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## THE IMPLEMENTATION OF ZERO WASTE AND SUSTAINABILITY IN ROCKSALT BEACH CLUB BATAM

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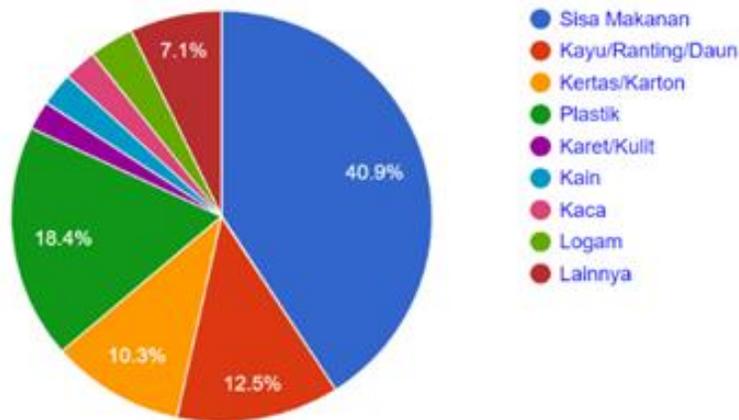
**Abstract:** *The ongoing industrial activities including tourism industry can cause ecosystem destruction damage. The primary objective of this study is to analyze how these practices are integrated into the bar's operations and to assess their effectiveness in managing waste and promoting sustainability. Zero waste is an initiative move that taken by individuals or groups in order to reduce the amount of waste produced every day. It has been estimated by the National Waste Management Information System that 40.9% of the waste produced comes from food waste. This research employs qualitative research methods, including comprehensive observations, direct interviews, and the integration of data obtained from a variety of reliable sources. Rocksalt Beach Club serves as an exemplary case study due to its commitment to environmental sustainability and innovative waste reduction techniques. The successful application of zero waste principles such as reduction, reuse, recycling, and composting within the bar's operations. By incorporating these practices, the restaurant not only minimizes waste but also fosters a culture of responsibility and care towards both local and global communities. This research aims to analyze the methods used in order to approach to waste management that can lead environment benefits to achieve zero waste and sustainability at Rocksalt Beach Club.*

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## INTRODUCTION

The continuation of industrial activities can cause environmental damage, especially in the tourism industry. Additionally, pollution from domestic tourism activities can hinder efforts to control environmental pollution, highlighting the need for studies to examine this issue and assess its impact on sustainable waste management (Hamad et al. 2021). The tourism industry sector, especially hotels and restaurants, is one of the largest contributors to waste. This sector's operations had a vast number of guest and services and a wide types of waste. The restaurant industry stands out as a major consumer of water and energy, and

it generates a wide variety of waste and by products (Tehrani, Fulton, and Schmutz 2020). Due to the large number of the waste, hotels and restaurant are struggling on how to implement waste management practice which can save environmental contamination.



**Figures 1. Waste Composition Based on Type of Waste**

According to National Waste Management Information System data stated that food waste ranks first among various types of waste, with a figure of 40.9%, and plastic ranks second with a figure of 18.4%. The Deputy Chairperson of the Generasi Baru Dapur Indonesia (GBDI) Foundation, Fahrur Rosidi, described that the food service sub-sector often leaves 5-15% of excess ready-to-eat food. Meanwhile, event food service leaves 10-15% of prepared food uneaten (Mediana 2022). Because restaurants do not have signage with a similar message pushing visitors to act morally and educate themselves on food waste (Zrnić 2022).

Batam City Central Statistics Agency (Badan Pusat Statistik 2020) stated that the population of Batam City reached 1,916,396 people. The Government of Batam City strives to decrease the amount of waste production in Batam City. The waste transported to the Telaga Punggur Final Disposal Site reaches 900-1000 tons per day. The Secretary of the government of Batam City, Jefridin Hamid (Allifia 2023), stated that poorly managed waste issues will pose dangerous symptoms for the surrounding community.

