

Empowering Rural Tourism through BUMDes Innovation: An Exploratory Study in Klaten Regency

Yuli Tirtariandi El Anshori^{1*}, Enceng¹

¹ Faculty of Law, Social Sciences and Political Sciences, Universitas Terbuka, Indonesia

ABSTRACT

The development of ecotourism in Indonesia has increasingly involved Village-Owned Enterprises (BUMDes) as institutional drivers of rural innovation and socio-economic transformation. This study explores the innovation practices of BUMDes in Klaten Regency, Central Java, which hosts one of the highest concentrations of active BUMDes in the country. Using a qualitative descriptive approach, the research examines six villages, including BUMDes classified as advanced, developing, and growing, with a focus on how innovation principles are implemented in ecotourism development. Data were collected through interviews, observations, and document analysis. The findings reveal that successful BUMDes adopt cooperative, participatory, emancipatory, transparent, accountable, and sustainable management practices. Villages such as Ponggok have leveraged natural resources, particularly water-based tourism, to generate substantial local revenue, reduce unemployment, and promote community participation. However, challenges remain, including limited human resources, regulatory constraints, and uneven innovation capacity across BUMDes categories. The study underscores the importance of institutional innovation, capacity building, and cross-sector collaboration in realizing ecotourism's potential for rural empowerment. These insights contribute to the discourse on sustainable village development and provide practical implications for policy and community-based tourism governance.

ARTICLE HISTORY

Received: Feb 10 2024

Accepted: March 15 2024

KEYWORDS:

BUMDes, Ecotourism,
Village Innovation,
Rural Development,
Sustainable Tourism

INTRODUCTION

Rural poverty remains a persistent challenge in Indonesia, despite the country's abundant natural resources and growing commitment to village-level development (Azizurrohman et al., 2021). As of March 2023, data from the Central Bureau of Statistics indicated that the number of poor individuals in rural areas reached 14.16 million, surpassing the 11.74 million recorded in urban areas. This discrepancy underscores the urgent need to empower rural communities through sustainable and inclusive development strategies. Among the many assets available in rural areas, natural resources such as land, water, and environmentally friendly energy sources present untapped opportunities for economic revitalization (Supiandi, 2024). If managed effectively, these resources can serve as a foundation for locally driven economic growth and community well-being.

The Indonesian government, through the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration (*Kemendesa PDTT*), has implemented various programs aimed at fostering village empowerment (Aminullah, 2025; Aminullah & Wusko, 2025). By the end of 2023, Indonesia had a total of 75,261 villages, of which 7,154 remained classified as underdeveloped and 4,850 as very underdeveloped. The Village Development Index (IDM), which combines indicators of social, economic, and environmental resilience, reveals that 28,766 villages remain in the developing category. These figures suggest that substantial work remains to be done to uplift rural communities and foster inclusive development.

A key policy innovation that has emerged in response to these challenges is the establishment of Village-Owned Enterprises (*BUMDes*), institutional mechanisms designed to support village-level economic initiatives. Aligned with Law No. 6/2014 on Villages, *BUMDes* represent a strategic shift in development governance, promoting principles of good governance, transparency, accountability, and participatory development. They are expected not only to generate local revenue (*PADes*) but also to strengthen institutional resilience and stimulate community participation in economic activities. A prominent example is Ponggok Village in Klaten Regency, where *BUMDes Tirta Mandiri* has successfully transformed a natural spring into a thriving ecotourism destination, significantly improving local livelihoods.

However, not all *BUMDes* demonstrate the same level of success. While some have entered the "advanced" category due to their innovation capacity and community support, others remain in developing or growing stages due to limitations in human resources, infrastructure, regulatory coherence, or managerial experience. This disparity raises critical questions about what factors enable or constrain innovation and sustainable development within *BUMDes*.

To address this issue, this study investigates the following research questions: How is ecotourism development implemented by *BUMDes* in Klaten Regency, and what challenges do they face in fostering innovation within this context? By answering these questions, the study aims to provide empirical insights into the conditions that support or hinder *BUMDes*-led ecotourism development and to identify institutional strategies that promote inclusive rural transformation.

