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The Role of Distribution Channels and Logistics Innovation in Empowering MSMEs in Tourism Villages: A Community-Based Tourism Perspective

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Abstract

Purpose: This study explores the role of distribution channels and logistics management in empowering Micro, Small, and Medium Enterprises (MSMEs) within the context of Community-Based Tourism (CBT) in Pawan Village and Sialang Jaya Village, Indonesia. **Research design, data and methodology:** This study used the AHP method with a mixed-methods approach. Data were collected through observations and interviews from 100 respondents. The Analytical Hierarchy Process (AHP) is used to prioritize key development areas such as infrastructure improvement, MSME empowerment, and tourism promotion. **Result:** The findings indicate that efficient supply chain management (SCM) and the adoption of digital technologies such as e-commerce and customer relationship management (CRM) are essential in broadening market reach and enhancing MSME operational efficiency. Additionally, collaboration between local governments and MSMEs in developing infrastructure plays a critical role in fostering sustainable tourism. **Conclusions:** This study emphasizes the importance of distribution economics and logistics management in creating sustainable tourism and empowering MSMEs in rural areas. A strong integration between digital technology, distribution management, and infrastructure development will be a solid foundation for developing community-based tourism in areas with tourism potential but limited access to logistics and distribution. The study importance of economic distribution for sustainable tourism.

Keywords : Distribution Channels, Logistics Innovation, Community-Based Tourism, MSMEs, Supply Chain Management, Infrastructure Development

JEL Classification Code : O10; Z32; Z3

1. Introduction

Tourism is one of the country's largest foreign exchange mainstays because it does not consume natural resources but

utilizes existing ones.

It has emerged as a pivotal sector in many development agendas. The development of potential and existing MSMEs in the tourism sector is crucial to support economic growth and provide direct benefits to the community. (Sugiharti et

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al., 2022). MSMEs also play an important role in preserving and developing local culture (Widjaja, 2024)

Tourism encompasses a series of interconnected activities that function synergistically to fulfill the needs of tourists. These activities are highly interdependent, each relying on the other to deliver comprehensive tourism services or products. The intricate network of activities and their interrelationships form the foundation of the tourism industry. In practice, multiple stakeholders with distinct roles and responsibilities work in parallel or sequentially to provide services or goods to tourists at various stages of their journey (Roxas et al., 2020). In a trip's inbound and outbound phases, access to rural destinations is often needed because of inadequate infrastructure (Dolezal & Novelli, 2020; Piartrini, 2018) .

Tourism is one of the main sectors that contributes significantly to economic growth in various countries, including Indonesia. As a multidimensional industry, tourism involves various interrelated activities, ranging from the production to the consumption of goods and services (Shumba et al., 2024). In this context, the success of a tourist destination is largely determined by the distribution chain that connects local products, especially those produced by Micro, Small, and Medium Enterprises (MSMEs), with the end consumers, namely tourists.

Although the development of MSMEs in the tourism sector has been widely studied, there are still few studies that discuss in depth how distribution and logistics management can affect the sustainability of MSME businesses in tourist areas (Mandić et al., 2018a). Economic distribution, which includes the process of disseminating local products to consumers, either directly at tourist sites or through digital platforms, is key to improving MSME competitiveness and strengthening the tourism sector. In the context of Community-Based Tourism (CBT), effective distribution management allows local products from MSMEs not only to be enjoyed by tourists visiting the destination but also to be accessed by a wider range of consumers through well-organized distribution channels (Ernawati et al., 2017)

The importance of supply chain management (SCM) in tourism distribution cannot be ignored. Supportive logistics infrastructure, including road access, transportation, and information technology, plays a crucial role in ensuring the smooth distribution of tourism products. Efficient management of the distribution chain not only strengthens the competitiveness of MSME products but also helps accelerate the digitalization process of MSMEs, especially in the use of e-commerce platforms to expand the market. In addition, the use of good customer relationship management (CRM) in managing relationships with consumers can increase customer loyalty and word-of-mouth marketing, which significantly supports more effective distribution (Zhang & Zhang, 2022).

Therefore, this research aims to explore how economic distribution and logistics management can support MSME empowerment and infrastructure development in the context of community-based tourism in Pawan Village and Sialang Jaya Village. Through a more in-depth analysis of distribution and supply chain strategies, it is hoped that this research can provide insights into how effective distribution management can drive tourism sustainability and improve the competitiveness of MSMEs in the sector (Han et al., 2019).

