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Zero Waste Business Model: Building A Regenerative Business Model Through Innovation and Collaboration

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Abstract

Traditional public businesses often prioritize profit over other things. This often causes significant negative impacts on the environment and surrounding natural resources. One step to overcome this problem is through the Zero Waste Business Model. This research aims to see how regenerative business models can be implemented through innovation and collaboration. This research will be carried out using a descriptive qualitative approach. The data used in this research comes from the results of relevant previous studies and research. The results of this research highlight the importance of cross-sector collaboration in achieving zero waste and regenerative business goals, as well as the role of innovation in supporting change towards sustainable business. In addition, this research also identifies the obstacles faced in adopting sustainable business models, including policy and regulatory constraints as well as internal challenges within the organization.

Keywords: Zero Waste, Circular Economy, Innovation, Collaboration.

A. INTRODUCTION

Traditional business models often cause negative impacts on the environment and the sustainability of natural resources. Practices such as waste, excessive use of resources, and inefficient waste management have become global challenges that require serious attention. Amid increasing awareness of environmental issues, business concepts have emerged that promote zero waste and regenerative principles. Zero waste business models focus on reducing waste, and maximally reusing and recycling resources, while regenerative business models aim to restore the environment and create positive value for society (Khalil & Nimmanunta, 2023).

A zero-waste approach not only has a positive impact on the environment but can also generate significant economic benefits. More and more companies understand the potential benefits that can be gained through reduced waste and more efficient use of resources. However, to achieve the goal of zero waste and regenerative business, innovation and collaboration are key (Kurniawan et al., 2021).

Innovation is an important element in creating a more sustainable business model. Innovations can include the development of more environmentally friendly products, more efficient production processes, or even completely new business

models that integrate zero-waste principles. Innovation can also help companies identify new ways to utilize existing resources and reduce waste (He & Ortiz, 2021).

In addition, collaboration between various stakeholders, such as companies, governments, civil society, and academic institutions, can strengthen efforts towards zero waste and regenerative businesses. Collaboration enables the exchange of ideas, resources, and knowledge necessary to address complex environmental challenges. Collaboration can also expand the positive impact of business efforts that adopt these models (Ho et al., 2022).

Although many companies have begun to adopt zero waste and regenerative principles in their businesses, there are still many challenges to overcome. One is a lack of understanding of how to implement these models effectively. In addition, there are still policy and regulatory obstacles that can hinder sustainable business development (Mboli et al., 2022).

In this context, this research aims to investigate how innovation and collaboration can be used to build regenerative zero-waste business models. This research will explore practical examples across various industrial sectors and analyze the positive impacts generated by this approach. By understanding this concept more deeply, we can identify the opportunities and challenges associated with developing regenerative zero-waste businesses in the future. In addition, this research will also provide practical guidance for companies and other stakeholders who want to adopt a more sustainable business model.

B. LITERATURE REVIEW

1. Zero Waste

Zero waste is a process from the start of production to the end of production and can minimize the occurrence of waste. This zero waste concept applies the 3R principle (Reduce, Reuse, Recycle). Zero waste concept thinking is an approach and application of urban waste processing systems and technology on an individual scale and regional scale in an integrated manner with the target of reducing the volume of waste to a minimum (Kerdlap et al., 2019).

"Zero Waste" or "Waste Elimination" represents a comprehensive approach to sustainable waste and resource management within urban settings. This innovative concept is at the forefront of addressing waste challenges, with major cities like Adelaide, San Francisco, and Stockholm leading the way as they officially designate themselves as Zero Waste cities, striving to meet established targets and pioneer the implementation of Zero Waste practices. Equally vital is understanding the practical application of the Zero Waste concept within urban environments and establishing metrics to gauge a city's performance in alignment with this concept (Agyabeng-Mensah et al., 2021).

In 1973, Palmer coined the term "Zero Waste" to describe the process of reclaiming resources from chemical waste. By 1995, numerous cities globally had enacted "No Waste" regulations with the aim of reaching this goal by 2010. Canberra notably became the inaugural city worldwide to effectively attain the Zero Waste

objective. The implementation of Zero Waste entails eradicating any waste, whether it be in the form of land, water, or air pollutants, that poses a hazard to the well-being of the planet, humans, animals, or plant life (Wikurendra et al., 2023).