Situated within the broader discourse on community-based tourism and rural innovation, this research contributes to the understanding of how village-level governance, local entrepreneurship, and participatory development intersect to drive sustainable outcomes. Through a qualitative descriptive approach, the study explores how innovation is operationalized in six *BUMDes* with varying levels of maturity in Klaten Regency. Analysing both successful and struggling cases, this paper offers policy-relevant insights into strengthening institutional capacity, promoting accountability, and advancing ecotourism as a tool for rural empowerment.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Ecotourism and Community Empowerment

Ecotourism has evolved as a key pillar of sustainable rural development, particularly in areas endowed with ecological and cultural assets. The integration of conservation objectives with socio-economic benefits aligns ecotourism with the broader Sustainable Development Goals (SDGs), especially Goals 8, 11, and 15 (Castillo-Salazar et al., 2025; da Silva & Maracajá, 2025). Recent literature affirms that ecotourism not only promotes environmental stewardship but also facilitates local empowerment through inclusive planning, cultural revitalization, and income diversification (Patil & Pattanshetti, 2024; Svitlichna et al., 2024). Community-based ecotourism (CBET) models have proven particularly effective in rural Indonesia, where collective land ownership and cultural identity are key enablers of participatory tourism governance (Suyatna et al., 2024).

The case of *Rejowinangun* Tourism Village, previously highlighted, remains instructive in demonstrating how ecologically sustainable practices can be embedded within village-based tourism. It also reflects the broader trend of integrating environmental education and local economic development. In a similar vein, recent studies in West Java and East Nusa Tenggara report that CBET schemes have significantly enhanced community participation and led to the development of local microenterprises, especially among women and youth (Mambosho et al., 2024; Oktavianty et al., 2025).

Globally, the World Tourism Organization Zhang et al. (2024) reaffirms that maintaining ecological carrying capacity is essential to avoid degradation of fragile environments and erosion of host community well-being. Zhang & Deng (2024) also underscores that successful ecotourism models must strike a balance between visitor satisfaction and ecosystem integrity. This is particularly relevant to regions like Klaten, where the ecological limits of freshwater tourism resources must be carefully managed to ensure sustainability. Local regulations and destination governance mechanisms must thus be attuned to the dynamic interplay of conservation imperatives and economic aspirations (Doku, 2024; Shekhar, 2024).

Village-Owned Enterprises (BUMDes) as Vehicles for Rural Innovation

Village-Owned Enterprises (*BUMDes*) were legally institutionalized through Law No. 6/2014 as instruments to harness local economic potential, increase village revenue, and promote participatory development. Positioned as semi-autonomous entities, *BUMDes* are designed to operate at the nexus of community empowerment and local entrepreneurship. As noted by Baskoro (2025) the ideal model of *BUMDes* combines financial sustainability with community welfare, guided by the principles of cooperation, accountability, transparency, and inclusivity.

Recent empirical studies confirm that successful *BUMDes* significantly contribute to local income, employment generation, and social cohesion. Ponggok Village's *Tirta Mandiri* is frequently cited as a benchmark case of ecotourism innovation and rural business success (Chaparro-Banegas et al., 2024; Voronkova et al., 2024). It demonstrates how community-managed enterprises can effectively scale when supported by visionary leadership, business diversification, and community reinvestment strategies. Sari & Ilham, (2024) revealed that *BUMDes* with strong managerial professionalism and integrated tourism models had higher revenue and citizen satisfaction scores.

However, many *BUMDes* continue to underperform due to constraints in technical competence, lack of entrepreneurial orientation, and misalignment between village policies and market dynamics (Pawitan et al.,

2025; Soelarso et al., 2024). Studies in Central Java and West Nusa Tenggara found that over 60 percent of *BUMDes* failed to sustain profitability beyond their third operational year due to weak financial controls, underdeveloped governance frameworks, and poor access to training or market linkages (Siramaneerat et al., 2024). Thus, while *BUMDes* hold promise as engines of rural transformation, their success depends heavily on institutional design, leadership quality, and adaptive capability.

Innovation in Rural Governance and Development

In the context of rural development, innovation is increasingly viewed as a systemic process involving the reconfiguration of institutions, knowledge systems, and social relations. It extends beyond technological change to include organizational and policy innovation, particularly at the grassroots level (Esposito et al., 2024; Gerli et al., 2024). The US Council on Competitiveness defines innovation as the transformation of ideas into value-creating products, services, or processes Böhmann et al. (2025) and Plötz & Varga (2025), a concept echoed in rural governance literature emphasizing adaptive learning and endogenous change (Lerfald, 2025; Li et al., 2024).

In Indonesia Hakim et al. (2024) argue that rural innovation often manifests in new organizational forms such as *BUMDes*, which serve as platforms for mobilizing local assets, social capital, and inter-sectoral collaboration. Chen et al. (2024) distinguish incremental innovation, small improvements to existing processes from transformative innovation, which requires institutional disruption, collective risk-taking, and long-term vision. Ponggok's evolution from a low-income agricultural village to a tourism destination represents transformative innovation driven by community trust, digital integration, and continuous reinvestment.