Community-Based Tourism (CBT) offers a strategic solution by empowering local communities and encouraging the development of innovative products that reflect local cultural characteristics (Ohe, 2021). Although previous research has established a theoretical framework for real-world tourism development case studies, there remains a gap in understanding how rural communities perceive and pursue independence within the interconnected components of rural tourism. A comprehensive exploration of how independence is actualized in community-based tourism management and organizational initiatives, which promote sustainable rural tourism growth, is still required. The tourism industry in Indonesia is a top priority for the government to improve the regional economy and social welfare through the development of tourist spots and optimal utilization of all related elements (Rosari et al., 2022). Thus, Indonesia's tourism development which is an important factor in supporting the economy in Indonesia can continue to grow (Ernawati, 2019). The strategic shift in rural development from agriculture towards rural tourism development has led to the designation of several regions with significant rural populations as global tourism destinations (Tarlani & Sirajuddin, 2020). However, in the context of rural tourism, the role of MSMEs has yet to be fully realized. This is primarily due to a need for more innovation in product development and marketing.

Pawan Village and Sialang Jaya Village, two villages in the District of Rokan Hulu, the Province of Riau, exemplify rural areas with considerable potential for tourism development. The development strategy for MSMEs in the Pawan and Sialang Jaya Tourism Villages has effectively organized tourism village development activities that leverage the unique attributes of the primary attractions and their surrounding environment. This strategy not only maintains competitiveness but also enhances local tourism services. As a result, several tourist attractions are being transformed into leading destinations within the Rokan Hulu Regency. However, many MSMEs in these villages are currently limited to renting swimming equipment and selling snacks, thus failing to demonstrate unique value. Moreover, decreasing visitors and low purchasing power pose significant challenges for MSME development in these destinations. Through the CBT model, it is expected that

local communities can be empowered to create distinctive tourism experiences that enhance the appeal of Pawan Village and Sialang Jaya Village. In addition, the development of infrastructure is very influential and an important basis for the development of the tourism sector (Dalimunthe et al., 2020). Central and local government policies are considered to play an important role in supporting the success of tourism development (Sianipar et al., 2021).

Therefore, this study aims to explore the unused tourism potential in Pawan Village and Sialang Jaya and how it can be better utilized. It also looks at how infrastructure development can support the Community-Based Tourism (CBT) approach to achieve sustainable tourism. The research further examines how CBT can help strengthen local MSMEs and the role of stakeholders in supporting both MSME empowerment and infrastructure development to promote sustainable tourism. This study utilized data through questionnaires distributed to visitors, managers, local communities, and local government officials. It also conducted Focus Group Discussions (FGDs) with stakeholders. The Analytical Hierarchy Process (AHP) method will be employed to identify the most influential tourism development priorities aligned with the needs and expectations of the local community.

Based on the analysis, the Community-Based Tourism (CBT) approach is considered effective in supporting sustainable tourism. By utilizing local community potential and enhancing infrastructure quality, Sialang Jaya and Pawan villages can establish a resilient tourism sector and attract more visitors. Applying CBT to local MSMEs can also benefit these businesses by improving their skills and market access. According to the Analytical Hierarchy Process (AHP), several policy priorities are recommended, with the top priorities for water tourism development being infrastructure improvement, empowerment of local communities and MSMEs, and tourism promotion. These policies are suggested for implementation at the following sites: Hapanasan Hot Springs, Batu Gajah, Suaman Hot Springs, Sipogas Waterfall, and Sipogas Lake. The results offer valuable guidance for water tourism development in Pawan and Sialang Jaya.

2. Literature Review

2.1. The Role of Local Communities in Tourism

Rural tourism typically operates on a small scale, emphasizing interactions with nature and the environment, and is often managed by local families. Authenticity is critical in both community-based tourism (CBT) and rural tourism (Zielinski et al., 2021). CBT is a tourism

development approach that focuses on empowering local communities to take an active role (Sartika, 2021), so that it can contribute to achieve sustainable tourism (Dolezal & Novelli, 2020). This model prioritizes local community participation in developing the tourism sector, including engagement in decision-making processes and the equitable distribution of economic benefits to the local community (Piartrini, 2018). For some local community members, factors such as a need for more understanding and awareness of the benefits of tourism and limited resources to start a business prevent them from engaging in tourism. On the other hand, other community members who can overcome these problems may benefit from tourism. By adopting community-based tourism (CBT), local communities can be empowered to expand their members' participation and, thus, their benefits from tourism (Junaid et al., 2021).

