

## RESEARCH

# The Role of Sustainable MSMEs in the Food and Beverage Sector for Indonesia's SDG Achievement

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## ABSTRACT

**PURPOSE:** This research aims to analyse the impact of the transformation of sustainable Micro, Small, and Medium Enterprise (MSME) in the food and beverage sector towards Indonesia's achievement of the UN's Sustainable Development Goals (SDGs).

**DESIGN/METHODOLOGY/APPROACH:** This research employed a descriptive bibliometric analysis. Data from the Indonesian Chamber of Commerce and Industry, as well as the Central Bureau of Statistics, were utilised for the descriptive analysis, while data from Scopus.com were utilised for the bibliometric analysis. VOSviewer was the processing tool used to identify trends in sustainable MSME countries and keywords.

**FINDINGS:** The food and beverage sector dominates Indonesian MSMEs. This sector enhances economic growth, job opportunities, and adoption of e-commerce. Sustainable food and beverage MSMEs also contribute to the Indonesian Development Index, especially for SDG 8 and SDG 12.

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**ORIGINALITY/VALUE:** The findings of this study suggest that MSMEs, particularly those in the food and beverage sector, hold immense potential for driving Indonesia's economic growth, creating employment opportunities and contributing to sustainable development. However, realising this potential requires a comprehensive approach that addresses challenges such as limited access to finance, technology, and supportive policies. To fully unlock the contributions of MSMEs, targeted interventions, including capacity building, infrastructure development, and policy reforms, are essential.

**KEYWORDS:** *Sustainability; MSMEs; Sustainable Development Goals; Food; Beverage*

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## INTRODUCTION

Indonesia's Sustainable Development Goal (SDG) Index score of 69.43 indicates notable progress towards achieving the UN's 17 SDGs, yet significant opportunities for improvement remain (Sachs *et al.*, 2024). Micro, Small, and Medium Enterprises (MSMEs) are widely recognised as critical drivers of national development and play a crucial role in advancing SDGs through sustainable practices (Anuj *et al.*, 2023; Dasaraju and Tambunan, 2023; Endris and Kassegn, 2022; Kadaba *et al.*, 2022; Krisna, 2024; Singla, 2023). In particular, green manufacturing and supply chain management are also crucial for sustainable MSME performance (Omar *et al.*, 2024; Purwoko *et al.*, 2023).

MSMEs contribute to economic growth and development in Indonesia, particularly in job creation and the generation of Gross Domestic Product (GDP) (Jamil, 2023; Singla, 2023). Within the food and beverage sector, these enterprises have the potential to significantly contribute to achieving the SDGs through sustainable transformation (Antesty *et al.*, 2023; Candra *et al.*, 2022; Hidayat *et al.*, 2023). Therefore, sustainable practices are increasingly important for MSME competitiveness (Koe *et al.*, 2024; Natalie *et al.*, 2024). Despite their importance, MSMEs often face challenges such as limited resources, complex regulations, and knowledge gaps that can hinder the adoption of sustainable practices among MSMEs (Jamil, 2023; Koe *et al.*, 2024). However, government initiatives and consumer preferences can drive MSME sustainability efforts.

While studies on MSMEs and sustainable development are abundant, limited attention has been given to the unique challenges and opportunities within Indonesia. MSMEs in Indonesia contribute significantly to GDP and employment but face challenges such as limited resources, complex regulations, and knowledge gaps. This study fills the gap by focusing on the impact of sustainable transformation within food and beverage MSMEs in Indonesia, focusing on their contributions to achieving the SDGs.

This research employed a descriptive bibliometric approach. Data on MSMEs were obtained from the Indonesian Chamber of Commerce and Industry as well as the Central Bureau of Statistics, while a bibliometric analysis of research trends was conducted using data from Scopus.com and visualised through the VOSviewer application. The VOSviewer application is employed to visualise bibliometric trends, identify key areas of focus, and uncover collaboration patterns related to sustainable MSMEs. This research seeks to answer the research question: How do sustainable MSME practices contribute to achieving Indonesia's SDGs within the food and beverage sector?