As per the Zero Waste International Alliance, zero waste signifies the preservation of all resources by employing practices such as production, consumption, reuse, and the recovery of items and packaging, all while avoiding incineration or disposal into land, water, or air, which could potentially harm the environment or human health. The core essence of the zero waste concept lies in our capacity to exercise restraint, shifting away from excessive consumption and taking responsibility for our impact on the environment (Bogusz et al., 2021). Our growing awareness of the environmental consequences of our purchases and consumption habits is driving a shift towards the zero waste lifestyle. Embracing this lifestyle involves a gradual process, one that demands dedication and consistency. To embark on this journey, it's essential to begin by enhancing our knowledge and staying informed about environmental conditions (Wiefek et al., 2021).

The definition of the zero waste concept according to Freesari in Yunarti is the concept of integrated waste management which includes the process of reducing the volume of waste generated. The aim of implementing the zero-waste urban waste concept as a whole is:

- a. Reduce the volume of waste generation that must be disposed of in the landfill (extends the life of the landfill).
- b. Anticipate increasingly limited use of landfill locations.
- c. Optimize the operation of limited waste transportation facilities.
- d. Reduce transportation costs to landfill.
- e. Increase the active role of the community (Kerdlap et al., 2019).

Nonetheless, achieving the absolute zero waste concept in its literal sense is often deemed unattainable, as most processes inherently generate some form of waste. The primary aspiration behind this principle is to significantly and efficiently minimize the waste produced. In the Zero Waste concept, waste has been minimized, and suppressed as much as possible at all stages of production, from the beginning of the production process until the end of the product being used so that the waste produced is truly close to zero (Tsui & Wong, 2019). The products produced can certainly be reused, repaired, or recycled with very minimal or close to zero waste. The zero waste concept extends across all facets of human endeavors, encompassing every aspect of life and human activities. The anticipated advantages of adopting this concept include the potential to bolster economic sustainability, environmental capacity, and social well-being (Dong et al., 2022).

2. Circular Economy

A circular economy represents a systematic approach to economic growth with the overarching goal of benefiting businesses, society, and the environment. This approach emphasizes the optimization of raw materials, components, and products to extract maximum utility and value, ultimately minimizing the disposal of unused

waste materials in landfills. The Circular Economy concept must be an integral part of economic transformation through industrialization to maintain regional carrying capacity and capacity, and involve all relevant Regional Work Units (SKPD) (Sharma et al., 2021).

In contrast to linear economic models, circular economies are structured in a regenerative fashion, seeking to progressively disassociate economic growth from the depletion of finite resources. This concept acknowledges the significance of ensuring the efficiency of the economy at various levels. It is founded on three core principles: managing waste and pollution, conserving the products and materials utilized, and revitalizing natural systems. The main key to a Circular Economy is a closed cycle so that all processes and products can be reused (Zhang & Liu, 2022).

The circular economy is becoming increasingly important because it increases and supports sustainable development and green recovery, both globally and in Indonesia. Globally, the world has become less circular in the last 2 years, with circular economy activities to reduce emissions falling from 9.1% to 8.6%. This has the potential to cause setbacks in achieving GHG emission reductions and other environmental goals set out in the Paris Agreement. The circular economy has gained traction among business leaders and the Indonesian Government, presenting an opportunity to gradually decouple economic growth from new resource inputs, driving innovation, increasing growth, and creating stronger jobs (Belmonte-Ureña et al., 2021).

The Circular Economy serves as a viable alternative to the Linear Economy. In the Circular Economy model, the aim is to prolong the utilization of resources for as extensive a duration as feasible, extracting the highest possible value during their use, and subsequently recuperating and rejuvenating products and materials at the conclusion of their service life. The main thing that differentiates the Circular Economy concept is the use of resources, whereas, in a Circular Economy, the source of raw materials for their products comes from recycled materials. Through the use of recycling, waste, emissions, and wasted energy can be minimized (Hobson, 2021).