In practical terms, community-based tourism empowers local communities to develop tourism offerings that deliver authentic experiences to visitors while accurately representing local traditions, lifestyles, and cultures. This approach facilitates the circulation of local income among locally owned tourism enterprises (Ohe, 2021). The ideal outcome of CBT is the preservation of culture and tradition, as well as the natural and rural environment while embracing opportunities for community development and tourist satisfaction. For host communities, maintaining authenticity while simultaneously developing requires the integration of conflicting factors (Ernawati et al., 2017). Despite the growing body of literature on CBT initiatives in developing countries, the dimension of independence within these initiatives still needs to be explored (Milano & Gascón, 2024). For CBT destinations to achieve true freedom, they must exert control over as many aspects of the production process as possible. This includes procuring inputs, value addition, product distribution, partnership management, strategic decision-making, and more. Additionally, a critical element involves utilizing local resources and raw materials to produce tourism-related products or services. Attractions such as cultural heritage sites, natural landscapes, and the community's way of life are critical tourist draws (Tarlani & Sirajuddin, 2020).

2.2. Infrastructure's Impact on Tourism

Infrastructure is an integral element of tourism destinations, which is a set of tourism facilities that aim to meet the needs of visitors and residents. Infrastructure is primarily organized, provided, and developed in the context of public and community resources, which implies the involvement and provision of government and the public sector (Mandić et al., 2018a). Tourism is closely related to transportation because large-scale tourist movements strongly depend on infrastructure such as transportation and

roads. Infrastructure connects destinations with the outside world, allowing more visitors to enter. Infrastructure can also make tourism development easier by making people more interested in participating (Zhang & Zhang, 2022).

Tourism attraction is the main focus of driving tourism in a destination as well as being the initial motivation for tourists to choose a tourist destination (Sihotang & Sukaatmadja, 2021). Consequently, local community frequently assist tourists by arranging transportation through third-party providers or community-owned vehicles (Mtapuri & Giampiccoli, 2020). Thus, local communities and infrastructure are interconnected in developing tourism. Information centers also serve as orientation points for visitors, while local tour guides impart valuable insider knowledge (Kayat, 2014). Overall, the development and maintenance of robust infrastructure are essential for the growth of tourism destinations. By enhancing accessibility and facilitating meaningful interactions between visitors and local communities, infrastructure enriches the tourism experience and fosters sustainable development.

2.3. MSMEs and Tourism

Tourism encompasses activities related to one's place of origin, specifically concerning a particular area or destination. Therefore tourism is considered one of the main drivers of economic development in a region (Matijová et al., 2023). Moreover, MSMEs play a crucial role in the tourism sector, contributing significantly to local economic growth by offering services that enhance the tourist experience. In regions like South Africa, tourism MSMEs demonstrated resilience during the COVID-19 crisis by adopting agile and adaptive strategies, exploring government support, and pivoting business operations in the face of strict lockdown measures (Shumba et al., 2024). Similarly, in Indonesia, the adoption of digitalization by tourism MSMEs has been shown to improve competitive strategies, though its impact on overall business performance has not yet been fully realized. Current trends in tourism demand are largely influenced by globalization, which has led to the territorial expansion of tourism on a global scale (Matijová et al., 2023). This research indicates that while digital platforms enhance competitiveness, MSME owners still struggle with transformational leadership styles crucial for long-term growth (Nainggolan et al., 2024).

Furthermore, the legal framework plays a critical role in the sustainability of MSMEs in tourist villages. Research on Indonesian tourist villages found that many MSMEs face challenges in understanding and complying with legal regulations such as business permits and certifications, which are vital for their growth and competitiveness. The study highlights the need for integrated support from

governmental and non-governmental organizations to help MSMEs navigate these legal complexities (Miniesy & Fakhreldin, 2023). Technological readiness is another area of focus for MSMEs in tourism. Research on MSMEs' adoption of e-commerce platforms in Indonesia reveals that organizational readiness, supported by external environmental factors, significantly impacts their ability to embrace technological advancements, ultimately contributing to the growth of the tourism sector (Asmawati et al., 2024). Overall, MSMEs in the tourism sector must overcome a range of challenges. Therefore, the role of stakeholders is needed in empowering MSMEs so that they can provide benefits for tourism development.