This study provides valuable insights into the potential of sustainable MSME transformation within the Indonesian food and beverage sector for achieving SDGs. The findings are expected to guide policy-makers, industry leaders, and MSME owners in formulating strategies to promote sustainability and contribute to national development goals.

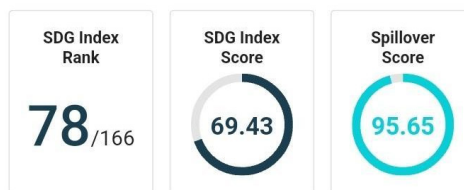
## THEORETICAL BACKGROUND

### Indonesia's Sustainable Development Index

The Sustainable Development Goal Index, a global index developed by the Sustainable Development Solutions Network (SDSN), measures a country's progress towards achieving the UN's 17 Sustainable Development Goals (SDG Transformation Centre, 2016). Indonesia has a score of 69.43 on the SDG Index, ranking the country 78th out of 166 nations (see Figure 1): a score of 100 would indicate that all 17 SDGs have been achieved. Indonesia's high spillover score of 95.65 on the SDG Index indicates that its actions have a generally positive impact on other countries' abilities to achieve the SDGs. The Spillover Index considers three dimensions: environmental and social impacts embodied into trade; economy and finance; and security (Sachs *et al.*, 2024).

## Indonesia

East and South Asia



**Figure 1: Indonesia's Sustainable Development Goal Index**

Source: Sachs *et al.*, 2024

## The Contribution of Sustainable Micro, Small, and Medium Enterprises (MSMEs)

MSMEs are crucial for a nation's economic growth and development (Anuj *et al.*, 2023; Krisna, 2024; Kadaba *et al.*, 2022; Singla, 2023). They are significant job creators, particularly in both rural and urban areas, and a substantial contributor to a country's GDP (Anuj *et al.*, 2023). In India, for instance, MSMEs are recognised as a key factor in national development, employing millions and contributing significantly to the economy (Singla, 2023). Their potential for growth further strengthens their role as economic drivers. However, the extent to which these contributions align with sustainability goals remains varied and context dependent.

In the context of SDGs, MSMEs offer transformative potential in developing economies (Dasaraju and Tambunan, 2023; Endris and Kassegn, 2022). They contribute to poverty reduction (SDG 1), decent work opportunities (SDG 8), and responsible consumption and production (SDG 12). For instance, MSMEs in the food industry can adopt practices to reduce food waste, aligning with SDG 12 (Ku, 2022). Similarly, MSMEs can utilise online platforms that promote responsible consumption to connect with eco-conscious consumers (Whitaker and Pawar, 2020).

In Indonesia, MSMEs in the food and beverage sector are increasingly integrating sustainable practices, such as circular economy principles, green supply chain management, and green manufacturing practices (Antesty *et al.*, 2023; Omar *et al.*, 2024; Purwoko *et al.*, 2023). Green product design also enhances environmental sustainability for MSMEs, especially in manufacturing (Gani *et al.*, 2022). Indonesian food and beverage MSMEs are beginning to embrace circular economy principles, such as local sourcing, to reduce waste and meet consumer demands for sustainable products (Rahmawati and Novani, 2024). Purwoko *et al.* (2023) highlight that green supply chain management, consumer awareness, regulatory compliance, and market performance in Indonesian MSMEs are interconnected. These practices enhance competitiveness while addressing growing consumer demand for eco-friendly products. However, challenges remain regarding the limited resources and external factors that can hinder MSME performance (Antesty *et al.*, 2023).

## Challenges in Sustainable Micro, Small, and Medium Enterprises

While sustainability is becoming a competitive necessity for MSMEs, its implementation is fraught with challenges (Koe *et al.*, 2024). Government initiatives, such as financial aid, regulations, and educational programmes, have encouraged sustainable practices, but limited access to funding, overly complex regulations, and knowledge gaps remain significant barriers (Durrani *et al.*, 2024; Hamdani *et al.*, 2024). Furthermore, limited awareness and the lack of preference among customers hinder MSME owners from understanding the long-term benefits of sustainability or how to implement these practices effectively (Koe *et al.*, 2024; Moursellas *et al.*, 2024).