Zero Waste is the next step of saving the earth from pollution. In general, zero waste does not mean completely eliminating waste, but rather reducing it. Given the continually increasing amount over time, it is impossible to eliminate it entirely. Additionally, zero waste can be understood as an activity adopted by individuals or groups with the goal of maximizing the use of raw materials or tools to minimize waste. The implementation of sustainable used the concept of zero waste, which includes the 5Rs: Refuse, Reduce, Reuse, Recycle, and Rot. For instance, used bottles can be recycled, leftover fruit can be used as garnishes, and waste that is difficult to repurpose can undergo the process of decomposition (rot) to become compost.

Sustainability can be defined as ensuring well-being over an extended, potentially indefinite period. In executing a sustainable tourism policy, stakeholders hold a vital role, as they both affect and are affected by the activities of other tourism organizations. Their interconnections are crucial for embedding sustainability within the tourism industry

(Malheiro 2020). Regarding to the problem to resolve the matter of waste a system should be implemented through the operation. The implementation of zero waste and sustainability is not just about following the “sustainable” trend. This implementation is expected to raise awareness among individuals or groups to have living standards that prioritize the surrounding environment, such as reducing the single use plastic and implement the sustainable process by recycling and reduce. However, in reality, many individuals still perceive that the implementation of zero waste and sustainable bartending activities is unprofitable, as stated above. If the amount of waste continues to increase, it will damage the environment. Additionally, accumulated and untreated waste can lead to disasters such as floods that can disturb the ecosystem. The implementation of zero waste is not only to have a proper waste management but also maintaining cleanliness and sustainability as a part of hygiene.



**Figures 2. Rocksalt Beach Club**

5 minutes away to Batam Landmark – Barelang Bridge I, under the auspices of Harris Resort Barelang. Located near the beach, Rocksalt Beach Club is one of the food and beverage outlet with minimalist design and semi outdoor concept. It’s an ideal venue to celebrate a special occasion such as birthday party, barbeque dinner, romantic dinner, or even a family dinner. Rocksalt Beach Club provides a special fresh western cuisine that can be paired with a great beverage selection. Starting from 2023, this restaurant serves drinks through a bar with the aim of implementing the sustainability concept. To facilitate the implementation process of zero waste and sustainability following the appropriate concept, Rocksalt Beach Club must first have the right approach on how to implement zero waste and sustainability in the operational process. Through Ascott Cares Sustainability and their commitment to environmental sustainability and the implementation of innovative waste reduction techniques, such as the zero-waste approach like reduction, reuse, recycling, and composting in its bar operations. Futhermore, Rocksalt Beach Club is supported by a spacious outdoor area that allows them to engage a gardening activity to support one of the indicators of zero waste. Therefore, the researcher is interested in conducting order to analyses the implementation of zero waste and sustainability at Rocksalt Beach Club Batam.

## RESEARCH METHODS

The methodology that was used in order to approach this study is a qualitative method, which focuses on explaining descriptions related to the phenomenon being studied. According to Sugiyono, qualitative research methods are based on the post-positivism

paradigm, aiming to study natural conditions where the researcher serves as the primary instrument and uses triangulation as a data collection technique (Sugiyono 2020). The results from observations, interviews, and documentation will reveal facts that can be conclude in general.

Data were collected using triangulation techniques, incorporating observations, interviews, and documentation. The observational data were gathered during several visits to Rocksalt Beach Club, where the researcher analyzed the club's waste management systems, ingredient sourcing, and sustainability techniques. Additionally, interviews were conducted with Triyan Azka, the Food and Beverage Manager at Harris Resort Bareleng, who provided valuable insights into the club's sustainability initiatives, the challenges they face, and future plans. Documentation, such as internal reports, sustainability audits, and related documents, was also reviewed to better understand the current structure and sustainability metrics of the club's operations. To ensure the reliability and validity of the findings, triangulation was employed by cross-referencing data from multiple sources, including interviews, observations, and documentation. The research process and application of theoretical foundations are designed to ensure that the focus of the study aligns closely with the factual details of the subject (Ilham et al. 2022).