2.4. Sustainable Tourism

The current global trend is the pursuit of sustainable tourism, which considers the impact of these activities on the environment. (Matijová et al., 2023). Developing inclusive and environmentally friendly infrastructure is crucial in the CBT approach. Therefore, strategies for developing local community and identifying the roles of stakeholders are essential to mitigate environmental degradation and achieve sustainable tourism. It is intended that tourist destinations can give a positive impression to potential tourists, thus encouraging them to visit a tourist destination (Gao et al., 2023). An important factor in tourism development is demand, which comes from visitors (Matijová et al., 2023). Tourism brings economic benefits but can negatively affect the environment and society. This includes the depletion of natural resources and environmental degradation in tourist destinations. The tourism industry consumes many resources and generates significant waste and pollution. Disposing this waste, especially in developing countries lacking proper treatment facilities, creates problems (Neto, 2003). Therefore, while tourism can be economically beneficial, steps need to be taken to address the environmental and socio-cultural impacts it creates. Information about the development of tourism demand is essential for all stakeholders in the tourism industry (Matijová et al., 2023).

Despite differing perspectives, there is a broad consensus among stakeholders on the significance of "sustainability" in tourism development, recognizing that the natural environment's appeal is a key attraction for tourists (Croce, 2018). By aligning tourism policies with development strategies, it is possible to design a convergent model of tourism policy that can be applied in various development scenarios (Capistrano & Notorio, 2020). Therefore, aligning tourism policies with development strategies fosters a sustainable framework that benefits the environment and local communities, ensuring that tourism remains an attractive option for future generations.

2.5. Economic Distribution and Supply Chain Management in the Tourism Sector

Economic distribution and supply chain management (SCM) are key elements in ensuring the sustainability of the tourism sector, especially in the context of Community-Based Tourism (CBT). MSMEs, which play an important role in the development of local products, need an effective distribution strategy as well as the support of digital infrastructure and technology to expand market reach and improve operational efficiency.

2.5.1. Economic Distribution in Tourism

Economic distribution in the tourism sector refers to how tourism goods and services are distributed from producers (MSMEs) to end consumers (tourists). Research by Ernawati et al., (2017)) shows that effective distribution in Community-Based Tourism (CBT) can help expand the market for local products, both inside and outside tourist destinations. This relies on the utilization of digital technology that allows MSMEs to expand their market reach. By using e-commerce platforms, social media, and digital marketing strategies, MSMEs can promote their products not only in the domestic market, but also to international markets (Simba & Thai, 2019).

2.5.2. Supply Chain Management in the Tourism Sector

Supply chain management (SCM) is an important factor in ensuring that the tourism supply chain runs efficiently. Zhang & Zhang (2022) underline that adequate logistics infrastructure, such as road access and transportation, plays an important role in connecting tourist destinations with the outside world. A good SCM allows the flow of tourism products and services to be smoother, strengthens the competitiveness of tourist destinations, and improve the tourist experience.

2.5.3. The Role of Logistics Innovation and Digital Technology

Logistics innovations in the tourism sector allow the distribution of goods and services to be more efficient and effective. Research by Han et al. (2019) shows that the integration of digital technology, such as e-commerce and Customer Relationship Management (CRM), is very important in supporting the distribution of MSME products in the tourism sector. The use of this technology helps to expand market reach and improve the operational efficiency of MSMEs, which in turn increases their competitiveness in the global market.

2.5.4. The Influence of Infrastructure on Tourism Distribution

Good infrastructure plays an important role in supporting distribution in the tourism sector. Mandić et al., (2018a) noted that adequate infrastructure, especially transportation and road access, allows tourists to easily access tourist destinations, which in turn increases the volume of tourists and advances the tourism sector. Poor infrastructure can be a major obstacle in the distribution of tourism products and services (Roxas et al., 2020).

3. Research Methods and Materials

This research focuses on the empowerment of micro, small, and medium enterprises (MSMEs) and infrastructure development in Pawan Village and Sialang Jaya Village, grounded in the CBT model. Unlike previous research, this study considers the introduction of a circular economic approach within CBT to foster sustainable tourism. This research advances and extends previous studies by synthesizing MSME development with Sustainable Tourism within a CBT framework, addressing a synergy that needs to be examined more in the existing literature. Previous studies have tended to focus on isolated aspects, such as either MSME development or sustainable tourism, without examining their interplay.