Recent work by Daulay et al. (2025) supports this view, showing that transformative innovation in *BUMDes* is more likely to occur where there is consistent leadership, knowledge exchange with external actors (e.g., universities or NGOs), and community-wide visioning. Moreover, institutional support structures such as village innovation incubators, participatory planning frameworks, and digital literacy initiatives play an increasingly important role in enabling *BUMDes* to scale their innovations (Rujitoningtyas et al., 2025).

Barriers to Innovation and Policy Implementation in Villages

Despite significant progress in legal and financial support for *BUMDes* and rural innovation, numerous structural barriers persist. Research by Harinurdin et al. (2025) highlights the limited capacity of village officials and community groups to conceptualize, implement, and evaluate innovative programs. This is compounded by gaps in entrepreneurship training, leadership skills, and digital readiness, particularly in remote or resource-constrained areas.

Adelani (2024) further emphasize the problem of weak inter-agency coordination, which undermines the implementation of integrated development strategies. Their study in Lamongan, East Java, revealed that overlapping mandates between village governments, sectoral ministries, and district authorities create confusion in budgeting, accountability, and decision-making. Similar patterns have been observed in heritage tourism management, where the centralization of authority over cultural assets limits the operational autonomy of local actors (Shohet Radom et al., 2025).

Administrative fragmentation, rigid compliance mechanisms, and excessive bureaucracy remain major impediments to innovation. As noted by Annahar et al. (2023), Indonesia's decentralization has not always been accompanied by sufficient regulatory flexibility or institutional alignment. As a result, locally driven development initiatives particularly in the tourism and creative economy sectors often lack enabling environments to scale. The case of Sojiwan Temple in Klaten exemplifies this dilemma: despite local efforts to develop complementary infrastructure and services, governance ambiguity between the central government's heritage authority and local *BUMDes* actors has hindered progress.

To overcome these barriers, scholars advocate for stronger participatory planning, institutional capacity-building, and more inclusive governance models. Dzhengiz & Patala (2024) and Gamidullaeva et al. (2021) suggest that innovation ecosystems must be cultivated at the village level through cross-sector collaboration, open innovation platforms, and leadership training. More adaptive regulatory frameworks and digital integration strategies are also essential to enabling *BUMDes* to respond to emerging challenges and scale sustainable solutions.

METHODOLOGY

This study employed a qualitative descriptive research design to explore how Village-Owned Enterprises (*BUMDes*) in Klaten Regency innovate in the development of ecotourism. A qualitative approach was deemed appropriate given the study's objective to capture the complex, context-bound experiences of village institutions,

community actors, and local governance structures involved in tourism-based innovation. This approach allows for a rich, interpretive understanding of institutional practices, social dynamics, and local development processes.

The research was conducted in six villages located in Klaten Regency, Central Java, Indonesia. The selected villages were purposively sampled to reflect a range of *BUMDes* development categories, including three classified as advanced, two as developing, and one as growing, according to official classifications provided by the Klaten Regency Government. This stratified purposive sampling enabled a comparative analysis of innovation practices across varying institutional capacities.

Primary data were collected through semi-structured interviews, non-participant observations, and document analysis. Interviews were conducted with key informants, including village heads, *BUMDes* directors, *BUMDes* staff, local tourism actors, and officials from the Community and Village Empowerment Agency (*Dispermades*) and the Klaten Regional Development Planning Agency (*Bappeda*). Interviews focused on themes such as innovation implementation, institutional support, community participation, and the operationalization of *BUMDes* principles.

Observation activities were conducted in the field to examine the physical infrastructure, tourism attractions, and community-based economic activities managed by *BUMDes*. Relevant documents, including *BUMDes* business plans, promotional materials, financial reports, and local regulations, were reviewed to triangulate and contextualize the data obtained from interviews and observations.

The data were analysed using thematic analysis, following Braun & Clarke (2006) six-step approach: familiarization with the data, generation of initial codes, identification of themes, review of themes, definition and naming of themes, and production of the report. Coding was conducted manually to trace patterns related to the six principles of *BUMDes* management: cooperative, participatory, emancipatory, transparent, accountable, and sustainable. Comparative thematic mapping was also used to analyse differences between *BUMDes* in the advanced, developing, and growing categories.

