

SUSTAINABILITY TRANSITION PATHWAYS OF RURAL SMES IN INDONESIA: INTEGRATING LOCAL KNOWLEDGE AND GREEN INNOVATION

Agung Muliaman Anas^{1*}
Mardiatul Jannah²
Pahrul³

^{1,3} Faculty of Economics and Business, Universitas Negeri Makassar, Makassar, Indonesia

² Program Studi Kewirausahaan, Institut Teknologi dan Bisnis Kalla, Makassar, Indonesia

*Corresponding Author: agung.muliaman@unm.ac.id

Received: March 25, 2026

Accepted: May 26, 2026

Published: June 30, 2026

Abstract: Sustainability transition has become a strategic agenda for rural SMEs in Indonesia as they face increasing pressures from climate change, green market demands, and shifts in local socio-economic systems. This study analyzes the sustainability transition pathways of rural SMEs by examining the integration of local knowledge and green innovation within the socio-technical context of rural communities. Using a qualitative case study approach, data were collected through in-depth interviews, field observations, and document analysis in several rural areas with active SME ecosystems. The findings indicate that rural SMEs exhibit low to moderate levels of sustainability readiness due to limited access to technology, green financing, and institutional support. However, local knowledge serves as a key driver of eco-based innovation, including the use of natural materials, low-impact traditional production methods, and community-driven ecological practices. The integration of local knowledge and green innovation generates three transition pathways: (1) niche-led green transition pathway, driven by locally rooted innovations; (2) community-driven reconfiguration pathway, shaped by strong social networks and local institutions; and (3) hybrid technology-local wisdom pathway, combining environmentally friendly technologies with indigenous practices. This study demonstrates that sustainability transitions in rural SMEs rely not on advanced technologies but on community strength, cultural values, and contextually embedded low-cost innovations. The results contribute to the broader understanding of sustainability transitions in developing countries and offer valuable insights for designing inclusive green SME policies at the rural level.

Keywords: Rural SMEs; sustainability transition; green innovation; socio-technical pathways; indigenous-based innovation.

Abstrak: Transisi keberlanjutan menjadi agenda strategis bagi UMKM perdesaan di Indonesia yang menghadapi tekanan perubahan iklim, tuntutan pasar hijau, dan dinamika ekonomi lokal. Penelitian ini bertujuan menganalisis sustainability transition pathways UMKM perdesaan melalui integrasi pengetahuan lokal (local knowledge) dan inovasi hijau (green innovation). Menggunakan pendekatan kualitatif studi kasus, data dikumpulkan melalui wawancara mendalam, observasi lapangan, dan analisis dokumen di beberapa desa dengan ekosistem UMKM aktif. Hasil penelitian menunjukkan bahwa tingkat kesiapan keberlanjutan UMKM masih berada pada kategori rendah-menengah akibat keterbatasan teknologi, pembiayaan, dan dukungan kelembagaan. Namun, pengetahuan lokal terbukti menjadi sumber utama inovasi berbasis alam, seperti pemanfaatan bahan baku organik, teknik produksi tradisional hemat energi, dan praktik ekologis berbasis komunitas. Integrasi pengetahuan lokal dan inovasi hijau menghasilkan tiga jalur transisi utama, yaitu: (1) niche-led green transition pathway, yang dipicu oleh inovasi berbasis lokal; (2) community-driven reconfiguration pathway, yang dipimpin oleh jejaring sosial dan kelembagaan desa; dan (3) hybrid technology-local wisdom pathway, yang menggabungkan teknologi ramah lingkungan dengan praktik tradisional. Temuan ini menegaskan bahwa transisi keberlanjutan UMKM perdesaan tidak bergantung pada teknologi canggih, tetapi pada kekuatan komunitas, nilai lokal, dan inovasi rendah biaya yang kontekstual. Penelitian ini memberikan kontribusi penting dalam memahami model transisi berkelanjutan di negara berkembang dan implikasinya terhadap kebijakan UMKM hijau berbasis desa.

Kata Kunci: UMKM perdesaan; sustainability transition; green innovation; socio-technical pathways; inovasi berbasis kearifan lokal.

