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Embracing Circular Economy Principles: How Indonesian MSMEs Food Services Drive Sustainability Through Local Sourcing

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Abstract

This study investigates how Indonesian micro, small, and medium-sized enterprises (MSMEs) food service, specifically two bakeries and restaurants, are embracing circular economy principles to become more sustainable and meet consumer demands. By conducting semi-structured interviews with co-founders and operational managers, it uncovers that sourcing locally is a pivotal strategy for these businesses, driven by the need for supply chain efficiency, environmental and social benefits, and partnerships with local farmers. These practices allow for the provision of local and wholesome menu items, sustainable packaging, and collaborative social responsibility efforts with suppliers. Despite facing challenges like supplier standardization, quality control, and educating employees on waste sorting, the benefits of adopting circular economy practices are clear. Key to success are stakeholder cooperation, effective waste management, and pollution prevention. The findings enrich our understanding of circular economy adoption in the food service sector and offer insights for businesses aiming to boost their sustainability.

Keywords: Circular Economy, Food-Service Sector, Sustainability Practices, Environmental Impact, Indonesian MSMEs

1. Introduction

In the face of escalating global challenges, sustainability has transitioned from a mere buzzword to a crucial battleground where companies vie for future viability. With the global populace on track to reach 9.6 billion by 2050, sparking a projected 70% surge in food demand, the stark reality becomes apparent: one-third of global food production is squandered annually (FAO, 2015). This paradox of plenty underscores the urgent need for systemic change. Emerging from this context, the Circular Economy (CE) framework offers a transformative vision. It proposes a radical departure from the linear "take-make-dispose" model, advocating for a regenerative approach that sees waste and surplus not as inevitable byproducts but as resources for innovation (Sassanelli; et al., 2021).

This model not only aims to mitigate harm but actively enhances societal, environmental, and economic capital, drawing inspiration from concepts like the Ellen MacArthur Foundation's butterfly diagram, the cradle-to-cradle philosophy, and principles of industrial ecology. Simultaneously, the emergence of "concerned consumers" (Kasriel-Alexander, 2015), which signifies a shift in market dynamics. This demographic prioritizes products and businesses that echo their environmental, social, and ethical values, compelling companies to forge deep-rooted connections based on trust and shared sustainability values (Porter & Kramer, 2011).

In the culinary world, skepticism towards the sustainability of large-scale food producers has catalyzed a resurgence in local food initiatives, championed by both grassroots movements and governmental policies. This renaissance in local sourcing is not merely a trend but a movement towards embedding sustainable and healthy production practices within the food industry, challenging dominant players with innovative business models rooted in local traditions and values (Blay-Palmer, 2008; Morgan, 2010; Nestle, 2013). Despite the burgeoning popularity of local food movements, the journey towards truly sustainable food systems is fraught with complexities. In Indonesia, legislative efforts such as the 2012 Food Law and alignment with the Sustainable Development Goals underscore a national commitment to sustainable agriculture and dietary diversity. Yet, achieving these lofty goals necessitates a granular focus on enhancing local supply chains, productivity, and leveraging technology (National Development Planning Agency (Bappenas), 2020; World Food Programme, 2021).

Bandung and Yogyakarta, two prominent cities in Indonesia, hold significant potential in their traditional culinary industries, primarily driven by the abundant use of local ingredients. These cities are renowned for their rich and diverse culinary heritage, which attracts both local and international tourists. The utilization of local materials not only supports regional farmers and producers but also helps preserve the authenticity and cultural heritage of Indonesian cuisine (Hajarahmah & Melani, 2017). However, both cities face notable challenges in waste management. The landfills in these two regions are facing operational challenges. The Piyungan landfill in Yogyakarta is nearing its capacity limit, leading the local government to restrict the amount of waste sent there. Meanwhile, in Bandung, the Sarimukti landfill suffered a fire incident, rendering it non-functional. This juxtaposition of thriving culinary sectors with waste management issues underscores the importance of conducting research in Bandung and Yogyakarta. Investigating sustainable practices in the culinary industry and exploring innovative waste management solutions are imperative for these cities. Such research could lead to more sustainable culinary practices that benefit the environment while supporting local economies and communities. This synergy in the triple bottom line concept under sustainable business makes Bandung and Yogyakarta ideal locations for research focusing on sustainable development in the food sector.

