income. The cooking oil collected is in the form of jerry cans (liters). Then, the cooking oil will be purchased by the local community to be processed into biodiesel. Biodiesel fuel can also be used without alterations, usually in boilers or diesel engines. The lubricating properties of biodiesel can extend engine life. The revenue is used for the maintenance of other sustainability activities, since the sustainability department that led by Sustainability Manager that in charge for the resell process with local community, namely Lengis Hijau. Cooperation with Lengis Hijau is show in Figure 2.

The Implementation of The Zero Concept in The Scope of Organizational

In zero waste implementation, Six Senses Uluwatu, Bali supports the zero-waste program by providing supporting facilities. There is a waste sorting facility to sort out the types of waste generated from operational activities and waste generated by guests. The resulting waste is then processed, which in its
management, the resort establishes cooperation with the local community to process waste that cannot be processed in the resort. Meanwhile, waste that can be managed inside the resort will be processed at Earth Lab, which is one of the facilities in the resort managed by the Sustainability department. Guests who stay can also participate in sustainability activities provided free of charge, the goal of which is to build sustainability awareness, especially zero waste, to guests through sustainability activities.

Figure 2. Cooperation with Lengis Hijau

Six Senses Uluwatu, Bali also facilitates its employees to understand the program and implement the concept of zero waste. The provision of training is the initial foundation as well as one of the programs carried out to realize the implementation of zero waste in operations at Six Senses Uluwatu, Bali. Training programs related to zero waste are divided into two, namely offline and online. Meanwhile, the resorts also facilitate employees with offline training which is carried out directly at the resort. This activity is carried out during the first day of orientation day for new hosts/staff. Training is also given periodically to all hosts or staffs with certain divisions. Within 6 (six) months there is no new hosts, Training Manager usually plan to do training again at least every 3 (three) months to refresh for hosts who have joined for a long time, which is the last two to three years. The process of offline training is show in Figure 3.

Figure 3. Offline Training

The Implementation of The Zero Concept in The Scope of Regulatory Policy

Zero Waste Audit is a reporting activity that must be carried out by all departments. This guideline contains the provisions, processes, and formats that must be filled out by each department head, which will then be compiled and submitted to the Sustainability Manager for audit by the company. Sustainability Champion/Manager and Engineering team will execute The Zero Waste Audit in one month, which aimed to the development of the Zero Waste Materials Management Program. The purpose of Materials Waste Audit is going to aid in planning of the approach for getting to zero waste in materials. This audit activity is carried out monthly with format provided by the corporate.

The Zero Waste Materials Management guideline sets the groundwork for getting to zero on material waste. Compliance is mandatory and while initial development, implementation and management of the Zero Waste program is the responsibility of key team members, it is expected that all staffs are accountable for the realization of this aspiration. The Zero Waste Materials Management guideline contains
an overview of zero waste, materials (such as plastic, Styrofoam, organic waste, linen) that have the potential to be opportunities and challenges in the zero-waste program.

Waste Composting guideline sets the groundwork for establishing a composting program which uses all the food and landscaping wastes created on Six Senses properties, which explains the sorting of waste that can be composted, composting methods, and what materials cannot be composted, such as bones, fat, and glossy paper, because it is related to hygiene and quality of the compost produced. In addition, there are several resources that are limited in use in operations because those are not sustainable for the environment. Restrictions on some of these resources are also written in the guidelines. In this case, there are "18 Most Unwanted Items", there are objects that are sought to replace plastic with other alternatives. Figure 4 shows that the usage of targeted several items has been decreased.

![Figure 4. 18 Most Unwanted Items](image)

Monitoring system

The monitoring system can be used for decision making that will be used to manage policies derived from correct data/information. The monitoring system can make it easier to measure actual data and target data. Monitoring is mandatory for all Six Senses Resorts & Spas. The monitoring is carried out every month by the corporate after conducting an audit and the results of the assessment. Post-audit ongoing monitoring and measuring materials waste will require reporting on a monthly basis.

However, the monthly reports will be much more general than the detailed Material Waste Audit guideline outlined. From the audit results, monitoring will be carried out to analyze challenges and opportunities along with action plans to improve the implementation of zero waste in operations. As for the results of the monitoring carried out until April 2022, it was noted that the implementation of zero waste in operations at Six Senses Uluwatu, Bali has been running around 78 percent in accordance with the company's guidelines. This is still being evaluated and made action plans to achieve better numbers. The biggest challenge for resorts today is to reduce and replace resources made from plastic to eco-friendly resources according to 18 Most Unwanted Items.