INTRODUCTION

Indonesia is currently at a crucial phase of transition toward sustainable development. On one hand, the country remains heavily dependent on sectors based on natural resources and fossil energy; on the other hand, commitments to the 2030 Agenda and emission reduction targets demand fundamental changes in how production, consumption, and resource management are conducted. The sustainability transitions framework, particularly the Multi-Level Perspective (MLP), explains that the shift toward sustainability is not merely about adopting green technologies but rather a systemic transformation involving interactions between niche-level innovations, established socio-technical regimes, and macro-landscape pressures such as climate crises and economic globalization (Geels, 2019; El Bilali, 2019).

In this context, Micro, Small, and Medium Enterprises (MSMEs or SMEs) play a central role in Indonesia's economy while simultaneously being key actors in the sustainability transition. Data from the Ministry of Cooperatives and SMEs show that Indonesia has approximately 65- 66 million SMEs contributing about 60-61% of gross domestic product (GDP) and absorbing around 97% of the national workforce, thus often referred to as the "backbone" of the economy (Susanti et al., 2023)). However, the majority of these SMEs are located in rural areas with characteristics of small-scale, family-based businesses utilizing local resources, thus facing limitations in market access, financing, technology, and managerial capacity (Effendi et al., 2023; Purnomo & Purwandari, 2025)).

In rural areas, SMEs are not merely economic entities but also integral parts of the village's socio-cultural ecosystem. Studies on rural business sustainability show that small businesses in rural areas heavily depend on social networks, local institutions, and partnership patterns with Village-Owned Enterprises (BUMDes) and other business actors; imbalanced partnership patterns can create competition that undermines local business sustainability (Effendi et al., 2023)). At the same time, many villages in Indonesia are being encouraged to become tourism villages and creative villages that rely on local SMEs as the main drivers of the economy while serving as the face of cultural identity (Purnomo & Purwandari, 2025). This makes the question of how rural SMEs navigate sustainability transitions a strategic issue, both scientifically and in terms of policy.

One distinctive characteristic of rural SMEs in Indonesia is their connection to local knowledge and traditional wisdom (local/indigenous knowledge). Local knowledge encompasses land management practices, consumption patterns, value systems, and social norms that have been passed down through generations, governing the relationship between humans, the environment, and the economy (Koike, 2019; Nugroho et al., 2023). Several studies in Indonesia confirm that local wisdom and traditional knowledge have great potential to support sustainable development goals, for instance in water resource conservation, forest management, and sustainable village development when properly integrated with technical and modern policy approaches (Koike, 2019).

In the entrepreneurship domain, local wisdom not only serves as passive "cultural heritage" but becomes a source of added value and business differentiation. Studies on culture-based entrepreneurship and local wisdom show that entrepreneurs who integrate tradition, symbols, and local narratives into their business models are able to build businesses that are not only economically profitable but also contribute to preserving cultural identity and social cohesion (Irfayanti & Lord, 2024; Wijaya, 2025)).

Local wisdom-based entrepreneurship is also viewed as a strategy for community economic empowerment, especially for vulnerable groups in rural areas, while serving as a means to strengthen social resilience against pressures of globalization and cultural homogenization (Wijaya, 2025)).

However, the dominance of local wisdom and traditional production practices also presents a paradox in the context of climate crisis. Many rural SMEs still use outdated technologies that are energy-intensive, generate waste, and have not fully complied with environmental standards. At the same time, national and global policies continue to push for green transition and strengthening of environmental standards in supply chains. This is where the concept of green innovation becomes relevant. Green innovation refers to the development of products, processes, and business models that reduce environmental impact while providing economic and social value to business actors (Geels, 2019)).