Secondary data is data that is not gathered directly by the researcher for the specific study but is sourced from existing records, reports, or datasets. Secondary data sources used by researcher in this study come from books, journals, journal articles, and websites. This approach helps reduce bias and ensures consistency in the interpretation of data, allowing for a more comprehensive understanding of the club's efforts toward achieving zero waste and sustainability.

## RESULT AND DISCUSSION

Zero Waste is a comprehensive strategy for resource management that involves designing and overseeing products and processes to systematically prevent and eliminate waste and minimize toxicity. It emphasizes the conservation and recovery of all resources, striving to avoid burning or burying materials. During the interview with Triyan Azka, Manager of Food and Beverage at Rocksalt Beach Club and Dilan, the bartender they emphasize that zero waste is one of their program to enhance go green and supporting the Ascott Cares Sustainability to minimize the waste by changing the plastic bottle to many more eco friendly products. The concept of Zero Waste is not only practical but also embodies ethical, economical, efficient, and visionary ideals. Zero Waste involves rethinking and redesigning products and processes to ensure that all materials are conserved and recovered, rather than discarded. It guides individuals and communities to alter their lifestyles and practices to imitate sustainable natural cycles. This shift aims to eliminate all harmful discharges into land, water, or air, thereby protecting the health of the planet, humans, animals, and plants.

Implementing Zero Waste involves several key steps by refusing unnecessary or unwanted materials, reducing consumption and waste production, reusing items for their original or new purposes, recycling waste materials into new products, and replanting to replenish natural resources. For instance, fruit waste such as the skins of oranges, lemons, and limes can be repurposed into garnishes, syrups, or even candied treats. Adopting habits

like refusing single-use plastics, buying products with minimal packaging, composting organic waste, and supporting businesses that emphasize sustainability. For hotels and restaurant, it could involve redesigning products for durability and recyclability, reducing packaging, and creating take-back programs to ensure products are reused or recycled at the end of their life.

In food services, waste occurs throughout the food supply chain and arises from various factors. Waste management stages can be grouped into four main areas: menu planning, purchasing and storage, kitchen planning and equipment, and the stages of production and service (BAYGUT and BİLİCİ 2021). Sustainability focus on reducing waste emissions, conserving energy, and promoting recycling while giving the best service to the customer. By systematically implementing these strategies, communities can markedly reduce their waste output and enhance their sustainability practices. This holistic approach not only helps in managing waste more effectively but also fosters a more sustainable and health-conscious society. Zero Waste is essential for protecting the environment, promoting public health, and ensuring the longevity of natural resources for future generations. To effectively implement zero waste and sustainability at Rocksalt Beach Club, assessment of current practice needs to be review quarterly. Involve customers in the sustainability efforts by informing them about the club's initiatives and encouraging their participation. This can be done through signage, menu information, and events that highlight sustainable practices.

## Analysis The Procedure of Zero Waste and Sustainability

### 1. Zero Waste

Zero waste is a philosophy that promotes redesigning resource systems from a linear model to a closed-loop cycle, so that all products can be reused (Wardi and Putri 2024). Here is 5R indicators for implementing zero waste that was popularized by Bea Johnson which is consist of refuse, reduce, reuse, recycle, and rot. During the implementation, Rocksalt are using 5 steps to reach a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. In waste management and environmental sustainability, several key practices play a crucial role.