Discussion

The important purpose for correct waste management is to guard the surroundings and the health and safety of the populations. Waste management as a process by which wastes are accumulated, transported and processed before disposal of any remaining residues (Amasuomo & Baird, 2016; Bartl, 2014; Pakpahan, 2021). Waste management refers back to the disposal of waste from generation to disposal. Waste generated should be controlled via way of means of reuse, recycling, storage, treatment, and/or disposal (Balwan, 2022; Piippo et al., 2014; A. U. Zaman, 2017). Waste avoidance is one of the
pinnacle control techniques in waste hierarchy. However, it is challenging to measure the waste avoidance from the waste movement. The amount of waste avoidance at the sooner stage of the consumption system cannot be effortlessly measured due to the fact the amount might now not exist within the waste streams. (Hamid et al., 2020; A. U. Zaman, 2014). Waste avoidance is closely related to how to reduce the waste generated. This is in accordance with what was suggested that “reduce” refers to the reduction of harmful, wasted and non-recyclable materials in order to avoid unnecessary use of resources (Balwan, 2022). “Reduce” also means deliberately shopping and focusing on the needs (Dileep, 2007; A. U. Zaman, 2015).

The zero waste concepts recognizes that the current linear economic model which is based on consumer culture is not sustainable. Thus, an alternative economic model such as a circular economy model is needed to promote sustainable consumption, material cycle, and environmental conservation. A circular economy is an economy that has a positive impact on the environment. The costs of resources and materials used in a circular economy differ from values in a linear economy in that they collect, produce, consume, and dispose of as much as possible (Frela & Zupan, 2020; Khaw-ngern, 2021). Zero waste defines waste as a substance that can be changed, thus preferring the reuse of resources over incineration and disposal. Therefore, the term of “circular economy” appeared, where the main principles are “saving the products and materials used”. This is closely related to zero waste approach, such as reusing or recycling the waste materials to new products instead disposal (Sujai & Juwana, 2021; A. Zaman, 2022). Moreover, replace the single-use materials to reusable materials also could reducing waste generated. This action could save production costs and resource spending is maximized.

Organizational is related to the management. Transformational self-awareness and cognition are often created to motivate ways to change the relationship to environmental health decisions. Therefore, in order to perform of zero waste implementation, the zero waste programs (transformative knowledge) provide proactive support strategies to facilitate responsible behavior and sustainable resource consumption. Practical training and knowledge sharing programs (short-term and long-term) behavioral changes need to be organized, since there is a lack of education about the zero waste affects effectiveness of the implementation of the zero-waste program (Hamid et al., 2020; A. U. Zaman, 2017).

Apart from the procurement of training as a form of zero waste application in operations within the organizational scope, the data collection and reports also have a big role. Training is an activity carried out for the development of human resources in an organization. Meanwhile, data collection is one of the mandatory things to do for the development of the organization's business. Data is the most valuable asset of a business (Vasarhelyi, 2017; A. U. Zaman, 2014). In the implementation of zero waste, a reliable waste data is important for assessment and policy development and decision-making processes. Lack of reliable waste data can lead to incorrect predictions of waste performance. Therefore, companies should prioritize a central waste data collection system to collect this information on a regular basis.

Zero waste governance policies are essential to guide and promote zero waste practices in all sectors of society, that should encourage recycling activities by creating waste recycling jobs. Thus, it contributes to the growth of a circular economy. Therefore, zero-waste assessment and assessment tools are important for evaluating zero-waste systems in terms of economic, social and environmental performance (Ardhanaputra et al., 2019; A. U. Zaman, 2015). Six Senses Uluwatu, Bali implemented the zero waste concepts in the scope of regulatory policy through the guidelines that made by corporate office as well as the monitoring system. The guideline is a rule agreed upon by the entire Six Senses. Then, the guideline must be understood and applied by all hosts and staff in their operations, where the application of this guideline will be evaluated through monitoring.

Indicators of storage & separations and recycle & disposal must be improved. Thus, the waste management can be carried out inside the resort. This is also accompanied by maintaining the provision of training to all staff which is improved on human resources indicators, namely training programs related to zero waste training. Furthermore, an action plan is needed to increase the percentage of zero waste concept implementation in operational at Six Senses Uluwatu, Bali which can be improved on compliance & monitoring indicators. The plan to refresh trainees should be carried out, because it will support the understanding of staff and the implementation of the zero waste concepts.

4. CONCLUSION

The implementation of zero waste concept in operational at Six Senses Uluwatu, Bali has been applied to all departments, but there are still several things to consider in achieving the concept of zero waste, such as plastic waste carried by guests and hazardous waste that cannot be managed at the resort. The implementation of zero waste concepts is more widely applied in the Sustainability department, because this department is responsible for conducting all other departments to implement sustainability in operations in accordance with corporate guidelines. Thus, there are several things that need to be
considered in achieving the full implementation of the zero waste concepts, such as plastic waste brought in by guests and hazardous waste that cannot be managed at the resort, which is managed in collaboration with the local community.

5. REFERENCES