Various empirical research in Indonesia shows that the adoption of green innovation by SMEs correlates positively with sustainable business performance, both in terms of environmental and social performance, and—in some cases—financial performance. A study by Indrawati et al (2025) found that drivers of green innovation adoption among Indonesian SMEs include environmental orientation, government support, stakeholder pressure, and technological capacity. (Sisca & Wijaya, 2023) demonstrate that green innovation contributes significantly to improving the social and environmental performance of SMEs during the Covid-19 pandemic, although its impact on short-term economic performance has not always been significant. (Meilandri et al., 2025) add that the combination of green innovation, cost efficiency, and government incentives positively affects the financial sustainability of eco-conscious SMEs in Indonesia. Meanwhile, studies on green innovation management in Indonesian SMEs underscore the importance of organizational capacity, networks, and supportive policies to overcome various barriers to green innovation adoption (Arindra & Latief, 2025; Kania & Bukhori, 2025)

Although the literature on green innovation in Indonesian SMEs is rapidly developing, most research still focuses on SMEs in urban or semi-urban areas, manufacturing sectors, and modern services, with emphasis on managerial and financial variables. Relatively few studies explicitly examine how SMEs in rural areas navigate sustainability transition pathways by integrating local knowledge and green innovation within the context of village socio-cultural structures, infrastructure limitations, and local policy configurations (Effendi et al., 2023; Purnomo & Purwandari, 2025). Yet, from an MLP perspective, these dynamics are crucial because they show how niche innovations rooted in local wisdom can interact with socio-technical regimes and national policies in shaping rural-specific transition trajectories.

At the policy level, the ASEAN SME Policy Index 2024 emphasizes that support for SME greening requires a holistic approach integrating regulatory instruments, market incentives, green financing, and capacity building, while adapting to the capacity limitations of SMEs in each member country. This report highlights that Indonesia has adopted various policy instruments to support green SMEs, but inter-agency integration and policy penetration to the village level still face many obstacles. In line with this, the national strategic framework on Green SMEs and net zero positions SMEs as engines of low-carbon innovation, but concrete implementation at the grassroots level heavily depends on local institutional

readiness, financing ecosystems, and the socio-cultural capacity of rural communities (Bappenas, 2025; IESR, 2025).

In practice, various case studies on tourism villages, locally-based creative economy, and community economic empowerment show that local knowledge can be combined with modern technology and business models to produce more inclusive sustainability transition pathways. (Purnomo & Purwandari, 2025), for instance, formulated a tourism village SME empowerment model emphasizing local leadership, innovation, governance, collaboration, and technology utilization as prerequisites for creating sustainable tourism villages. Other research notes that women-owned businesses in the creative industry sector operating with reference to local wisdom tend to build business practices that are more sensitive to social and ecological contexts, although they still face pressure to adapt to modern market standards (Irjayanti & Lord, 2024; Susanti et al., 2023).

Nevertheless, to date there have been few studies that systematically map the "sustainability transition pathways" of rural SMEs in Indonesia through the lens of integrating local knowledge and green innovation. Important unanswered questions include: how do rural SMEs interpret and respond to the sustainability agenda; what forms of green innovation emerge from the interaction of local knowledge with market demands and regulations; and how do the formed transition trajectories interact with national policies and international initiatives at the ASEAN level. This knowledge gap hinders the formulation of contextual policies and support programs, while making the green transition narrative in Indonesia tend to be "city-based" and less capture the rural specificity.

Based on this background, this article aims to analyze sustainability transition pathways of rural SMEs in Indonesia by emphasizing the integration of local knowledge (local/indigenous knowledge) and green innovation. Specifically, this research seeks to: (1) map the structural and institutional configurations that shape the transition context of rural SMEs; (2) identify forms of green innovation rooted in local knowledge and culture-based entrepreneurship practices; and (3) analyze how these transition trajectories resonate with national and regional policy frameworks regarding green SMEs. By combining MLP perspective and literature on local knowledge, this study is expected to offer a richer conceptual framework and empirical evidence on how sustainability transitions can occur from the rural "periphery," not merely from urban and industrial centers.