This research adhered to ethical principles of social science inquiry, including informed consent, confidentiality, and voluntary participation. Prior to data collection, all participants were briefed on the purpose and scope of the study, and verbal consent was obtained. The names of individuals and sensitive organizational data have been anonymized to protect privacy and maintain ethical integrity. This research protocol was approved by the research ethics committee at Universitas Terbuka, and funding was provided by the Institute for Research and Community Service under grant number: 23278/UN31.LPPM/PT.01.03/2021.

RESULT AND DISCUSSION

Klaten Regency, located in Central Java, Indonesia, is characterized by a rich array of natural and cultural resources that offer significant potential for the development of community-based ecotourism. The region is particularly well-known for its abundance of freshwater springs, agricultural landscapes, and historical sites, making it a strategic location for rural tourism initiatives. In line with Indonesia's broader decentralization and village empowerment policies, Klaten has emerged as one of the leading regencies in terms of the institutionalization and activation of Village-Owned Enterprises (*BUMDes*).

As of 2023, Klaten comprises 391 villages, of which 300 have established *BUMDes* units. This makes Klaten one of the most *BUMDes*-active districts in Indonesia. These enterprises vary in scale, operational focus, and performance. According to the classification by the Community and Village Empowerment Agency (*Dispermades*) of Klaten, *BUMDes* in the regency are divided into four categories: advanced (7 units), developing (14 units), growing (150 units), and basic (20 units). The remaining *BUMDes* are either in the process of establishment or inactive. The prevalence of *BUMDes* in Klaten illustrates a strong institutional foundation for participatory development and provides a fertile ground for tourism-based innovation.

The potential of ecotourism in Klaten is supported by the availability of village funds, provincial financial assistance, and other forms of public investment. These financial resources are frequently channelled into infrastructure development, capacity building, and tourism promotion activities. In particular, the use of Village Funds (*Dana Desa*) has been instrumental in enabling *BUMDes* to mobilize local resources, develop tourist attractions, and create income-generating opportunities for rural residents.

Despite these advantages, several challenges hinder the optimal realization of ecotourism development in Klaten. Among these are the limited quantity and quality of human resources, the complexity of intergovernmental regulations, and the insufficient integration of digital technologies in tourism promotion. These issues are especially salient for *BUMDes* in the "growing" and "developing" categories, where institutional capacity and managerial expertise remain underdeveloped.

Nonetheless, there are exemplary cases such as Ponggok Village's *BUMDes Tirta Mandiri* that demonstrate how local innovation, resource mobilization, and inclusive governance can transform rural areas into vibrant

ecotourism destinations. These advanced *BUMDes* not only generate significant Village Original Income (*PADes*) but also stimulate employment, entrepreneurship, and public participation in village governance. The experiences of such villages serve as benchmarks and learning platforms for others within the regency.

This section provides a foundation for analysing the differentiated innovation practices across *BUMDes* in Klaten. By situating *BUMDes* within the broader ecosystem of ecotourism and village development, it highlights the significance of institutional, financial, and socio-cultural factors in shaping the trajectory of tourism innovation in rural Indonesia.

Bumdes Tirta Mandiri (Advanced Category)

Ponggok Village, located in Polanharjo District, Klaten Regency, is widely recognized as a pioneering example of successful rural innovation through ecotourism development. Its *BUMDes*, *Tirta Mandiri*, represents an advanced institutional model that has effectively mobilized local natural resources primarily freshwater springs into a sustainable tourism enterprise. The establishment of *BUMDes Tirta Mandiri* in 2009 was initiated through a participatory village deliberation process involving the Village Consultative Body (BPD), the village government, and community representatives. This deliberative governance structure reflects an early adoption of cooperative and participatory principles in *BUMDes* formation.

The initial capital for the *BUMDes* was Rp 100 million, drawn from village funds and dedicated to a savings and loan unit. However, the strategic decision to transform Umbul Ponggok a clear, spring-fed pool into a recreational ecotourism site marked a turning point. This initiative capitalized on Ponggok's unique environmental asset and aligned with the tourism product principle that natural or constructed environments form the core of what tourists consume (Fletcher et al., 2018).

Despite initial skepticism and limited human resources, the *BUMDes* leadership, guided by the village head, maintained a clear vision and demonstrated institutional resilience. In its first year, the *BUMDes* generated Rp 100 million in profit, with Rp 30 million transferred as Village Original Income (*PADes*). Over time, revenue and social impact expanded significantly. By 2019, *BUMDes Tirta Mandiri* recorded annual revenues exceeding Rp 5.1 billion, with *PADes* contributions of over Rp 1.5 billion. Employment generation has also been substantial, with the *BUMDes* employing at least 25 residents directly.