This study adopts a mixed-methods approach combined with extensive data collection to ensure that the research findings accurately reflect the population. The data collection methods include both observation and interviews, with the Analytical Hierarchy Process (AHP) serving as the primary analytical tool which enabled the researchers to prioritize tourism development initiatives that align with the needs and expectations of the local community. AHP is a decision-making method developed by Thomas L. Saaty. The AHP process begins by determining the main objective of decision-making. To determine the key policy options to prioritize, the AHP method was applied, drawing on responses from 100 participants, including visitors, managers, the local community, and government officials. Next, this objective is broken down into relevant criteria and sub-criteria, forming a hierarchical structure that facilitates analysis. Each element in this hierarchy is then compared pairwise to determine its relative importance to other elements. This process produces a pairwise comparison matrix (PCM), which is used to calculate the relative weight of each criterion and sub-criteria through normalization and geometric averaging. The logical consistency of these comparisons is measured using the Consistency Index (CI) and Consistency Ratio (CR) to ensure the validity of the results. Once the criteria weights are determined, the next

step is to repeat the pairwise comparison process for the decision alternatives in the context of each criterion. The relative weights of each alternative are calculated and combined to determine the global priority. The result of the AHP analysis provides a ranking of decision alternatives based on overall priority, enabling the decision maker to select the best option based on predefined objectives and criteria. This process helps simplify complex decisions by considering various factors and ensuring consistency in the evaluation of different elements (Saaty, 2008). AHP is particularly effective in the context of developing tourist villages through a CBT model, which is aligned with the community's role as the focal point of tourism development. The data obtained will be analyzed to validate the hypothesis that integrating an economic approach within the CBT framework contributes to the realization of Sustainable Tourism.

A comprehensive data collection approach included the distribution of questionnaires to various respondent groups: tourists, tourism managers, local communities, and relevant government officials or stakeholders. The questionnaires administered to tourists gathered information on demographics, visit frequency, perceptions of water tourism, and satisfaction with existing facilities. For tourism managers, the questionnaires focused on operational management, challenges encountered, and perspectives on water tourism development. The questionnaires for the local community assessed their perceptions of tourism's impact, their involvement in tourism-related activities, and their expectations for future tourism development. Questionnaires for government officials aimed to explore policies, government support, and strategies for water tourism development in Pawan Village and Sialang Jaya Village. In addition to the questionnaire-based data collection, the study also utilized Focus Group Discussions (FGDs). Initial research on MSMEs was conducted to explore the environmental impacts of Sustainable Tourism in areas affected by new toll road construction. Such infrastructure developments have a profound impact on local communities, influencing livelihoods, income levels, and social status (Murshed, 2022). Micro, small and medium enterprises (MSMEs) around infrastructure development areas are also affected MSMEs located near these infrastructure development sites also face challenges, including environmental degradation and reduced income, although not significantly (Wibowo et al., 2024). However, infrastructure development also presents opportunities for MSMEs by creating jobs and enhancing economic prospects. This development must be mindful of various welfare indicators, such as education, health, and labor participation rates (Ng et al., 2016). This study investigates the relationship between MSME development and infrastructure projects within these communities employing

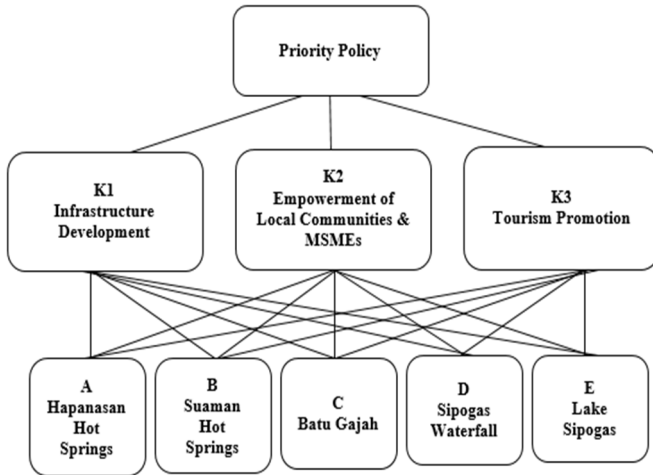
simple panel data analysis and Environmental Impact Analysis (AMDAL) as methodological tools.