LITERATURE REVIEW

1. Sustainability Transition Theory (MLP)

Sustainability transition theory explains systemic change from conventional production regimes toward more sustainable practices through the interaction of three levels: landscape, regime, and niche (Geels, 2019). Change does not occur linearly, but through the dynamics of external pressures (such as global environmental changes), regime resistance, and the emergence of innovations at the niche level capable of challenging the dominant system. Recent literature emphasizes that local context and community social capacity strongly determine the direction of transition, especially in developing countries (El Bilali, 2019; Famiola & Wulansari, 2020). The socio-ecological complexity of rural areas positions SMEs as vulnerable yet strategic actors because they operate within social regimes bound by tradition and collective values. Thus, MLP analysis becomes relevant for understanding how green innovation and local knowledge can shape sustainable transition

pathways in rural SMEs.

2. Rural SMEs and Sustainability Challenges

Rural SMEs play a central role in the economies of developing countries, but they face unique barriers such as limited capital, technology, green literacy, and access to market networks and policies (Susanti et al., 2023). Recent research shows that rural SMEs tend to be slow in adopting sustainable innovations due to a combination of structural factors (minimal infrastructure), socio-cultural factors (traditional preferences), and economic factors (high transition costs) (Effendi et al., 2023). These barriers place the green transition readiness of rural SMEs in the low to moderate category in various regional studies including the ASEAN SME Policy Index 2024. In this context, understanding local dynamics becomes important because transition is not only about technology, but also about community capacity in responding to change.

3. Local Knowledge and Indigenous Wisdom

Local knowledge (indigenous/local knowledge) is increasingly recognized as a strategic asset in sustainable development because it contains ecological practices, social values, and adaptive traditional technologies (Nugroho et al., 2023). In the context of rural SMEs, local knowledge is not merely cultural heritage, but a source of innovation that can enhance competitiveness, especially in tradition-based products, eco-friendly crafts, agroforestry, and local food (Harsanto et al., 2026; Irjayanti & Lord, 2024). Literature from 2020-2025 affirms that integrating local knowledge with modern approaches promotes context-sensitive sustainability, namely transition pathways adapted to local social and ecological identities, rather than simply imitating urban or industrial models (Koike, 2019; Wijaya, 2025). Thus, local knowledge can become niche innovation that challenges conventional production regimes in rural areas.

4. Green Innovation

Green innovation encompasses the development of products, processes, or business models that reduce environmental impact while increasing efficiency and added value for business actors (Indrawati et al., 2025). For SMEs, green innovation adoption is influenced by environmental orientation, government support, market pressure, and internal organizational capacity. Recent studies in Indonesia show that green innovation positively impacts environmental and social performance, and potentially improves long-term financial performance (Meilandri et al., 2025; Sisca & Wijaya, 2023). Nevertheless, rural SMEs face significant challenges in adopting green technology such as limited knowledge, costs, and lack of access to green financing. Therefore, green innovation in rural areas often emerges as incremental innovation that modifies traditional technology to be more efficient, rather than radical innovation.

5. Integrative Concept: Sustainability Transition Pathways for Rural SMEs

Based on recent literature, sustainability transition pathways for rural SMEs in developing countries are formed through the interaction of three main elements: (1) external pressures driving change, such as environmental regulations and green market demand; (2) internal SME capacity, including social capital, local knowledge, and innovation capability; and (3) institutional support, such as green financing policies and technical assistance (Yusfiarto, 2023). An integrative model for rural SMEs in Indonesia can be formulated as a Local Knowledge-Driven Green Transition Pathway, namely a transition path that gradually integrates local practices with green innovation. This pathway produces three forms:

- a. Niche-local green innovation pathway

SMEs develop locally-based innovations as niches that subsequently strengthen the position of rural green products.

b. Community-driven reconfiguration pathway

Transition is led by communities, BUMDes, women's groups, or cooperatives, not by formal policies alone.

c. Hybrid technology-local wisdom pathway

Integration of energy-efficient/environmentally friendly technology with traditional techniques (e.g., bio-products, eco-crafts, modern agroforestry).

This pathway model reinforces the argument that sustainability transition in rural areas cannot be reduced to technology adoption, but must be supported by social values, cultural identity, and local institutions.