This research introduces a new approach by examining how Bandung and Yogyakarta's use of local ingredients impacts sustainability in their food industries. Focusing on these Indonesian cities brings a fresh outlook on combining local food practices with sustainability, cultural preservation, and waste management. Thus, the research focuses on exploring the ways in which bakeries and restaurants in Bandung and Yogyakarta adopt sustainable business practices by utilizing local ingredients. It seeks to uncover the driving forces behind such choices, pinpoint the challenges and advantages involved, and determine the contributing to their success.

2. Literature Review

2.1 Circular Economy in the Food Service Sector

The concept of the Circular Economy (CE) has evolved significantly since it was first introduced by Pearce and Turner in 1989, tracing its conceptual origins back to the 1960s and undergoing substantial development thanks to contributions from various researchers and theorists (Zink & Geyer, 2017). Despite the consolidation of 114 definitions by Kirchherr et al., (2017), a universally recognized definition of CE remains elusive, with many interpretations stressing the maxim that "there's no such thing as waste." The principles of CE advocate for resource renewability, reusability, and harmlessness, pushing for the extension of resource lifespans through maintenance,

repair, upgrades, and the recapture of waste for reutilization, embodying an ideological shift towards minimizing waste and maximizing resource efficiency (Arruda et al., 2021).

This evolution from the early adoption of the 3R principles (reduce, reuse, recycle) to the expansive 10R framework illustrates the industry's incremental steps towards a deeper commitment to sustainability, highlighting a growing understanding of resource optimization and waste reduction across different stages, from refusing resource usage to re-mining valuable elements from waste (Kristoffersen et al., 2021). However, transitioning to a CE model presents significant challenges, particularly in sectors like food service, where the principles of CE offer profound implications for enhancing product and service value retention through innovative waste utilization and sustainable practices (Patwa et al., 2021). Despite the potential for CE to bridge sustainability objectives with business practices, the food service industry faces hurdles such as limited consumer awareness, economic constraints, and the complexity of establishing closed-loop systems within fragmented supply chains (Sahu et al., 2022). These barriers underscore a critical research gap: the need for strategies that effectively overcome these obstacles to implement CE principles in the food service sector (Wynn & Jones, 2022). Investigating solutions for aligning multiple supply chain stakeholders towards common sustainability goals, amidst varying levels of commitment and understanding, could provide actionable insights for advancing CE practices in this unique industry context, driving forward the sustainable transformation of food service practices (Camacho-Otero et al., 2018).

2.2 *Resource Based View Theory*

The Resource-Based View (RBV) provides a robust framework for understanding how firms can strategically utilize their internal resources, both tangible and intangible, to carve out a sustainable competitive edge (Madhani, 2010). This approach is particularly relevant for Small and Medium-sized Enterprises (SMEs) aiming for international expansion, underscoring the critical role of a firm's unique resources and capabilities in securing a niche in the global market (Khan et al., 2023). Literature extensively supports the RBV, highlighting the necessity for SMEs to effectively leverage their existing assets to navigate the challenges and opportunities presented by international markets (Pankaj M Madhani, 2014). In the food industry, especially among restaurants and bakeries, the RBV underscores the importance of local sourcing practices as a strategic management tool (Williamson et al., 2012). By leveraging distinct resources and capabilities to source ingredients locally, food SMEs enhance the quality and sustainability of their products, thereby creating competitive advantages, fostering community relationships, and promoting environmental sustainability (G. Gupta et al., 2018).

Building on the foundation laid by the RBV, the Natural Resource-Based View (NRBV) introduces a nuanced perspective by incorporating ecological and societal concerns into the strategic equation, emphasizing the importance of sustainability in achieving competitive advantage (Hart & Dowell, 2011a). Developed by (Hart & Dowell, 2011b), the NRBV extends the RBV by arguing that resources derived from environmental and social issues can be crucial for firm success, especially in today's eco-conscious market. It identifies four key areas—pollution prevention, product stewardship, clean technologies, and the base of the pyramid (BoP) strategies—as core resources that firms can leverage for sustainable gain (Münch et al., 2022). This integration of the RBV and NRBV frameworks illuminates a path for Indonesian food SMEs and similar entities globally, illustrating how local sourcing can be a strategic endeavor that not only responds to consumer demands for sustainability but also capitalizes on the unique resources and capabilities highlighted by the NRBV (McDougall et al., 2019). By bridging the RBV's focus on leveraging internal resources for competitive advantage with the NRBV's emphasis on sustainability and societal well-being, businesses are better equipped to navigate the complexities of the modern market, ensuring resilience and long-term success through sustainable practices (Gabler et al., 2023).