In Indonesia, these challenges are particularly pronounced within the food and beverage sector. Addressing these issues requires targeted strategies, such as tailored initiatives and simplified

regulations, which this study seeks to explore. The Indonesian food and beverage sector presents a unique case due to its significant contribution to the economy and the challenges it faces in adopting sustainable practices. This study builds on previous findings by using a bibliometric approach to analyse research trends and collaboration patterns, offering actionable insights for policy-makers, industry leaders, and MSME owners to bridge the gap between sustainability and practical implementation.

## DATA AND METHOD

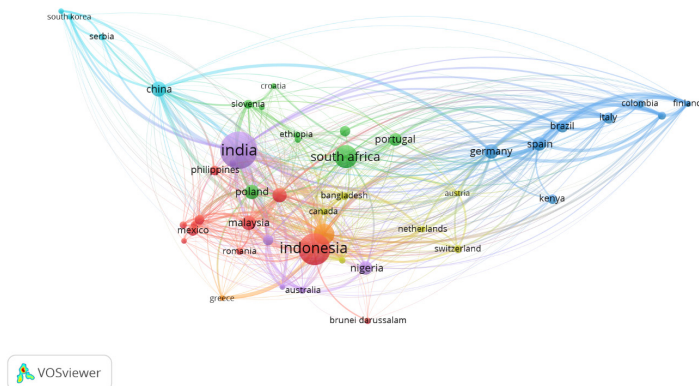
This research employed a descriptive bibliometric approach. The descriptive side employed a simple analysis using data from the Indonesian Chamber of Commerce and Industry as well as the Central Bureau of Statistics on MSMEs. The bibliometric analysis employed the VOSviewer application, selected for its advanced capabilities in visualising research trends and collaboration networks. This dual approach aimed to explore research patterns and key themes related to sustainable MSMEs while grounding the analysis in the data focusing on the context of Indonesia.

The descriptive analysis utilised data from the Indonesian Chamber of Commerce and Industry ([kadin.id](http://kadin.id)) and the Central Bureau of Statistics ([bps.go.id](http://bps.go.id)). For the bibliometric analysis, data were obtained from Scopus.com, a comprehensive database for academic research.

The bibliometric search query included the keywords “sustainable” AND “micro” AND “small” AND “medium” AND “enterprise”, filtered to articles between 2014 and 2024. Inclusion criteria for the search were limited to the “final” publication stage and the “English” language. This search yielded 482 documents: these were downloaded in CSV format and imported into the VOSviewer application to analyse the sustainable MSME studies by country and keywords.

VOSviewer was chosen due to its unique ability to visualise bibliometric data in an interpretable manner. Specifically, VOSviewer facilitates the mapping of global collaboration networks, thematic trends, and research impacts (Orduña-Malea and Costas, 2021). While there are other useful methodologies, such as systematic reviews or content analysis, they are known to suffer from high heterogeneity and bias due to broad inclusion criteria (van der Slink, 2022). This can weaken study quality, making it difficult to draw reliable conclusions from macro-level data analysis. VOSviewer bridges this gap by offering a link-based analysis combined with bibliometric visualisations, making it particularly well-suited for the objectives of this study.

In the VOSviewer analysis, circles represent either countries or keywords, with their size indicating research activity or keyword frequency. Lines connecting circles denote co-authorship between countries or co-occurrence of keywords, while colours group related clusters. The size of the circle corresponds to the number of research paper contributions, and the colour corresponds to the strength of the relationship. Essentially, these visual representations reveal collaboration patterns between countries and thematic trends in sustainable MSME research, identifying key contributors and emerging topics (see Figure 2).