RESEARCH METHODOLOGY

This study employs a qualitative approach with an exploratory case study design, aimed at understanding in depth the processes, dynamics, and contexts of sustainability transition in rural SMEs. This design was chosen because the phenomenon of sustainability transition is complex, contextual, and involves social, cultural, and technological interactions (Yin, n.d.). Additionally, the case study design allows researchers to map the interaction between local knowledge and green innovation in real SME settings, thus capturing the variation of pathways that form.

The research was conducted on rural SMEs in three districts: Pangkep, Gowa, and Bulukumba. Location selection used purposive sampling with criteria that the area has a concentration of SMEs based on local resources, evidence or potential for green innovation, and the presence of active local institutions (BUMDes, women's groups, village cooperatives).

Data collection in this study was conducted through two techniques: observation and interviews. Observations were conducted on SME production processes, community interactions, and the physical environment of business locations. Observations were used to validate local knowledge practices and green innovation narrated by informants. Semi-structured interviews were conducted with 30 key informants selected using purposive sampling and snowball sampling.

RESULT AND DISCUSSION

1. Profile of Rural SMEs and Sustainability Readiness Conditions

Research findings show that rural SMEs in the case studies fall into the low-to-moderate readiness category in adopting sustainability practices. The majority of businesses operate in sectors of local food, crafts, nature-based products (agroforestry), and traditional processed goods. Main challenges include limited technology, minimal access to green financing, low environmental and digital literacy, and inadequate basic infrastructure.

Most SME actors still rely on traditional production techniques and have not implemented environmental control systems such as waste management or energy efficiency. This finding is consistent with the ASEAN SME Policy Index 2024 report which places rural SMEs in Indonesia in the "moderately prepared" category for green transition. These barriers are also aligned with findings by (Effendi et al., 2023), who state that village institutional ecosystems have not fully supported green innovation.

2. Role and Forms of Local Knowledge

Field data reveal that local knowledge is the main asset of rural SMEs. Its forms include natural material processing techniques, waste sorting based on local customs, low-input natural resource processing, collective values related to mutual cooperation (gotong royong), and traditional practices that maintain ecosystems (e.g., water management or use of plant-based materials).

The majority of SME actors rely on recipes, techniques, and work patterns passed down through generations. This local knowledge becomes the basis for the emergence of nature-based innovations, such as natural dyes, organic packaging, and non-synthetic raw materials. This finding supports the literature of (Iriyanti & Lord, 2024; Nugroho et al., 2023) which affirm that local knowledge facilitates ecological adaptation and can become a source of innovation.

3. Dynamics and Barriers of Green Innovation in Rural SMEs

Research findings show that green innovation emerging in rural SMEs is still incremental in nature, such as small-scale biomass energy use, substitution of chemicals with natural materials, modification of environmentally friendly packaging, and use of more efficient traditional techniques. The biggest barriers include implementation costs of new technology, lack of technical training, minimal access to green product markets, and weak incentives from local governments. This aligns with (Andria et al., 2025; Indrawati et al., 2025; Meilandri et al., 2025) who found that Indonesian SMEs face structural constraints in adopting green innovation.

4. Integration of Local Knowledge with Green Innovation

Thematic analysis found three main integration patterns:

a. Local-Based Eco-Product Development

SMEs utilize local knowledge in processing natural materials (e.g., plant dyes, bamboo fiber, dried leaves) to produce environmentally friendly products. This integration emerges organically and is triggered by tourism market demand and village cultural identity.

b. Community-Driven Environmental Practices

Practices of mutual cooperation (gotong royong), village deliberation (musyawarah), and institutional structures such as women's groups or BUMDes become accelerators of green innovation. Community support accelerates the adoption of waste management practices, use of alternative energy, or collective production.

c. Hybrid Traditional-Modern Innovation

Innovation occurs when traditional techniques are combined with simple technology, for instance the use of energy-efficient heating tools in traditional production, or use of small machines with low-emission fuel. This integration creates green innovation that is contextually appropriate, affordable, and can be adopted by many SME actors. This finding strengthens the study by (Purnomo & Purwandari, 2025) regarding the role of tourism village communities in building locally-based sustainable innovation models.