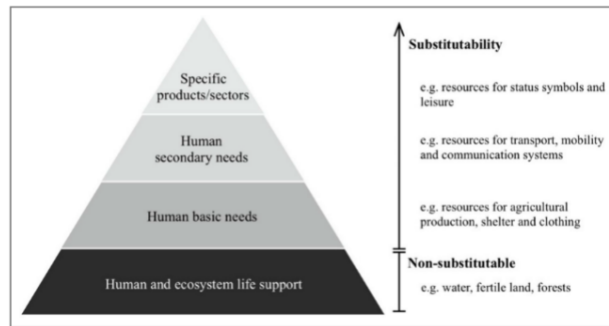


Figure 1: Prioritization of natural resource needs adapted from (Mancini et al. 2016)

3. METHODS

3.1 Participants

In this research the author employed a strategic case selection process driven by the research focus on local sourcing as sustainable strategic in the business. The decision to use non-probability sampling, specifically purposive sampling, was deliberate and crucial for the study. Purposive or judgmental sampling allows for the exercise of your discernment in choosing cases that are most suitable for addressing your research inquiries and fulfilling your research objectives. This sampling approach is commonly employed when dealing with limited samples, as seen in case study research, and when the aim is to select cases that offer a high degree of informativeness (Saunders et al., 2019). To guarantee the accuracy of the sample and obtain extensive information, the participants consisted of four operation managers from each bakery and restaurant as follows:

Table 1: The list of Interview Participants and Description of Business Cases

| Case Firms | Employees (person) | Core Business | Place | Interview (duration) |
|----------------------|--------------------|---------------|------------|----------------------------------|
| A (start circular) | 0-15 | Bakery | Bandung | Co-founder (64 minutes) |
| B (growing circular) | 0-15 | Bakery | Yogyakarta | Operational Manager (60 minutes) |
| C (growing circular) | 0-30 | Restaurant | Yogyakarta | Operational Manager (60 minutes) |
| D (growing circular) | 0-10 | Restaurant | Yogyakarta | Founder (45 minutes) |

Participants were encouraged to focus on the driving forces behind the management choices to use local raw materials in their operations, What are the challenges and advantages faced, and determine the critical factors contributing to their success. This offers a holistic understanding through the varied narratives and perspectives of the participants involved in the multiple case studies.

In the delineation of businesses based on their circular economy practices, "A (start circular)" signifies a firm at the nascent stage of integrating circular principles, indicating A's recent endeavors to embed sustainability into its operations through initial steps like local sourcing and waste reduction. Conversely, entities labeled as "B (growing circular)," "C (growing circular)," and "D (growing circular)" represent establishments that have advanced beyond the foundational phase of circular economy implementation, highlighting an evolutionary journey towards deepening their circular economy commitments. The term "growing circular" underscores a progression from mere initiation to a phase where circular practices are not just adopted but are being expanded, refined, and increasingly woven into the fabric of business operations. This classification reflects the businesses' maturity spectrum in adopting circular economy models, from early-stage incorporation with "start circular" to more developed, expanding practices under "growing circular," showcasing a dynamic range of engagement with sustainability and resource efficiency within their respective sectors. Participants were encouraged to focus on the driving forces

behind the management choices to use local raw materials in their operations, What are the challenges and advantages faced, and determine the critical factors contributing to their success. This offers a holistic understanding through the varied narratives and perspectives of the participants involved in the multiple case studies.

3.2 Coding Procedures and Data Analysis

In this research, a qualitative methodology has been adopted, employing a multi-case study approach to gain in-depth insights into the several food service sectors. The study encompasses multiple cases, allowing for a comprehensive exploration of diverse perspectives within the chosen context. The primary method of data collection involves semi-structured interviews with the co-founders or operational managers from four different restaurants and bakeries, providing a flexible and open-ended answer for participants to share their experiences, opinions, and insights.

In this research, the author uses the thematic analysis method for identifying, analyzing, and interpreting patterns of meaning (themes) within the qualitative data. This approach discourages predetermined coding frameworks, favoring a method that constructs a social reality reflective of existing theories while contributing new insights (Clarke & Braun, 2017). It minimally organizes and describes the data set in rich detail and often interprets various aspects of the research topic. A case study employing Thematic Analysis involves a deep dive into the case context, where data collected through interviews and observations is systematically coded into themes that represent the nuances of the case. This method allows authors to surface underlying meanings, offering insights into the complexities of the case study subject.