**Figure 2: VOSviewer Visualisation of Sustainable Micro, Small, Medium Enterprise Country Distribution**

Source: Constructed by authors

## RESULTS

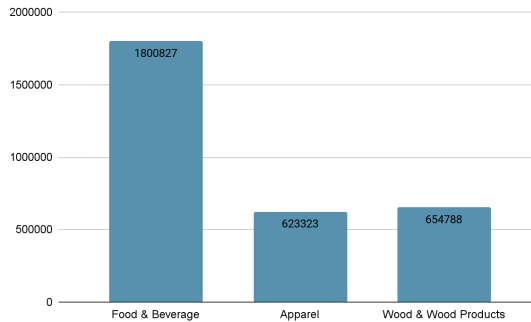
The descriptive analysis of the data from the Indonesian Chamber of Commerce and Central Bureau of Statistics identified the leading MSMEs in Indonesia, together with the top sectors utilising e-commerce in the country. Meanwhile, the bibliographic analysis highlighted the trends of sustainable MSME studies ranging from 2014 to 2024.

### *Research on Sustainable MSME by Country*

The bibliometric analysis using Scopus data shows a high volume of MSME research coming from India (111 documents), Indonesia (84 documents), and South Africa (44 documents). This visualisation highlights co-authorship between countries on sustainable MSME research, suggesting a growing focus on understanding and supporting MSMEs in these countries, which are often characterised by a large MSME presence but face challenges related to growth and development.

### *Top MSME Sectors in Indonesia*

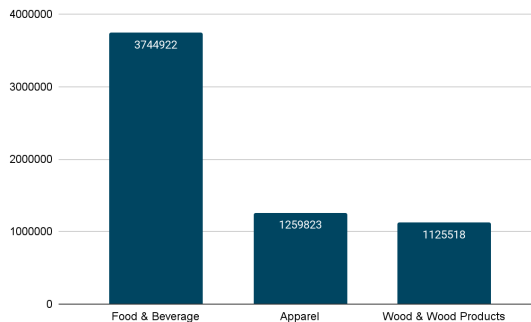
Figure 3 suggests that the food and beverage sector is the largest MSME sector in Indonesia, with approximately 1,800,827 establishments. This is followed by apparel (623,323 establishments), as well as wood and wood products (654,788 establishments). The number of food and beverage establishments makes a significant contribution to Indonesia's MSME landscape.



**Figure 3: Number of Establishments in Indonesia's Top MSME Sectors**

Source: Indonesian Chamber of Commerce and Industry, 2023

Figure 4 suggests that the food and beverage sector is the largest employer among Indonesia's MSME sectors, followed by apparel, and wood and wood products. The food and beverage sector employs approximately 3,744,922 workers, the apparel sector employs 1,259,823 workers, and the wood and wood products sector employs 1,125,518 workers. This highlights the substantial job creation potential of MSMEs in Indonesia. With over 6 million workers employed across just the top three sectors (food and beverage, apparel, wood and wood products), MSMEs significantly contribute to Indonesia's overall employment landscape. The dominance of the food and beverage sector in terms of worker numbers suggests that it is a major driver of employment within Indonesia's MSMEs, pointing towards a strong domestic food culture.

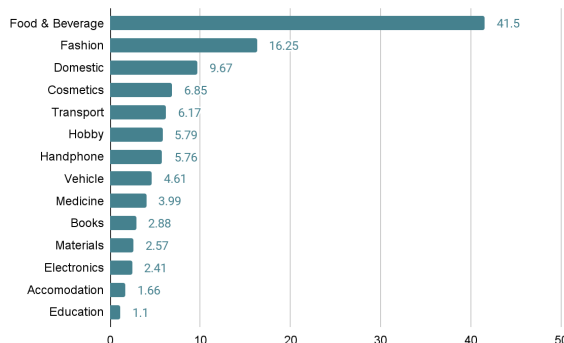


**Figure 4: Number of Workers Employed in Indonesia's Top MSME Sectors**

Source: Indonesian Chamber of Commerce and Industry, 2023

### Top Sectors Utilising E-Commerce

Figure 5 shows that the food and beverage, apparel, and domestic needs sectors were the top-selling categories of goods and services in 2021. These three categories sold their products or services online, accounting for 41.50%, 16.25%, and 9.67%, respectively. The food and beverage sector's dominance in e-commerce sales suggests that Indonesians are increasingly using online platforms to purchase their everyday food and grocery needs.