The *BUMDes* has diversified its business operations to include bottled water production, a processed food enterprise, a village mini-market, BRI-Link services, fuel distribution (*Pertades*), and the development of outbound tourism facilities. This portfolio demonstrates the application of sustainable business principles and the strategic reinvestment of profits to expand service offerings. These innovations are grounded in the six *BUMDes* principles as follows:

Cooperative and Participatory: The organizational structure of the *BUMDes* facilitates collaboration among stakeholders, including village officials, youth groups, and local entrepreneurs. Participation is institutionalized in planning, decision-making, and implementation processes, with explicit efforts to include women and marginalized groups.

Emancipatory: Community members are regarded as equal contributors to development, regardless of socioeconomic background. The *BUMDes* has encouraged local ownership through the public sale of shares, enabling villagers to receive profit dividends and reinforcing a shared sense of responsibility and benefit.

Transparency and Accountability: Financial and operational data are regularly disclosed during village forums and posted publicly. The transparent management of revenues and expenditures has strengthened trust between the *BUMDes* and the community. All income sources and allocations are documented and verifiable.

Sustainability: The enterprise model emphasizes long-term viability through environmentally conscious practices, economic reinvestment, and community empowerment. Tourism development is integrated with ecological preservation, ensuring that water quality, site cleanliness, and carrying capacity are managed responsibly.

Marketing strategies have played a critical role in the success of *BUMDes Tirta Mandiri*. The *BUMDes* has effectively utilized digital platforms, including social media and an official website, to promote *Umbul Ponggok* as a unique underwater tourism destination. Collaborations with travel agencies, influencers, and local tour operators have further enhanced visibility and market access.

Beyond financial performance, the presence of *BUMDes Tirta Mandiri* has had a catalytic impact on the local economy. Community members have opened culinary stalls, souvenir shops, and parking services around the tourist site. This economic ripple effect contributes to the broader village ecosystem, making Ponggok a model for community-based and innovation-driven rural tourism development in Indonesia.

The case of Ponggok illustrates that advanced *BUMDes* performance is not merely a function of resource endowment but the result of strategic leadership, inclusive governance, and institutionalized innovation. The

insights derived from this case provide valuable benchmarks for other villages seeking to operationalize sustainable development through ecotourism and *BUMDes* entrepreneurship.

BUMDes Kebondalem (Growing Category)

Kebondalem Kidul Village, located in Prambanan District of Klaten Regency, presents a compelling case of a *BUMDes* in the “growing” category, where innovation efforts are underway but remain constrained by institutional and regulatory limitations. The village is home to Sojiwan Temple, a significant cultural heritage site whose restoration and public opening in 2011 created new opportunities for tourism development. The *BUMDes* in Kebondalem Kidul has attempted to leverage this cultural asset as a foundation for ecotourism, integrating historical conservation with community-based economic activities.

The architectural and artistic features of *Sojiwan* Temple including its multi-tiered structure, Buddhist-Hindu design elements, and relief carvings drawn from Jataka stories offer high cultural value and tourism appeal. However, the *BUMDes* faces significant constraints in capitalizing on this potential due to complex intergovernmental jurisdiction over cultural heritage management. The central government, through the Ministry of Education and Culture, maintains authority over the temple as a protected national asset. This has led to overlapping roles and contested responsibilities between the central authorities, the Klaten Regency Government, and the *BUMDes* itself. These governance tensions hinder the ability of the village to autonomously manage, modify, or commercialize the site in accordance with local development goals.

Despite these institutional constraints, the *BUMDes* has taken proactive steps to innovate around the periphery of the temple complex. Initiatives include the establishment of a community park, the construction of permanent food and souvenir kiosks, and the development of playground facilities to attract family visitors. These complementary facilities have transformed the surrounding area into a recreational space that enhances the overall tourist experience while generating modest income for residents.

Environmental aesthetics have also been carefully maintained. The lush tree canopy, expansive green spaces, and tranquil ambiance contribute to visitor satisfaction and support the goals of sustainable ecotourism. This aligns with the carrying capacity principle as defined by the United Nations World Tourism Organization, which emphasizes the importance of regulating visitor numbers to minimize ecological degradation and preserve the quality of the tourist experience.

The application of *BUMDes* management principles in Kebondalem Kidul remains uneven. While efforts toward cooperation and community participation are evident particularly in the planning and implementation of the park and marketplace, the principles of transparency, accountability, and sustainability are still evolving. The lack of formal mechanisms for financial disclosure and limited capacity for strategic reinvestment suggest that the *BUMDes* has not yet reached full institutional maturity.