4. Results and Discussions

The analysis presented in this section provides a comprehensive examination of the thematic elements identified through the coding process. This exploration aims to uncover the primary drivers, advantages, challenges, and stakeholder cooperation efforts within the food service industry's adoption of circular economy practices in Indonesia. The detailed insights gathered from interviews with various food service establishments highlight the intricate dynamics and practical implications of integrating sustainable practices into daily operations.

The following table outlines the key themes and sub-themes derived from the interviews, accompanied by representative quotations that illustrate the industry's commitment to sustainability, the benefits realized from such practices, and the challenges faced in this transition. This thematic analysis serves as a foundation for understanding the broader impact of circular economy principles on the food service sector, offering valuable perspectives for both practitioners and researchers interested in sustainable development.

Table 2: Thematic Analysis Result from the Interview Process

| Theme | Sub-theme | Quotation |
|---------|---|---|
| Drivers | Adoption of Locally Sourced Ingredients | "The analysis indicates that a key driver for the food service industry, especially within micro, small, and medium-sized enterprises (MSMEs), is the adoption of locally sourced ingredients within their operations." |
| | Efficiency of Supply Chain with Local Ingredients | "It emphasizes the importance of understanding how local ingredients enhance the efficiency of the supply chain for the business, streamlining the delivery process for quicker turnaround." |
| | Environmental and Social Impact | "Their dedication to minimizing environmental impact and fostering sustainable practices." |
| | Direct Sourcing from Local Farmers | "By opting for fresh produce directly from local farmers and distributors daily, these businesses aim to provide meals crafted from the freshest inputs available." |

| Theme | Sub-theme | Quotation |
|--|--|---|
| Advantages | Local and Wholesome Menu Offerings | "The food service industry demonstrates strengths across all elements of the Natural Resource-Based View framework... through a steadfast commitment to offering menus that incorporate local and wholesome ingredients." |
| | Sustainable Packaging and Practices | "The sector adopts eco-friendly practices, such as utilizing sustainable packaging solutions and reducing the reliance on single-use straws, provided only upon customer request." |
| | Supplier Collaboration and Social Responsibility | "These businesses prioritize collaboration, conducting preliminary audits with suppliers and fostering strong relationships for better oversight." |
| Challenges | Supplier Standardization and Quality Control | "Despite establishing strong cooperation and meticulous monitoring with suppliers, challenges persist, particularly with small-scale suppliers like farmers and intermediaries who lack standardized practices." |
| | Employee Education on Waste Sorting | "There is an ongoing struggle to educate employees on effective waste sorting, which is essential for efficient waste management." |
| Stakeholder Cooperation | Supplier Performance Assessments | "In their collaboration with stakeholders, businesses within the food service industry make routine visits to their suppliers' locations, typically on a quarterly or annual basis, to assess the supplier's condition." |
| Waste Management Practices | Kitchen Waste Utilization | "The food service industry adopts measures to minimize kitchen waste, repurposing usable food scraps into new dishes, such as transforming egg whites into pavlova and using vegetable offcuts for broth." |
| | Eco-friendly Ingredient Choices | "For waste management, these businesses engage vendors to handle various waste types, including plastics, glass bottles, and paper, and distribute kitchen scraps to employees who raise chickens, ducks, or fish, ensuring comprehensive waste utilization." |
| Pollution Prevention (Consolidated) | Environmentally Friendly Packaging Adoption | "Most bakeries and restaurants have been using environmentally friendly packaging because of their concern for non-biodegradable waste." |
| | Comprehensive Waste Management Strategies | "For waste management, these businesses engage vendors to handle various waste types, ensuring comprehensive waste utilization and minimizing environmental impact." |

4.1 Drivers

Subsequently, the food service industry's pivot towards circular economy principles is motivated by pivotal elements such as volatile raw material supplies impacting operational expenses, increasing consumer advocacy for sustainability, the direct influence of sourcing and waste disposal methods on scope 3 emissions, and rigorous compliance with environmental regulations. This shift involves transitioning towards sustainable sourcing and production practices, which entail collaborating with suppliers for environmental impact evaluations, embracing renewable energy sources, and optimizing water and energy use. Moreover, evolving towards eco-friendly packaging solutions incorporating biodegradable and recycled materials alongside minimalistic design strategies and cultivating an ecosystem of partners underscores the criticality of stakeholder collaboration in fostering a circular economy ethos. This comprehensive strategy not only meets environmental and compliance demands but also steers the food service sector towards resilience and economic viability, stressing the significance of embedding circular economy principles to forge a sustainable, efficient ecosystem benefiting society and the environment at large.