5. Sustainability Transition Pathways Models of Rural SMEs

Based on MLP analysis and field results, three main pathways were identified:

a. Niche-Led Green Transition Pathway

1) Local knowledge-based innovation becomes the initial driver of transition

- 2) SMEs create unique green products that subsequently gain market support
- 3) Suitable for villages with distinctive commodities (natural dyes, organic crafts)
- b. Community-Driven Reconfiguration Pathway
 - 1) Community (BUMDes, women's groups, youth organizations) leads transformation through collective programs
 - 2) Produces gradual changes in local production regimes
- c. Hybrid Technology-Local Wisdom Pathway
 - 1) Integration of modern low-emission technology with traditional practices
 - 2) Emerges when there is intervention from government, NGOs, or academics
 - 3) Most effective in food and craft sectors

CONCLUSION

This research demonstrates that sustainability transition in rural SMEs in Indonesia occurs through a gradual, contextual process heavily influenced by the village's socio-cultural characteristics. The sustainability readiness level of rural SMEs remains in the low-to-moderate category due to infrastructure limitations, capital constraints, technology literacy gaps, and limited access to green financing. However, SMEs possess unique strengths in the form of local knowledge that serves as the foundation for traditional production practices and nature-based innovation. It is this local knowledge that functions as niche innovation capable of challenging and gradually reconfiguring conventional production regimes.

The integration of local knowledge and green innovation has proven to create forms of innovation that are relevant, affordable, and suited to rural contexts, particularly through eco-product development, community-based environmental practices, and hybrid innovations combining simple technology with local wisdom. These dynamics show that sustainability transition in rural areas is not synonymous with adopting advanced technology, but rather represents a process of socio-technical reconfiguration sourced from cultural values, collective work, and community creativity.

The research findings map three prominent sustainability transition pathways in rural SMEs:

- 1) Niche-Led Green Transition Pathway, triggered by locally-based innovation developing from village resource distinctiveness
- 2) Community-Driven Reconfiguration Pathway, led by village social institutions such as BUMDes, women's groups, and local communities
- 3) Hybrid Technology-Local Wisdom Pathway, integrating environmentally friendly technology with traditional practices

Overall, this research confirms that the sustainability of rural SMEs in Indonesia is strongly determined by the ability to combine local values, community capacity, and green innovation. Therefore, successful transition models are not top-down models, but rather models that respect local knowledge, strengthen community networks, and provide technology and institutional support appropriate to village contexts.

These findings enrich the sustainability transitions literature by adding a developing country perspective that positions culture, community, and local knowledge as key actors in driving

transformation toward green SMEs. Additionally, the research results provide an empirical foundation for formulating policies more sensitive to rural contexts and capable of accelerating inclusive sustainability transitions at the grassroots level.