During the interview with Mr. Triyan Azka as the manager of food and beverage and Mr. Dilan as bartender at Rocksalt beach club, there are 5 indicators that have been implemented at Rocksalt. **Refuse**, Rocksalt has committed to minimizing the use of plastic, especially in drink service. They have stopped selling mineral water in plastic bottles, opting instead to use distilled water that is produced in-house. This distillation system is certified, ensuring both sustainability and quality standards. By eliminating single-use plastic items, they are reducing waste significantly. **Reduce**, focus on minimizing single-use items. For example, decorative garnishes such as single-use cocktail umbrellas have been replaced with fresh fruit garnishes, which are biodegradable and add a natural touch to drinks. In addition, wooden cocktail picks have been replaced with stainless steel picks, which can be cleaned and reused multiple times. This approach not only reduces waste but also aligns with sustainable hospitality practices by avoiding disposable materials wherever possible. **Reuse**, reusing glass jars from the kitchen, such as pickle jars, by cleaning them thoroughly and repurposing them as storage containers for garnishes or specific juices. **Recycle**, Rocksalt

has actively upcycles items that would otherwise be considered waste. For instance, they have painted and repurposed old cans as decorative pieces for events. These upcycled decorations serve a dual purpose: they reduce costs and promote sustainable practices to guests, thereby acting as an educational tool. **Rot**, uses plant-based items, like lemongrass and mint, in a way that allows for regrowth and composting. For example, after purchasing lemongrass, they soak it in water until it sprouts roots. The top part is used as garnish, while the rooted portion is planted, allowing it to regrow for future use. Similarly, mint stems and leaves are also replanted, creating a sustainable cycle that ensures a steady supply of fresh herbs. They reuse juice containers as plant pots, further contributing to their goal of waste reduction.

## 2. Sustainability

This is some method that has been implemented in Rocksalt Beach Club.

### a. Lemon

- Juice : Lemon juice is popular for making healthy drinks like honey lemonade.
- Peel : The peel and segments of lemons can be utilized in several ways.
- Lemon Syrup : Boil the peel and segments with water, add sugar, and let it precipitate to make a tangy syrup.
- Garnish : Lemon zest can be used as a garnish for a variety of dishes and beverages.

### b. Pineapple

- Juice : Pineapple juice is refreshing and offers numerous health benefits.
- Skin and Tops : The often-discarded parts of the pineapple can be repurposed:
- Cordial Juice : Boil the pineapple skin with sugar, then squeeze to extract a flavorful juice.
- Garnish : Use the pineapple tops as a decorative garnish, similar to mint leaves.

### c. Dragon Fruit

- Consumption : Enjoy the flesh of the dragon fruit.
- Skin : The skin has several uses:
- Natural Coloring : Use it to add natural color to foods and drinks.
- Tea : Dry the skin and use it to brew tea.

### d. Kiwi

- Juice : Kiwi juice is nutritious and flavorful.
- Skin : Unlike some other fruits, kiwi can be consumed with the skin, providing additional nutrients.

### e. Juice Dregs

- Compost : The pulp left over from juicing fruits can be composted, enriching the soil and reducing waste.

### f. Mint Leaves

- Garnish : Mint leaves are often used to garnish dishes and beverages.
- Stems : After picking the leaves, replant the stems to grow more mint, minimizing waste.
- Mint Syrup : Used leaves can be boiled with water and sugar to create a

- g. Coconut Shell  
 Charcoal : Coconut shells can be used as firewood, providing an eco-friendly alternative to traditional charcoal.
- h. Coffee Grounds  
 Compost : Coffee grounds are excellent for composting, adding nitrogen to the soil.  
 Natural Dye : They can be used to dye hair naturally.  
 Odor Removal : Coffee grounds are effective in removing odors from hands and other surfaces.
- i. Glass Bottle  
 Recycling : Unlike plastic bottles, glass bottles are easier to recycle.  
 Decoration : Turn them into decorative items for the home.  
 Drink Container : Reuse glass bottles as containers for beverages.  
 Flower Pot : Use them as small flower pots for indoor plants.  
 Storage Container : Store various household items in repurposed glass bottles.