Lastly, the analysis accentuates a significant catalyst driving the food service industry, especially among micro, small, and medium-sized enterprises (MSMEs), towards integrating locally sourced ingredients into their operational model. This strategy transcends the mere establishment of an efficient and expedient supply chain to reflect a profound dedication to sustainability and environmental guardianship. Supported by Scoppola's 2022

findings, the dependency on local farmers has emerged as a stabilizing force for the food system during periods of adversity, such as the global pandemic, which drastically disrupted conventional food distribution avenues. Moreover, these enterprises are resolute in diminishing their environmental footprint and championing practices that extend beyond profitability to encompass social and ecological benefits. Committing to fresh, additive-free natural ingredients enables restaurants and bakeries to offer more wholesome food selections. By sourcing directly from local producers, these businesses not only assure ingredient freshness but also considerably reduce the carbon emissions linked with distant transport.

This deliberate choice underpins the creation of business models that are environmentally friendly, inclusive, and financially feasible, leveraging the base of the pyramid principle. Thus, the utilization of local resources serves dual purposes: curtailing operational costs and fortifying the local agricultural community, thereby manifesting a mutually beneficial scenario for businesses and the wider community.

4.2 Advantages

The circular economy's role in the food service industry underscores significant strides towards sustainability and resilience. Interviews with entities like Case A and B Bakery reveal a keen focus on leveraging circular principles to not only enhance GDP and employment but also to drive a sustainable business ethos. Inspired by national reports on the circular economy's potential in Indonesia, these businesses have adopted sustainable practices such as waste utilization and local sourcing, pointing to a larger trend of integrating circular economy principles for economic and environmental benefit. Local sourcing stands out as a pivotal strategy, promoting independence through the use of local ingredients, which aligns with consumer trends, supports local economies, and reduces supply chain carbon footprints. Additionally, product innovation, demonstrated through developments like gluten-free flour bases, exemplifies how circular practices catalyze business innovation and respond to the growing demand for sustainable food options.

Collaboration with suppliers forms the bedrock of executing circular economy advantages, where strategic partnerships underscore sustainability's role in enhancing supply chain resilience. Engagements, such as with local mocaf (modified cassava flour) suppliers and free-range egg suppliers, highlight how mutual sustainability commitments can solidify business relationships and ensure a consistent supply of sustainable raw materials. However, these endeavors come with their own set of challenges, including balancing supply with demand, addressing the intricacies of local sourcing, and maintaining operational sustainability. Altogether, the adoption of circular economy principles by the food service industry not only mitigates environmental impacts but also establishes a competitive advantage in an increasingly eco-conscious market. This dual focus on sustainability and innovation through local sourcing, collaboration, and product development showcases the circular economy's transformative potential in fostering economic growth, environmental stewardship, and social well-being.

4.3 Challenges

Integrating circular economy principles into the food service industry offers numerous environmental and operational benefits but comes with its share of obstacles. The foremost challenge lies in securing a reliable supply of high-quality, locally sourced ingredients. Establishments such as Case A Bakery and Case C Restaurant, despite their commitment to embodying circular economy concepts like sustainable sourcing and waste reduction, frequently grapple with the difficulties of maintaining a balanced supply-demand equation. This is particularly acute with small-scale local suppliers, who may lack the capability to meet demands or uphold quality standards consistently. Moreover, the imperative for innovation compounds these challenges as businesses endeavor to develop new offerings that adhere to circular economy principles without sacrificing product quality or customer satisfaction.

In addition to supply chain issues, fostering effective collaborations with suppliers represents a significant hurdle, necessitating extensive effort and open communication to cultivate trust and mutual understanding, particularly in the pursuit of more sustainable practices. This is vividly illustrated in Case A's engagement with mocaf suppliers, underscoring the need for ongoing dialogue to ensure a steady and sustainable ingredient supply. The transition

towards sustainable packaging options and the efficient management of waste further add to the logistical and financial demands faced by businesses. Coupled with the challenges in product stewardship, such as the variance in sales affecting demand forecasting accuracy and the limitations in local sourcing impacting menu development, these issues highlight the complexities of fully integrating circular economy practices. Additionally, the task of promoting pollution prevention and sustaining business viability, particularly without formalized agreements to ensure supplier accountability, emphasizes the intricate nature of adopting circular economy models in the food service sector, underscoring the necessity for strategic planning, strong partnerships, and constant innovation to navigate these challenges successfully.