REFERENCES

- Andria, F., Tosida, E. T., Jayawinangun, R., & Saputra, J. (2025). Drivers of the Smart Green Economy in Rural Settings: An Empirical Study on Local Wisdom, ICT, and the Mediating Role of Entrepreneurship. *Theoretical and Practical Research in Economic Fields*, 14, 656–667. <https://journals.aserspublishing.eu/tpref/article/view/9109>
- Arindra, I. F., & Latief, M. F. (2025). Environmental Sustainability in SMEs A Study of Emerging Patterns and Sectoral Trends. *Resilience of Small Medium Business*, (1), 28–44. <https://generatedp.com/index.php/rsmb/article/view/74/75>
- Effendi, S. A., Sukoharsono, E. G., Purwanti, L., & Rosidi. (2023). Building Partnership or Competition: Village Business Sustainability in Indonesia. *Sustainability (Switzerland)*, 15(18). <https://doi.org/10.3390/su151813703>
- El Bilali, H. (2019). The multi-level perspective in research on sustainability transitions in agriculture and food systems: A systematic review. In *Agriculture (Switzerland)* (Vol. 9, Number 4). MDPI AG. <https://doi.org/10.3390/agriculture9040074>
- Famiola, M., & Wulansari, A. (2020). SMEs' social and environmental initiatives in Indonesia: an institutional and resource- based analysis. *Social Responsibility Journal*, 16(1), 15–27. <https://doi.org/10.1108/SRJ-05-2017-0095>
- Geels, F. W. (2019). Socio-technical transitions to sustainability: a review of criticisms and elaborations of the Multi-Level Perspective. In *Current Opinion in Environmental Sustainability* (Vol. 39, pp. 187–201). Elsevier B.V. <https://doi.org/10.1016/j.cosust.2019.06.009>
- Harsanto, B., Kasumaningrum, Y., Mulyana, A., Faisal, Y. A., & Hadjielias, E. (2026). Sustainable innovation in craft-based SMEs: a mixed-method study of Indonesian batik communities. *Small Business Economics*. <https://doi.org/10.1007/s11187-026-01201-y>
- Indrawati, H., Caska, C., Hermita, N., Sumarno, S., & Syahza, A. (2025). Green innovation adoption of SMEs in Indonesia: what factors determine it? *International Journal of Innovation Science*, 17(1), 19–37. <https://doi.org/10.1108/IJIS-02-2023-0047>
- Irjayanti, M., & Lord, L. (2024). Operating a business with local wisdom: a grounded research of women in the creative industry. *Cogent Business and Management*, 11(1). <https://doi.org/10.1080/23311975.2024.2392047>
- Kania, D., & Bukhori, R. F. (2025). Green Innovation Management in Indonesian SMEs: Drivers, Barriers, and Performance Implications for Sustainable Business Development. *International Conference on Sustainable Environment and Innovation*.
- Koike, M. (2019). INDIGENOUS AND LOCAL KNOWLEDGE PROMOTING SDGs IN INDONESIA: THE CASE OF THE SUMBANESE CULTURAL FESTIVAL. *Journal of Environmental Science and Sustainable Development*, 2(2), 218–227. <https://doi.org/10.7454/jessd.v2i2.1034>
- Meilandri, D., Agus Saputri, N., Ridwan, M., Kristanto, E., & Sudarmanto, E. (2025). The Role of Green Innovation. Cost Efficiency, and Government Incentives on the Financial Sustainability of Eco- Conscious MSMEs. *International Journal of Business, Law and Education*, 6(2), 2025. <https://ijble.com/index.php/journal/index>
- Nugroho, H. Y. S. H., Sallata, M. K., Allo, M. K., Wahyuningrum, N., Supangat, A. B., Setiawan, O., Njurumana, G. N., Isnani, W., Auliyani, D., Ansari, F., Hanindityasari, L., & Najib, N. N. (2023). Incorporating Traditional Knowledge into Science-Based Sociotechnical Measures in Upper Watershed Management: Theoretical Framework, Existing Practices and the Way Forward. *Sustainability (Switzerland)*, 15(4). <https://doi.org/10.3390/su15043502>
- Purnomo, S., & Purwandari, S. (2025). A Comprehensive Micro, Small, and Medium Enterprise Empowerment Model for Developing Sustainable Tourism Villages in Rural Communities: A Perspective. *Sustainability (Switzerland)*, 17(4). <https://doi.org/10.3390/su17041368>
- Sisca, & Wijaya, A. (2023). The Role Of Green Innovation To Achieve Sustainable Business Performance Of MSMEs In The Covid-19 Pandemic. *International Journal of Science*. <http://ijstm.inarah.co.id>
- Susanti, E., Mulyanti, R. Y., & Wati, L. N. (2023). MSMEs performance and competitive advantage: Evidence

from women's MSMEs in Indonesia. *Cogent Business and Management*, 10(2).

<https://doi.org/10.1080/23311975.2023.2239423>

Wijaya, H. (2025). Entrepreneurship Based on Culture and Local Wisdom: Building Sustainable Business from Tradition Rifqiansyah. *Journal of Indonesian Scholars for Social Research Copyright*, 5(1), 14–23.

Yin, R. K. (n.d.). *Case Study Research and Applications. Sixth Edition*.

Yusfiarto, R. (2023). Transition Strategies of Green MSMEs: A Sequential Explanatory Design Mix Method Analysis. *East Java Economic Journal*, 7(2), 248–268. <https://doi.org/10.53572/ejavec.v7i2.113>