In terms of challenges, interviews with village officials and *BUMDes* administrators reveal persistent issues with human resource limitations, regulatory fragmentation, and insufficient marketing capacity. Unlike advanced *BUMDes*, such as in Ponggok Village, Kebondalem Kidul has not fully integrated digital marketing or diversified its revenue streams. The business model remains dependent on informal tourism flows and seasonal visitation, which limits both economic resilience and growth potential.

Nevertheless, the *BUMDes* in Kebondalem Kidul exemplifies an important transitional phase in rural innovation. By incrementally developing tourism-supportive infrastructure and fostering community involvement, it lays the groundwork for more integrated ecotourism strategies in the future. Moreover, its experience highlights the critical need for policy harmonization between national heritage conservation regulations and local economic development initiatives.

The case of Kebondalem Kidul underscores that the success of tourism-based *BUMDes* innovation is not solely dependent on natural or cultural assets. Instead, it hinges on the interplay between institutional autonomy, regulatory flexibility, community agency, and entrepreneurial leadership. As such, this village offers valuable lessons on the structural challenges facing growing *BUMDes* and the pathways through which incremental innovation can be nurtured under complex governance conditions.

Comparison of Innovation Implementation

This section compares how the principles of *BUMDes* governance, cooperative, participatory, emancipatory, transparent, accountable, and sustainable are operationalized in Ponggok Village (advanced category) and Kebondalem Kidul Village (growing category). The comparative analysis offers insights into the institutional dynamics, innovation capacity, and development outcomes across different levels of *BUMDes* maturity.

In Ponggok Village, the principle of cooperation is deeply embedded in *BUMDes* governance through structured collaboration between the village government, the *BUMDes* management team, and the local

community. The establishment of *Tirta Mandiri* was initiated via inclusive village deliberations, and the subsequent business operations have actively involved community stakeholders, including women, youth, and informal sector actors. Participation extends to decision-making, revenue distribution, and planning of new business units.

In contrast, Kebondalem Kidul demonstrates a more limited form of participation, largely confined to community labor in park development and informal vendor activity. While cooperation exists between the village government and *BUMDes* administrators, it lacks the strategic alignment and multi-actor coordination observed in Ponggok. This disparity highlights the role of institutional leadership and social capital in fostering participatory innovation.

Ponggok's model exemplifies emancipatory innovation through its public shareholding initiative, where community members are granted ownership of *BUMDes* profits. This mechanism redistributes economic benefits and empowers residents as stakeholders rather than passive beneficiaries. Moreover, the integration of local workers into full-time *BUMDes* roles has contributed to employment and skills development.

In Kebondalem Kidul, emancipation is still incipient. Although community members benefit from kiosk rentals and informal tourism-related employment, structural mechanisms for inclusive ownership and profit-sharing are not yet institutionalized. The presence of a nationally managed heritage site imposes constraints on local autonomy, thereby limiting the *BUMDes*' ability to exercise full innovation authority.

Transparency and accountability are well-established in Ponggok's *BUMDes* operations. Financial statements, profit allocations, and strategic plans are publicly disseminated, and revenues are transparently channelled into Village Original Income (PADes). These practices have reinforced public trust and ensured the legitimacy of *BUMDes* as a development actor.

By contrast, Kebondalem Kidul's *BUMDes* lacks formalized financial reporting systems and periodic public audits. Information sharing is largely informal, and accountability is maintained primarily through direct supervision by the village head. This suggests that transparency mechanisms in growing *BUMDes* remain underdeveloped and may require external capacity-building support.

Tirta Mandiri in Ponggok illustrates an advanced model of business sustainability through diversification. Beyond water-based tourism, it manages bottled water production, retail operations, digital finance services, and recreational facilities. These ventures ensure year-round income generation and resilience against sectoral shocks. The integration of digital marketing and strategic partnerships further enhances the enterprise's sustainability.

In contrast, Kebondalem Kidul remains heavily reliant on a single tourism attraction and its associated infrastructure. Although there is evidence of entrepreneurial experimentation (e.g., children's park, kiosks), the lack of diversified income streams exposes the *BUMDes* to seasonal fluctuations and external disruptions. The absence of a long-term business model limits its capacity to achieve sustainable growth.

The comparative findings suggest that while natural and cultural resources are important, they do not automatically translate into institutional innovation or economic success. Ponggok's progress is attributed to a combination of visionary leadership, strong organizational capacity, financial transparency, and the ability to adapt and expand. Conversely, Kebondalem Kidul's stagnation is shaped by structural constraints, particularly regulatory fragmentation and limited managerial autonomy in managing heritage assets.