4.4 Stakeholder Cooperation

In the realm of the food service industry's transition towards circular economy practices, stakeholder cooperation emerges as a critical factor in navigating the complexities of sustainable operations. Initiatives such as those undertaken by Case A Bakery and Case C Restaurant illustrate a strategic alignment with the principles of circular economy aimed at minimizing waste and maximizing resource efficiency. These efforts are underpinned by a commitment to using locally sourced ingredients, not merely as a means to ensure the freshness and quality of the food offered but also as a strategy to bolster local economies and reduce the environmental impact associated with transportation and conventional agricultural practices.

In their collaboration with stakeholders, businesses within the food service industry make routine visits to their suppliers' locations, typically on a quarterly or annual basis, to assess the supplier's condition. Moreover, this partnership includes performance assessments, though these are typically reserved for instances of negative occurrences. The collaboration between these entities and their suppliers exemplifies a symbiotic relationship that extends beyond traditional business transactions. For example, Case A Bakery's partnership with Bandung Mocaf for the supply of mocaf flour is a testament to the bakery's dedication to innovation in product development, while also adhering to circular principles. Such collaborations are instrumental in addressing the dual challenges of maintaining a reliable supply chain and adhering to sustainable practices. This is particularly crucial in a landscape where small-scale suppliers may struggle with the capacity to meet fluctuating demand or maintain consistent quality standards.

Furthermore, these collaborative efforts are not limited to the immediate supply chain but also encompass a broader stakeholder engagement strategy. This includes fostering community ties, sharing knowledge and practices within the industry, and engaging customers in the sustainability journey. For instance, initiatives to educate consumers on the importance of sustainable consumption practices, coupled with efforts to introduce eco-friendly packaging options like paper craft and cassava bags, demonstrate a holistic approach to stakeholder cooperation. Looking ahead, these businesses aspire to establish a platform that would serve as a collective forum for peers and partners in the industry, facilitating the exchange of knowledge and best practices.

However, the journey towards full integration of circular economy practices is fraught with challenges. From the nuances of managing supply and demand to the imperative of ensuring product quality and innovation, businesses find themselves at the nexus of operational efficiency and sustainability. The path forward requires ongoing dialogue, support, and mutual understanding among all stakeholders involved. By forging strong relationships with suppliers, investing in community engagement, and continuously innovating to meet the demands of a circular economy, businesses like Case A Bakery and Case C Restaurant pave the way for a more sustainable future. Their experiences highlight the importance of stakeholder cooperation in overcoming the hurdles of circular economy implementation, underscoring the potential for collective action to drive meaningful change in the food service industry and beyond.

4.5 Waste Management Practices

In the pursuit of sustainability, the food service industry is increasingly adopting circular economy practices, focusing on reducing waste and maximizing resource utilization. The food service industry not only prioritizes local products but also places a high importance on environmental sustainability, adopting effective waste

management practices. Key strategies include sourcing locally to minimize waste and carbon emissions, innovating with sustainable product development such as using alternative flours, and collaborating with suppliers to encourage sustainable agricultural practices. They implement various measures to minimize kitchen waste, repurposing usable food scraps into new dishes; for example, transforming egg whites into pavlova in one case, creating *crouton* from leftover sourdough and utilizing vegetable offcuts for broth in another. Furthermore, they opt for eco-friendly ingredients, such as replacing palm oil with coconut oil, to prevent agricultural land degradation.

These efforts are complemented by the adoption of sustainable packaging solutions, such as biodegradable materials, and effective waste management through composting and recycling initiatives. For waste management, these businesses engage vendors to handle various waste types, including plastics, glass bottles, and paper. Uniquely, kitchen scraps are distributed to employees who raise chickens, ducks, or fish, ensuring comprehensive waste utilization. Additionally, community engagement and consumer education play crucial roles in promoting sustainability within the industry, emphasizing the importance of reducing food waste and supporting local economies.

However, implementing these practices presents challenges, particularly in maintaining a consistent supply of quality ingredients from small-scale suppliers and managing the supply-demand balance. Continuous innovation and adaptation are necessary to overcome these hurdles, requiring businesses to explore new product developments and sustainable ingredient alternatives actively. Moreover, overcoming logistical and financial challenges related to sustainable packaging and waste management requires strategic planning and investment. Despite these challenges, the food service industry's commitment to circular economy principles signifies a crucial step towards environmental sustainability, showcasing a model of operation that prioritizes ecological responsibility, social impact, and economic viability.