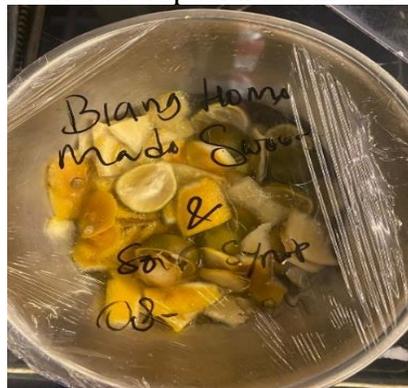
In kitchen, food waste are made by the cook or the chef during the preparation and the cooking process (Madanaguli et al. 2022). Leftover food is primarily driven by customer consuming behavior, including plate leftover. The poor forecasting and menu decision contributes to a food waste in restaurant. Meanwhile, at the point of purchase, consumer behavior is influenced by promotions, packaging sizes, and impulsive buying habits, all of which can lead to over-purchasing and, ultimately, food waste. The result in food waste spoils the used ingredients efficiently, which not only impacts the bottom line but also contributes to environmental and sustainability concerns. To effectively reduce consumer-related food waste, sustainability education and training for staf could be used as a mechanism to achieve a comprehensive use of environmental resources (Principato et al. 2021).

The process of waste treatment, food waste are normally thrown away rather than reprocessed. This is because some food that has been cooked cannot be reprocess or reheat to prevent harmful bacteria that can caused stomach ache or even nauseous. Composting is an option for managing food waste in a more sustainable way of contributing to landfill. By taking these steps, the food service industry can both work toward minimizing the environmental and health impacts of food waste.

**Zero Waste and Sustainability in The Scope of Supply**

In operating a restaurant or bar, developing raw ingredients to a ready-to-eat is a daily core activity (Regina Amaris Ayuningtyas, 2019). Each step that has been taken by Rocksalt contain a movement of sustainability and zero waste. For example, sunkist orange juice is widely cherished for its vibrant and refreshing flavour, making it a staple in many households and a go-to choice for those seeking a delicious beverage. However, the orange is far more versatile than just its juice. The peel, often discarded, can be creatively repurposed in several delightful ways. For instance, the peel can be transformed into a garnish by using a peeler to create delicate orange zest, which adds a burst of citrusy aroma and flavour to desserts and cocktails. This simple addition can elevate the presentation and taste of a dish or drink.

Moreover, the orange peel can be boiled with sugar to produce candied peel, a sweet and chewy treat that can be enjoyed on its own or used as a topping for various desserts. This process not only infuses the peel with sweetness but also preserves its natural citrusy essence. Another innovative use for the peel is to create orange syrup. By boiling the peel with water and sugar, and then allowing it to reduce, you can produce a richly flavoured syrup that serves as a versatile ingredient for enhancing the taste of drinks, desserts, and even savoury dishes. This syrup captures the essence of the orange and provides a concentrated citrus flavour that can add a special touch to a variety beverage.



Figures 3. Example of Used Waste



Figures 4. Result from Used Waste (Syrup)



Figures 5. Result from Used Waste (Garnish)

Table 1. Supply Chain

No.	Sub Pillar	Commitment
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1	Responsible Sourcing	Achieved - 100% of properties commit to abide by CapitaLand Supply Chain Code of Conduct
2	Responsible Sourcing	By 2023 - 100% of procurement staff trained in the topic of responsible sourcing.
3	Responsible Sourcing	By 2028 - Source 100% responsibly for cage-free eggs
4	Responsible Sourcing	By 2028 - Source 100% responsibly for paper products (e.g., sanitary, printing, copier)
5	Responsible Sourcing	By 2028 - Source 100% responsibly for single-use plastics (e.g., bottled water, mini - toiletries, straws, stirrers)
6	Responsible Sourcing	By 2028 - Source 100% responsibly for agricultural products (e.g., tea, coffee, sugar, cocoa)
7	Responsible Sourcing	By 2028 - Source 100% responsibly for chemicals (e.g., cleaning products, guest amenities)
8	Responsible Sourcing	Build collaborative relationships and work closely with our supply chain to make a positive impact on their sustainability performance.
9	Responsible Sourcing	Achieved - 100% of properties commit to abide by CapitaLand Supply Chain Code of Conduct

Source: Data from Rocksalt Beach Club

As the table shown starting from 2023 Rocksalt Beach Club trained their staff in the topic of responsible sourcing such us minimizing the used of plastic product and change it into paper product. Plastic cups, plates, bowls, spoons, and straws can all be alternated by those made up of environmentally friendly or bio-degradable materials (Dani, Juyal, and Rawal 2022). Because the society is becoming more aware about the negative effects of plastic use for the environment (Ramirez and George 2019).