Circular Economy should begin to be applied to industry, be it small-scale or large-scale industry. The reasons why the Circular Economy needs to be implemented are:

- a. Reduce existing waste
- b. Encourage better resource productivity
- c. Increase competitive ability
- d. Overcoming the problem of resource scarcity that will arise in the future
- e. Reduce the environmental impact of production and consumption (Maiurova et al., 2022).

Currently, the economic system in Indonesia still uses a linear model, a model that is considered capable of maximizing results and profits. However, this linear model is a model that is not sustainable in the long term because the linear system approach uses a "take-use-dispose" approach (Suhandi & Chen, 2023).

2 The circular economy in Indonesia is included in the National Medium Term Development Plan (RPJMN) 2020 – 2024, under the National Priority Agenda: Strengthening Economic Resilience for Quality and Fair Growth, and the National Priority Agenda: Building the Environment, Increasing Disaster Resilience, and Climate Change. In National Priorities, Circular Economy is under the umbrella of Low Carbon Development (PRK) which is also an effort to achieve a green economy by emphasizing activities in five priority sectors (Oktaviani & Iqbal, 2023). Three of the five PRK sectors are closely related to circular economy principles, namely waste management, sustainable energy development, and green industry development. This connection can be seen from the implementation of a circular economy which can reduce the generation of waste produced and disposed of, prioritize the use of renewable energy, and support the efficient use of natural resources, products produced, and processes used in industry so that they are more environmentally friendly (Marinina et al., 2022).

C. METHOD

In this research, qualitative methods are used to explore concepts and challenges related to sustainable business, especially zero waste and regenerative business models. The data that is the basis of this research was obtained through a literature study which includes various scientific sources, journals, and related literature. The use of qualitative methods allows this research to explore an in-depth understanding of the concept of sustainable business and the challenges it faces, as well as integrating various thoughts and views from previous research.

D. RESULT AND DISCUSSION

1. Sustainable Business Challenges

Conventional business has had a serious impact on the environment and society. This business model tends to focus on short-term financial profits without considering the resulting environmental impact. Conventional business models tend to overuse natural resources, create pollution, and produce waste that is difficult to decompose. The use of fossil fuels, deforestation, and unsustainable water use are some examples of the negative impacts produced by conventional businesses. This contributes to climate change, loss of biodiversity, and environmental pollution. Conventional businesses also often have negative social impacts. These include economic inequality, poor working conditions, and a lack of concern for the welfare of local communities. Some companies also engage in practices that harm human rights (Hofmann & Jaeger-Erben, 2020).

Even though business has a key role in solving environmental and social problems. They can become agents of positive change by changing their business models to be more sustainable. Businesses can minimize their negative impacts, adopt environmentally friendly practices, and invest in social initiatives that empower communities. Today, there is a pressing urgency to move towards more sustainable business. Climate change is increasingly evident, natural resources are increasingly

limited, and social problems continue to grow. If businesses do not take appropriate action, this can threaten future sustainability. Therefore, changing towards sustainable business is no longer an option, but a necessity.

Consumers also have an important role in driving businesses towards sustainability. They can choose more environmentally friendly products and services, support companies committed to social responsibility, and demand transparency from businesses regarding their impact on the environment and society. The government also has an important role in driving change towards sustainable business through regulations and policies that support sustainable practices. Incentives for businesses that reduce carbon emissions, minimize waste, and support community well-being can help create an environment conducive to sustainable business. Business also has a role in creating innovation and new solutions to environmental and social challenges. They can invest in research and development of greener technologies, as well as collaborate with other stakeholders to create effective solutions.

The main challenge in moving towards a sustainable business is changing organizational culture. Businesses must change the way they think and act, prioritizing sustainable goals over short-term profitability. Sustainable businesses need to have a long-term commitment to sustainable practices. This requires a strong vision from company leadership and support from the entire organization. Finally, sustainable business can create a significant positive impact. This includes contributing to environmental conservation, sustainable job creation, and improving the quality of life of local communities. By understanding these challenges, businesses can design more effective strategies to achieve sustainable goals and contribute to the sustainability of the planet. The shift towards sustainable business is a complex journey, but important for the future.