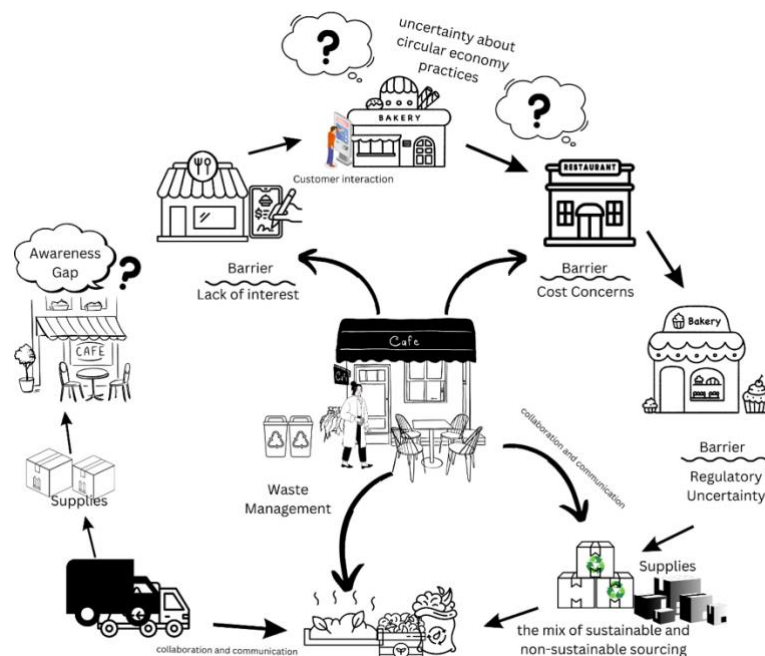


Figure 2: Food Services Circular Economy Practices (source: author)

Figure 2 shows the intricacies of integrating circular economy practices within the food service industry, depicting a café as the nexus of an intricate web of stakeholder interactions that include suppliers, customers, and regulatory bodies (Sumter et al., 2021). It emphasizes the barriers such as an awareness gap, where a lack of understanding about sustainable practices prevails; customer uncertainty, signaling a need for education; cost concerns, that deter the adoption of eco-friendly measures; and regulatory uncertainty, which complicates compliance (Grafström & Aasma, 2021). Central to this ecosystem is the challenge of waste management within the café, underscoring a critical aspect of circular economy efforts. Additionally, the image highlights the tension between utilizing

sustainable and conventional sources, suggesting that while progress is being made, a concerted effort in education, innovation, and strategic partnerships is required to navigate these challenges successfully, reflecting the principles of the Natural Resource-Based View (NRBV) framework which suggests that competitive advantage can be gained through sustainability-focused business practices (Rousseau, 2017).

On the social front, these entrepreneurs invest in educating their staff on waste processing techniques through targeted training sessions, aligning with the pollution prevention strategy of NRBV. Effective waste management is crucial for reducing the environmental impact of business operations, and employee training plays a vital role in ensuring that waste is properly sorted, handled, and disposed of (Lozano, 2015). They also conduct studies to optimize food portions served to customers, aiming to reduce food waste. Food waste is a significant contributor to greenhouse gas emissions and resource depletion, making portion control a valuable strategy for minimizing waste and promoting sustainability (Papargyropoulou et al., 2019).

Customer education is another focus for food service businesses in their pursuit of sustainability, with practices like refraining from providing straws or cutlery unless necessary further underscoring their commitment to environmental stewardship. By educating customers and encouraging them to adopt more sustainable habits, these businesses can foster a culture of environmental responsibility and reduce their overall ecological footprint. These initiatives resonate with the concept of social sustainability, which emphasizes the importance of engaging with stakeholders and promoting responsible consumption patterns (Hutchins & Sutherland, 2008).

After consolidating the results based on the four strategies of the Natural Resource-Based View (NRBV) – pollution prevention, product stewardship, clean technology, and base of the pyramid – the businesses further categorized them into five dynamic capabilities, as illustrated in Figure 1. Regarding pollution prevention, there is an ongoing struggle to educate employees on effective waste sorting, which is essential for efficient waste management. This highlights the importance of continuous training and awareness programs to ensure effective implementation of pollution prevention strategies (Lozano, 2015).