### SUPPLY CHAIN - PHOTOS



**Figures 6. Sustainable Supplies**

Food retailers and plastic manufacturers might enhance transparency regarding plastic usage in food packaging, but communicating to the wider public that better packaging solutions are already available in the market remains a challenge (Walker et al. 2021). By 2028, Rocksalt is committed to adopting a range of responsible practices aimed at enhancing

sustainability and minimizing environmental impact. One significant step Rocksalt plans to take involves the use of paper products. This includes transitioning to more sustainable options for paper cups, printing paper, and sanitary products. By opting for paper products that are recyclable or made from recycled materials, Rocksalt aims to reduce its reliance on single-use plastics and support the broader movement toward waste reduction.

Additionally, Rocksalt will focus on improving its sustainability practices with agricultural products. The plan includes repurposing waste materials from tea, coffee, sugar, and cocoa into compost and fertilizers. This initiative not only helps to reduce waste but also contributes to creating a circular economy within the restaurant. The compost generated from these waste products will be used to grow used mint leaves and other ingredients on-site. Given Rocksalt's location within a resort, there are also innovative plans for managing waste products such as dried tea and coffee beans. These materials will be utilized as natural air fresheners, providing an eco-friendly alternative to chemical-laden products. This not only reduces waste but also enhances the resort's ambiance in a sustainable manner.

**The Benefit of Implementing Zero Waste and Sustainability**

**Table 2. Alliances**

No.	Sub Pillar	Commitment
1	Partnership	By 2028 - 100% of properties* will be certified to a recognized sustainability standard (e.g. GSTC or the equivalent). Country/Region level GSTC Certification Mini Milestones: 2024-20% properties certified 2025-30% 2026-50% 2028-100%
2	Partnership	By 2030 - 100% of properties to implement Green Lease programme.
3	Partnership	Lead the industry in best practices to ensure sustainable operations across its global portfolio.

Source: Data from Rocksalt Beach Club

Local councils establish zero waste objectives aimed at "diverting waste from landfills.". To be beneficial for others, Rocksalt collects plastic that can be sold to the plastic waste collector and the funds will be redirected to social program such us orphanage or nursing home. This approach not only helps in reducing environmental waste but also contributes to the welfare of vulnerable groups in society, ensuring that the funds are used effectively to provide necessary support and improve living conditions for those in need.

**COMMUNITY - PHOTOS**



**Figures 5. Alliances from Sustainability**

**CONCLUSION**

Hotels and restaurant play a significant role in producing waste. In hospitality, waste management practice can have a big impact to local ecosystem and community. The effective way to maintain the waste is to apply zero waste and sustainability in every movement. During the implementation, Rocksalt Beach Club exemplifies the practice of zero waste and sustainability by collecting and selling plastic waste in order to reduce their environmental footprint and be much more beneficial to social program to help each other. The implementation of zero waste principles such as reducing, reusing, recycling, and composting along with sustainable practices, offers a pathway to significantly decrease waste and promote resource efficiency. As demonstrated, using food and drink waste innovatively, such as repurposing citrus peels and coffee grounds, can enhance sustainability efforts while also supporting community welfare. Ultimately, adopting and promoting these sustainable practices helps create a cleaner, healthier environment and fosters a culture of responsibility and care towards both local and global communities. Continued efforts and commitment to sustainability will be essential in addressing the growing challenges of waste management and ensuring a positive impact on future generations.

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