2. The Role of Innovation in Zero Waste Business

Innovation has a very important role in directing businesses toward a more sustainable zero-waste model. This is because innovation is the key to creating products and services that are more environmentally friendly. In an increasingly sustainable business world, companies must continue to develop products that have a lower environmental footprint. Innovations in product design, raw materials used, and production technology can help create products that are more efficient in their use of resources and produce less waste. Innovation in production processes is very important in efforts to reduce material and energy waste. Businesses can develop new techniques that are more efficient in using raw materials, optimize supply chains, and use more sophisticated technology to reduce energy consumption in the production process (Fogarassy & Finger, 2020).

Utilizing the latest technology is an integral part of innovation in zero waste business. For example, the use of sensors and data analytics in supply chain management can help companies monitor and reduce waste and leaks in their systems. Innovation in product design is an important first step. Companies can

design products with zero waste in mind, considering how they can be easily recycled or broken down at the end of their useful life. An example is the use of recyclable or biodegradable materials in making products.

Innovation is not only limited to products but also to after-sales service. Companies can develop product maintenance, repair, or renewal services that extend their lifespan, thereby reducing the need for new products. Innovation can also be focused on reducing the use of single-use plastics. Companies can look for more environmentally friendly alternatives, such as sustainable packaging or reuse options. Investment in research and development (R&D) is an important part of innovation in a zero-waste business. Companies should view R&D as a means of identifying new solutions that can reduce their environmental impact.

Businesses can also collaborate with other stakeholders, including universities and research institutions, to develop greater innovation in sustainability. This collaboration can produce better and more effective solutions. It is also important to measure and report the impact of innovation on sustainable aspects. Companies must be able to identify how their innovations have reduced waste and environmental impact and communicate this to stakeholders. Industry leaders have a big role in inspiring innovation. When large, well-known companies adopt sustainable practices and develop environmentally friendly products and services, this can set an example that moves other industries to follow their lead.

Innovation in zero waste business is not only about creating economic profits but also about protecting the planet and improving the quality of human life. Therefore, companies need to commit to investing in sustainable innovation and play an active role in changing towards a more sustainable business model.

3. Systemic Innovation and New Business Models

Systemic innovation is an important approach in changing business towards sustainability. In the context of sustainable business, systemic innovation refers to fundamental changes in the entire business model that integrate zero waste and regenerative principles. Systemic innovation is a fundamental change that involves the entire business ecosystem, not just surface or tactical changes. This involves rethinking how businesses operate, how they interact with customers, suppliers, and other stakeholders, and how they create value. Systemic innovation focuses on creating a sustainable business model from start to finish, which can create a positive impact in the long term (Ul-Durar et al., 2023).

One prominent example of a new business model that fully integrates zero waste and regenerative principles is the concept of the "Circular Economy". In this business model, products are redesigned so that they can be recycled or broken down after the end of their useful life. Companies that adopt this model strive to keep as much material in circulation as possible, reduce waste, and optimize resource use.

For example, some smartphone manufacturers have begun taking steps to design phones with components that are easy to replace and repair. This allows users to extend the lifespan of their phones without having to buy a new phone every time

there is a problem. In addition, this company takes back unused cell phones to recycle the material. In this case, this new business model thoroughly integrates zero waste and regenerative principles.

Systemic innovation in sustainable business has a significant positive impact. First, they reduce the amount of waste that ends up in landfills, helping to reduce environmental pollution and reducing pressure on natural resources. Second, this innovation can create new economic opportunities, such as a rapidly growing recycling industry. Apart from that, systemic innovation can also create a positive impact in terms of social welfare. Sustainable business models can create better and more sustainable jobs, increase people's access to more environmentally friendly products, and support local communities. This all contributes to improving people's quality of life.

Thus, systemic innovation and new business models that integrate zero waste and regenerative principles are not only beneficial for the environment but also for the economy and society as a whole. This is an important step on the journey towards a better sustainable business and a brighter future.

4. The Importance of Collaboration in Sustainable Business

Collaboration is one of the key elements in driving a business towards sustainability. Collaboration creates an environment where companies can share ideas, knowledge, and experiences related to sustainability. This enables the exchange of best practices and innovative solutions that can help other companies adopt better sustainable practices. For example, Company A which has experience in reducing waste can collaborate with Company B to help them implement similar practices (Annosi et al., 2021).