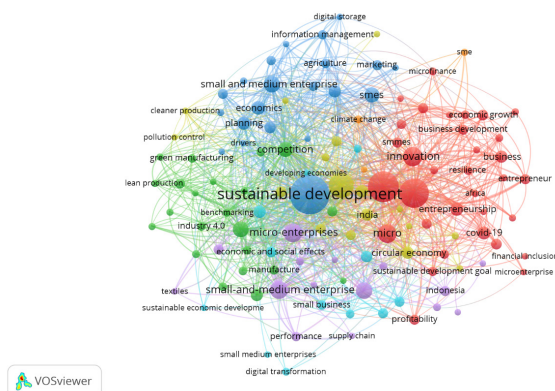


### Figure 5: Sectors Utilising E-Commerce in Indonesia

Source: Central Bureau of Statistics, 2022

### Research on Sustainable MSME by Keywords

As seen from Figure 6, “sustainable development” is the central keyword in the visualisation, and it is connected to many other keywords, such as “economic growth”, “circular economy”, and “green manufacturing”. This suggests that sustainability is a major focus of research on MSMEs.



**Figure 6: VOSviewer Visualisation of Sustainable Micro, Small, Medium Enterprises Key-words**

Source: Constructed by authors



## DISCUSSION

As seen in Figure 2, the high volume of Micro, Small, and Medium Enterprise (MSME) studies from Indonesia (84 documents) reflects a growing focus within the country on understanding and supporting the transformation of MSMEs. This focus aligns with the trend observed across countries such as India and South Africa, all of which have a large MSME presence but face challenges related to growth and achieving sustainable practices. The differences in sustainability among MSMEs across various countries can be attributed to several key factors. These factors, such as the push effect (partnership, rules, and value practices), the pull effect (government support, market sophistication, environmental awareness), and the mooring effect (technological support, switching costs), play a crucial role in influencing the transition towards green practices in MSMEs (Hamdani *et al.*, 2024). Enablers and barriers, including government support, owner initiatives, customer preferences, financial constraints, lack of education, regulations, and awareness, significantly impact MSME sustainability (Koe *et al.*, 2024; Moursellas *et al.*, 2024). Moreover, financial constraints, lack of education, government regulations, and awareness among MSME owners or managers are highlighted as major barriers to environmental sustainability in developing countries, emphasising the importance of overcoming these challenges to foster sustainable practices in MSMEs (Durrani *et al.*, 2024).

MSMEs are crucial for job creation, economic growth, and achieving SDGs in developing countries (Jamil, 2023; Singla, 2023), and are demonstrably vital for a strong socio-economic landscape as they create jobs, boost production, and reduce regional imbalances (Singla, 2023). Food and beverage MSMEs, in particular, foster collaboration, communication, and innovation, leading to job opportunities and industry growth (Candra *et al.*, 2022; Prasetyo, 2021). These factors combined make food and beverage MSMEs a major driver of employment in Indonesia (Suri *et al.*, 2024).

Figure 3 highlights the significant role of the food and beverage MSME sector in Indonesia's economic growth. In 2019, it was the largest contributor to GDP; it experienced substantial growth, and was the only non-oil and gas industry with a trade surplus. Food and beverage MSMEs provide crucial employment opportunities and contribute to economic development (Dasaraju and Tambunan, 2023). By leveraging factors such as entrepreneurial orientation, organisational readiness, knowledge management, and e-commerce adoption, food and beverage MSMEs can enhance their performance and significantly contribute to sustainable competitive advantage and superior business performance in the digital era (Wahyuni, 2024).

Figure 4 paints a clear picture of Indonesia's food and beverage MSME sector, which reigns supreme as the largest employer, boasting over 3.7 million workers. The high number of workers in this sector reflects a strong domestic food culture in Indonesia. This translates to a consistent demand for food and beverages, to which MSMEs are perfectly positioned to cater (Candra *et al.*,

2022). However, the possibility of a large number of low-wage workers in the food and beverage sector suggests potential income inequality within the MSME sector. Pi and Fan (2021) have shown that wage disparities can arise due to sector heterogeneity, where different skilled sectors experience varying levels of income inequality. Additionally, the trend towards increased production in low-wage countries for export to high-income consumer markets may impact global inequalities, highlighting the potential income gaps within the MSME sector.