Furthermore, human resource limitations are a recurring challenge in both cases but are more acute in the growing category. The disparity in digital literacy, financial management skills, and business planning competence further widens the performance gap between advanced and growing *BUMDes*.

Key Drivers and Barriers to *BUMDes* Innovation

Innovation within Village-Owned Enterprises (*BUMDes*) in Klaten Regency is shaped by a complex interplay of institutional, social, economic, and regulatory factors, consistent with recent findings on rural entrepreneurship in Indonesia (Imanuella et al., 2024; Kania et al., 2021). While natural resource endowment such as access to freshwater springs or cultural heritage sites serves as a foundational asset, it is not, by itself, sufficient to ensure sustainable innovation. As revealed in the comparative analysis of Ponggok and Kebondalem Kidul, it is leadership capacity, governance structures, and the depth of community engagement that ultimately determine the trajectory of *BUMDes* innovation.

One of the most critical drivers of *BUMDes* performance is visionary and proactive leadership. In Ponggok Village, the village head played a central role in transforming Umbul Ponggok into a high-value ecotourism destination, mobilizing community support, and navigating bureaucratic complexity. Similar findings have been reported by Kusmulyono et al. (2024), who demonstrate that effective leadership in *BUMDes* is characterized by long-term vision, institutional risk-taking, and an ability to attract trust and participation. The success of *Tirta Mandiri* also reflects a leadership model that integrates entrepreneurial orientation with strong public

accountability, a rare but powerful combination in rural governance (Peng et al., 2023). In contrast, Kebondalem Kidul, although endowed with cultural heritage assets, lacks comparable leadership dynamism and institutional autonomy, which constrains its capacity for innovation.

Institutional capacity, particularly in terms of financial transparency, organizational coherence, and monitoring mechanisms, has also proven essential to the performance of *BUMDes*. Advanced enterprises such as *Tirta Mandiri* demonstrate regular reporting, reinvestment strategies, and equitable profit-sharing, thereby cultivating trust and legitimacy within the community. These attributes align with the criteria of good village governance as outlined by Baskoro (2025) who argue that public trust in *BUMDes* is strongly correlated with perceptions of financial accountability and service responsiveness. In contrast, many growing *BUMDes* operate with informal systems, low documentation standards, and little to no external audit, which leads to fragile operations and public scepticism (Augustine, 2025).

Community participation and inclusive ownership models further distinguish successful *BUMDes*. Ponggok's innovative practice of public shareholding has fostered a sense of economic belonging and incentivized citizen oversight, confirming the findings of Hidayat et al. (2024) that social capital and collective ownership are central to village enterprise resilience. This structure aligns with Ostrom (1990) principles of common-pool resource governance, which emphasize the importance of clearly defined community rights and benefits. Meanwhile, in Kebondalem Kidul, although residents are engaged through informal tourism support activities (e.g., vending, park maintenance), the lack of institutionalized revenue-sharing mechanisms weakens the social contract and limits long-term commitment to the *BUMDes* initiative.

Digitalization and marketing innovation have emerged as significant differentiators in the tourism sector, especially in the post-pandemic recovery era. *BUMDes* like *Tirta Mandiri* have embraced digital tools for promotion and customer engagement, leveraging platforms such as Instagram, travel blogs, and e-booking services to increase visibility and diversify their market. This is in line with the work of Mashayekh et al. (2024), who found that digital transformation among rural enterprises enhances competitive advantage, particularly in tourism villages. Conversely, *BUMDes* still reliant on word-of-mouth and analogue operations are increasingly marginalized in a rapidly digitalizing economy.

However, a range of persistent barriers continues to hinder *BUMDes* innovation across the region. Human resource limitations are among the most frequently cited challenges in the literature (Pucik et al., 2024). Many *BUMDes* managers lack formal training in tourism management, business strategy, or financial administration. This is compounded by low digital literacy and the absence of structured capacity-building programs, particularly in growing and basic *BUMDes*. The lack of institutional incentives to attract or retain skilled youth further exacerbates this problem.

Regulatory fragmentation presents another significant barrier, particularly for *BUMDes* operating in areas of overlapping authority. In the case of Kebondalem Kidul, the joint control of Sojiwan Temple by central heritage authorities and the local government results in governance ambiguity, inhibiting the *BUMDes*' ability to plan, invest, or market the site effectively. This challenge reflects broader tensions in Indonesia's decentralization policy, where vertical disjuncture between national and local mandates often undermines rural innovation (Septian, 2024).