Product stewardship within the industry is driven by a growing awareness of the environmental impact of food production and consumption. Advantages of this approach include reduced environmental footprints through sustainable sourcing and waste minimization, enhancing brand reputation and customer loyalty (Sheth et al., 2011). Challenges encompass ensuring supply chain sustainability and the need for continuous innovation in product offerings to meet environmental goals without compromising quality.

Sustainable development is increasingly recognized as a pivotal aspect of business operations, driven by regulatory pressures, market demands, and the intrinsic value of corporate responsibility. The benefits of adopting sustainable development practices are manifold, including operational efficiencies, reduced costs through energy conservation, and the positive impact on the community and environment (Bansal, 2005). The main challenges include integrating sustainability into core business strategies and the investment required to transition to more sustainable operations.

The Base of the Pyramid (BoP) approach is gaining traction as a driver for inclusive business models that address the needs of underserved populations. This strategy offers advantages such as tapping into new markets, fostering innovation, and contributing to poverty alleviation (Prahalad & Ramaswamy, 2004). However, it faces challenges such as understanding and adapting to the unique needs of BoP consumers, ensuring affordability and accessibility, and building sustainable stakeholder cooperation to achieve mutual benefits.

From the economic perspective, there are local ingredients that reduce operational costs and gain independency as the drivers. Utilizing local ingredients not only supports the local economy but also reduces transportation and overall operational costs. This approach is consistent with the Resource-Based View (RBV), which emphasizes leveraging local resources for competitive advantage (Barney, 1991). By aligning with the principles of the RBV and strategically utilizing local resources, businesses can enhance their operational efficiency, reduce costs, and differentiate themselves in the market. This approach not only supports economic independence by reducing reliance on external suppliers but also contributes to the sustainability of local economies and communities.

Ultimately, by embracing the RBV and focusing on local ingredient sourcing, businesses can strengthen their competitive position and achieve long-term success in the marketplace (Zahra, 2021).

Research suggests that formalized contracts can enhance supply chain sustainability and accountability. Formal agreements that include clearly defined penalties for non-compliance can incentivize suppliers to adhere to sustainability standards and delivery commitments (Gimenez & Tachizawa, 2012). Furthermore, written contracts provide legal recourse and a framework for dispute resolution, reducing the potential for misunderstandings and conflicts (Wuttke et al., 2013). While informal relationships built on trust are valuable, incorporating formal contractual mechanisms can strengthen the overall sustainability of supply chain operations.

Underpinning these efforts is stakeholder cooperation through collaboration with local suppliers and community engagement, which is vital for the base of the pyramid's success. This collaborative approach is in line with the stakeholder theory, which posits that businesses should consider the interests of all stakeholders, including local communities, in their decision-making processes (Freeman, 2015). Overall, these circular practices demonstrate food businesses' commitment to balancing ecological responsibility, social impact, and economic viability, consistent with the triple bottom-line principle of sustainability (Elkington, 1998).

5. Conclusion

The transition towards a circular economy in the food service industry represents a crucial step in mitigating environmental impact and promoting sustainable practices. This study delves into the experiences of Indonesian Micro, Small, and Medium Enterprises (MSMEs) within this sector, uncovering the various drivers, benefits, and challenges they encounter in implementing circular economy practices. Key findings highlight the importance of local sourcing as a strategic approach for businesses to improve supply chain efficiency, minimize environmental footprint, and bolster local economies. Additionally, the adoption of sustainable packaging, efficient waste management practices, and strengthening partnerships with suppliers are identified as pivotal elements for the successful incorporation of circular principles. Nevertheless, the research also brings to light several hurdles faced by these entities, including issues concerning supplier standardization, quality assurance, and educating employees on proper waste segregation, underscoring the necessity for ongoing refinement, creativity, and stakeholder engagement to navigate obstacles and propel the food service industry towards sustainability.

This body of work enriches the existing literature on circular economy applications within the food service realm, offering insightful perspectives for enterprises, policy-makers, and scholars alike. It lays down a foundation for crafting strategies and regulations that support the circular economy shift while pinpointing areas ripe for further inquiry and cooperation. The call for expanded research includes broader geographic and contextual studies for a more holistic understanding of circular economy adaptations, longitudinal analyses to gauge long-term impacts, exploration of technology's role in streamlining circular practices, assessment of policy effectiveness, and the potential of cross-sector collaborations. Addressing these research gaps will not only deepen our comprehension of circular economy dynamics in the food service sector but also guide the formulation of robust approaches and policies fostering a sustainable and resilient food system.

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