With over 6 million workers across just the top three sectors, MSMEs are a significant driver of Indonesia's overall employment landscape and policies promoting better wages and working conditions are necessary. Given the vast number of jobs provided by MSMEs, government and private initiatives should prioritise supporting their growth and development (Jamil, 2023). Initiatives focusing on government policies are crucial for MSMEs' accelerated development and resilience to economic shocks. This could involve skill improvement programmes, access to finance, and business development opportunities (Anuj *et al.*, 2023). Therefore, prioritising support for MSMEs through government and private initiatives is essential for better wages and sustainable economic growth.

Sustainable practices are crucial for MSME success. Natalie *et al.* (2024) show that sustainable innovations enhance performance in the food and beverage sector. The rise of online grocery shopping (Figure 5) creates a market for MSMEs, and e-commerce platforms promote business continuity and sustainability (Piyani and Chandrarin, 2023). However, digital marketing's double-edged sword can promote over-consumption (Maksi *et al.*, 2024), necessitating regulations for sustainable consumption. Digital technologies, such as big data analytics and blockchain, can empower MSMEs to share information, streamline production, and manage environmental impact, contributing to sustainable consumption and production goals (Khaw-ngern *et al.*, 2021).

As seen in Figure 6, sustainable development is linked to economic growth. MSMEs are vital drivers of economic growth and are essential for equitable distribution of national income and wealth. Factors such as access to finance, infrastructure, government support, and information technology utilisation have been identified as key contributors to the sustainable development of MSMEs (Ayalu *et al.*, 2023; Kadaba *et al.*, 2022). Sustainable finance also plays a crucial role in encouraging MSMEs to transition towards green growth and sustainable development (Ayalu *et al.*, 2023).

The contribution of sustainable MSMEs on economic growth is linked to the circular economy. Integrating sustainable practices with circular economy principles can enhance their environmental performance and overall sustainability, as circular economy models align with the long-term goal of protecting the environment and reducing greenhouse gas emissions (Arsawan *et al.*, 2024; Baral *et al.*, 2023). Additionally, the circular economy mediates the relationship between green human resource management and sustainable business performance in MSMEs, highlighting the importance of incorporating sustainable practices in these enterprises to achieve environmental goals (Arsawan *et al.*, 2024; Qanita *et al.*, 2024).

Figure 6 highlights the link between sustainable development and green manufacturing practices that positively impact MSME's sustainability by focusing on energy efficiency, resource conservation, and waste reduction (Omar *et al.*, 2024). Green innovation, particularly green product design, is crucial for environmental sustainability (Gani *et al.*, 2022; Song *et al.*, 2023). Purwoko *et al.* (2023) emphasise the importance of green practices for improved market performance, customer awareness, regulatory compliance, and overall sustainability. Rahmawati and Novani (2024) suggest that local sourcing and waste minimisation can enhance sustainability and meet consumer demands. These findings highlight the vital connection between sustainable MSMEs and green manufacturing practices.

MSMEs have the potential to impact the achievement of sustainable development goals far beyond their size (Endris and Kassegn, 2022). More MSMEs in the food and beverage sector means more production and sales and this contributes to a higher Gross Domestic Product (GDP) for Indonesia. As the number of establishments rises, so does the total economic output of the sector. Therefore, food and beverage MSMEs not only help in poverty alleviation and empowerment of vulnerable groups such as women and youth, but also significantly contribute to inclusive growth and sustainable development (Dasaraju and Tambunan, 2023). A growing MSME sector creates more job opportunities for Indonesians, directly contributing to SDG 8's goal of full and productive employment.