Additionally, the lack of business model diversification increases vulnerability to seasonal and economic shocks. While Ponggok has expanded into bottled water, retail, and digital finance, many *BUMDes* in Klaten remain dependent on single-site tourism, without contingency planning or alternative revenue streams. Such dependence limits resilience and inhibits long-term sustainability, particularly during downturns or environmental disruptions (Zhang et al., 2024).

Finally, the absence of strong technical assistance and cross-sector collaboration impedes the institutional learning of many *BUMDes*. Despite policy intentions to involve universities and civil society organizations in village development, most *BUMDes* continue to operate without formalized partnerships, relying instead on informal experimentation. This finding echo that of Hidayat & Sari (2022), who emphasize the importance of networked support ecosystems including academic mentoring and inter-village exchanges in enabling innovation diffusion.

In sum, innovation within *BUMDes* is not simply a function of natural asset endowment, but the product of multi-level interactions among governance structures, leadership agency, regulatory environment, and community capacity. Successful examples such as Ponggok Village illustrate how these elements can coalesce into a self-reinforcing model of participatory development and economic transformation. Meanwhile, the continued constraints observed in other villages signal the need for more coherent policy design, institutional support, and investment in rural human capital. A multi-level, collaborative, and context-sensitive approach is therefore vital to enable *BUMDes* to fulfil their potential as engines of inclusive, sustainable, and innovation-driven rural development

CONCLUSION

This study has examined how Village-Owned Enterprises (*BUMDes*) in Klaten Regency innovate in the development of ecotourism, focusing on two contrasting cases, Ponggok Village, representing an advanced *BUMDes*, and Kebondalem Kidul Village, categorized as growing. The analysis, guided by the six foundational principles of *BUMDes* governance, cooperative, participatory, emancipatory, transparent, accountable, and sustainable reveals both the transformative potential and persistent constraints that characterize rural tourism innovation in decentralized Indonesia.

In Ponggok Village, innovation is operationalized through a combination of strategic leadership, inclusive participation, financial transparency, and diversified business development. The transformation of *Umbul* Ponggok into a tourism asset has not only generated substantial village income and employment but has also served as a model of institutional resilience and community-based ownership. This case demonstrates how innovation in *BUMDes* can serve as a vehicle for ecological valorisation and socio-economic empowerment when embedded within a robust governance structure.

In contrast, the case of Kebondalem Kidul highlights the limitations that many growing *BUMDes* continue to face. Despite having access to a valuable cultural heritage site, innovation remains constrained by fragmented regulations, limited institutional autonomy, insufficient human capital, and a lack of diversified income streams. While community efforts have been initiated to complement the tourism offering through kiosks and recreational areas, the absence of formalized ownership models and limited integration with broader tourism ecosystems restrict the *BUMDes*' capacity for sustainable development.

The findings underscore that successful innovation in *BUMDes* is not merely a product of natural or cultural resource endowment, but the outcome of effective leadership, participatory governance, regulatory alignment, and institutional learning. The gap between advanced and growing *BUMDes* is largely attributable to differences in administrative capacity, intergovernmental coordination, and access to technical and financial resources.

To advance ecotourism innovation through *BUMDes*, several strategic implications emerge. First, there is a critical need for leadership training and human resource development tailored to the specific needs of rural tourism management. Second, regulatory coherence between central government heritage preservation mandates and local development policies must be improved to allow greater flexibility and agency at the village level. Third, targeted support mechanisms such as innovation incubators, inter-village knowledge exchanges, and university–village partnerships can play a catalytic role in transferring best practices and scaling successful models.

Ultimately, this study contributes to the discourse on rural innovation by providing grounded empirical insights into how *BUMDes* can become engines of inclusive and sustainable village development. While the context of Klaten Regency offers unique environmental and cultural assets, the governance principles and institutional lessons drawn from this research have broader relevance for understanding the evolving role of community enterprises in Indonesia's rural transformation agenda.

Funding

This research was supported by the Institute for Research and Community Service, Universitas Terbuka, Indonesia, under the 2021 Institutional Research Grant (Grant No: 23278/UN31.LPPM/PT.01.03/2021). The funding body had no role in the design of the study; in the collection, analysis, or interpretation of data; or in the writing of the manuscript.

Conflict of Interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Data Availability

Not Applicable.

Author Contribution

All authors contributed equally to the design, data collection, analysis, and writing of this manuscript. All authors have read and approved the final version of the paper.

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