Partnerships between companies, governments, and non-governmental organizations are clear examples of successful collaboration in promoting sustainable business. For example, a partnership program between a large oil and gas company with local governments and environmental NGOs to maintain environmental sustainability around the company's operational areas. This collaboration includes environmental monitoring, community infrastructure improvements, and environmental education that benefits all parties.

Cross-sector collaboration is key to achieving zero waste and regenerative business goals. For example, manufacturing companies can collaborate with recycling companies to ensure that their raw materials can be recycled effectively. This reduces waste and promotes more efficient use of resources. In addition, cross-sector collaboration can help companies overcome obstacles that often cannot be overcome by one sector alone. When companies work together with governments and NGOs, they can be more effective in influencing policy and regulatory changes that support sustainable business. Collaboration also allows companies to share risks and share the costs of ongoing projects. For example, in the development of new technologies to reduce carbon emissions, several companies may join in partnerships to fund research and development, which they might not be able to do independently.

In sustainable business, collaboration is the key to achieving sustainable goals. It facilitates the exchange of ideas and knowledge, provides examples through case studies of successful partnerships, and enables companies to achieve zero waste and regenerative goals through cross-sector collaboration. Collaboration is not only about sharing the burden but also about sharing knowledge and efforts to create positive change in the world of business and the environment.

5. Challenges in Adopting Zero Waste and Regenerative Business Models

Adopting zero waste and regenerative business models is an important step towards sustainability, but it also comes with several challenges that need to be overcome. One of the main challenges is the existence of policy and regulatory obstacles that can hinder sustainable business development. Sometimes, existing regulations do not always support sustainable practices, or can even be an obstacle. For example, licensing regulations that do not consider sustainable aspects or taxes that do not differentiate between sustainable and conventional businesses can hinder companies that want to adopt sustainable business models.

Internal challenges within the organization are another obstacle that is often faced. A change in corporate culture is often necessary to adopt zero waste and regenerative business models. This includes changes in ways of thinking and acting, as well as changes in company priorities. Corporate cultures that have long focused on short-term profitability may struggle to shift to a focus on long-term sustainability.

To be able to face these various challenges, several steps can be used. Some of these methods are as follows:

a. Advocacy and Engagement at the Policy Level

To overcome policy and regulatory obstacles, companies can actively participate in advocacy at the policy level. This includes collaborating with business associations, sustainable NGOs, and governments to influence policy changes that support sustainable business.

b. Employee Education and Training

To overcome internal challenges within organizations, companies can provide education and training to their employees about the importance of sustainability. This can include training programs on sustainable practices, workshops on changing corporate culture, and sustainability awareness campaigns.

c. Role of Organizational Leaders

Organizational leaders have an important role in leading corporate culture change. They must be role models in implementing sustainable practices and supporting necessary cultural changes. Commitment from the top of the organization is key to ensuring sustainable change.

d. Partnerships with Sustainable Organizations

Companies can seek partnerships with sustainable organizations, such as academic institutions, NGOs, or other companies that have successfully

adopted sustainable business models. This collaboration can provide guidance and support on the journey towards sustainability.

e. Transparency and Continuous Reporting

Maintaining transparency in sustainable practices and reporting progress regularly can help build trust with stakeholders. It can also help companies monitor and improve their ongoing performance.

The challenges in adopting zero waste and regenerative business models are real, but with commitment and the right strategy, companies can overcome these obstacles and achieve greater sustainability goals. These changes take time and effort but have the potential to create significant positive impacts on the environment and society.

E. CONCLUSION

In the context of changes towards sustainable business that promotes zero waste and regenerative business models, there are a series of challenges that need to be overcome. Policy and regulatory constraints that do not always support sustainable practices, as well as internal challenges within the organization, such as changes in company culture, are obstacles that are often faced. However, awareness of the urgency of sustainability, cross-sector collaboration, and commitment to improving business practices are key to overcoming this challenge. On the journey towards sustainable business, companies need to actively collaborate, build strategic partnerships, and act as leaders of change, while continuing to drive innovation and adhere to sustainable practices. Thus, sustainable business is not only a desirable goal but also an urgent need for the future of the planet and future generations.

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