Sustainable Development Goal 8 (SDG 8) emphasises decent work, meaning fair wages, safe working conditions, and social security for employees (United Nations, n.d.). Sustainable food and beverage MSMEs play a crucial role in contributing to SDG 8 by generating employment, fostering entrepreneurship, and promoting economic development, especially in developing countries (Dasaraju and Tambunan, 2023). Supporting their growth can lead to improved regulations for worker rights and safety, as well as access to training and skill development, making MSME workers more productive and potentially receiving higher wages.

In addition to SDG 8, the food and beverage MSME sector also contributes to SDG 12, responsible consumption and production. The use of biodegradable or recyclable packaging materials in sustainable food and beverage MSMEs can help reduce environmental impact and promote responsible consumption (Whitaker and Pawar, 2020). Implementing strategies to minimise food waste, such as proper storage, efficient production processes, and innovative use of by-products, can significantly reduce resource consumption (Ku, 2022).

The impact of food and beverage MSMEs' sustainability is measured through access to finance, electricity, and trade regulation (Endris and Kassegn, 2022). Global concerns over environmental pollution have driven the adoption of green business practices that are crucial for the sustainability of SMEs through green economy initiatives and the use of renewable resources (Megawati *et al.*, 2024). MSMEs contribute to SDGs through Corporate Social Responsibility (CSR) activities; these include initiatives such as investment in CSR initiatives, the use of renewable energy, scrap recycling

rate increase, emission reduction, and water consumption management (Ghosh *et al.*, 2024). By integrating green innovations and aligning operations with sustainable practices such as food waste reduction, MSMEs in the food and beverage sector can enhance their business performance, promote environmental responsibility, and contribute to achieving multiple SDGs with positive economic, environmental, and social impacts (Ku, 2022; Natalie *et al.*, 2024). While the potential for Indonesian food and beverage MSMEs to contribute to SDGs is significant, several challenges exist. These include limited access to technology, financial constraints, and lack of awareness about sustainable practices. However, with appropriate support and incentives, these MSMEs can become key drivers of sustainable development.

This study highlights the critical role of sustainable practices in MSMEs, particularly in the food and beverage sector, in achieving Sustainable Development Goals (SDGs) such as decent work (SDG 8) and responsible consumption and production (SDG 12). By integrating green innovations, circular economy principles, and sustainable practices, MSMEs can improve environmental performance and significantly contribute to economic growth. Practical outputs include actionable strategies for MSMEs to adopt sustainable manufacturing, leverage digital technologies, and foster green innovation to enhance competitiveness and reduce environmental impact. Policy-makers can use these insights to design targeted initiatives, such as financial incentives, skills development programmes, and improved access to technology, to support MSME sustainability and resilience.

## CONCLUSIONS

Micro, Small, and Medium Enterprises (MSMEs) are pivotal to Indonesia's economic growth, job creation, and sustainable development. The food and beverage sector (the dominant MSME sector in Indonesia), employs a large workforce, substantially contributes to GDP, and offers significant growth potential for Indonesia's MSME scope.

Sustainability is essential for the long-term success of MSMEs. Adopting green practices, circular economy principles, and digital technologies can enhance their performance, reduce environmental impact, and contribute to sustainable development goals. The food and beverage sector of Indonesian MSMEs contributes to SDG 8: Decent Work and Economic Growth and SDG 12: Responsible Consumption and Production.

Addressing challenges such as income inequality, low wages, and limited access to technology within the MSME sector is essential to maximise its potential and ensure inclusive growth. Initiatives to improve access to finance, skills training, and technology are necessary to foster MSME growth and sustainability. With the large workforce in the MSME sector, policies to improve wages, working conditions, and social security are crucial.

While this study offers valuable insights into the role of MSMEs in Indonesia's economic and sustainable development, it is essential to acknowledge its limitations. The reliance on secondary

data restricts the depth of analysis and precludes establishing definitive causal relationships. To address these shortcomings and expand our understanding, future research should focus on conducting detailed case studies of MSMEs across various sectors and regions that can provide richer contextual data on challenges, opportunities, and best practices. Furthermore, tracking the development of MSMEs over time will allow for the identification of trends, patterns, and the impact of policies and interventions.

## ACKNOWLEDGMENTS

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