The research is entering its initial phase, where several methods will be employed, including observation, interviews, questionnaires, and FGDs (Creswell & Poth, 2016). This research will prioritize the enhancement of facilities in Pawan Village and Sialang Jaya Village, focusing on water tourism. The identification and mapping of MSME profiles will be facilitated by Geographic Information Systems (GIS), which the system utilizes drones to conduct aerial reconnaissance, ultimately resulting in a detailed geographic representation of the tourist areas (Wibowo et al., 2024). The role of digital technologies to offer and expand new possibilities for entrepreneurship is also considered as important (Gregori & Holzmann, 2020). Community participation in tourism implementation is important, especially because the Community-Based Tourism (CBT) model has a significant impact on infrastructure development, tourism sector growth, tourism sustainability, and MSME empowerment (Achmad et al., 2023; Dalimunthe et al., 2020; Tryasnandi et al., 2023). The current lack of infrastructure access is a significant impediment to economic growth

4. Results and Discussion

In this section, we explore what policies should be prioritized in empowering MSMEs and developing infrastructure to realize sustainable tourism. Alternative policies that become the choice are obtained from the analysis based on interviews and focus group discussions (FGD), namely infrastructure development policies, empowerment of local communities and MSMEs, and tourism promotion. These three policies are considered essential for water tourism in Pawan and Sialang Jaya villages. To find out the most critical policy alternatives to prioritize, researchers analyzed the data using the AHP.

AHP was conducted based on answers from 100 respondents. The respondents chosen were local people whom researchers assumed had relevant knowledge about the needs of each water tourism site, which became the object of research. Furthermore, to make it easier for the author to perform calculations, the three main criteria are coded K1 through K3 and A through E for alternative tourist attractions (figure 1).



Source: Compiled by the author based on the results of the research analysis.

Figure 1: Hierarchy Chart Problem

Initially, the PCM calculation is done without normalization (see table 1), and then the PCM is normalized. Furthermore, to determine the weights of criteria and alternatives, priority weights for each element are calculated (see table 2). After obtaining a consistency ratio that is below 10%, then squaring the matrix of PCM before normalization is carried out. Squaring the matrix is done until the value of the first Eigen Vector minus the second Eigen Vector is close to zero. In this case, squaring matrix is done twice (see table 3).

Table 1: PCM Calculation Before Normalization

Comparison Matrix			
Policy	A	B	C
A	1	1,86	2,68
B	0,54	1	2,78
C	0,37	0,36	1
S,O,R	1,91	3,22	6,45

Source: Authors

Table 2: PCM Calculation After Normalization and Priority Weight Calculation

Matrix			Priority	Parameter	Value	Result
A	B	C				
A	0,52	0,58	0,41	Max, Eigen Value	3,06	Consistency Ratio is 4,96%, Inconsistency is acceptable
B	0,28	0,31	0,43	CI (Consistensi Index)	0,029	
C	0,20	0,11	0,15	RI (Rasio Index)	0,58	
S,O,R	1,00	1,00	1,00	CR=CI/RI	4,96%	

Source: Authors

Table 3: Squaring the Matrix

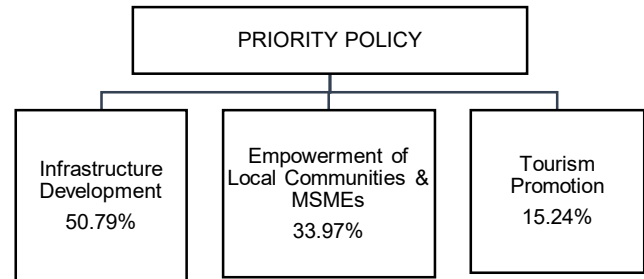
Squaring the Matrix: 2nd attempt					
	A	B	C	S,O,C	2nd Eigen Vector
A	28,80	43,05	95,93	167,78	50,79%
B	19,25	28,80	64,16	112,22	33,97%
C	8,64	12,91	28,80	50,35	15,24%
				330,35	1,00

Source: Authors

Table 4: Weight Priority Criteria

Criterion	Rank	%
Pengembangan insfrastruktur	1	50,8 %
Pemberdayaan komunitas local & UMKM	2	34,0 %
Promosi pariwisata	3	15,2 %

Source: Authors



Source: Compiled by the author based on the results of the research analysis.

Figure 2: Priority Diagram Criteria

Table 5: Alternative Priority Weights

Pengembangan Insfratraktur			Pemberdayaan komunitas Lokal dan UMKM		Promosi Pariwisata	
Location Rank	Rank	%	Rank	%	Rank	%
A (Air panas Hapanasan)	1	24,56%	1	24,76%	1	24,48%
B (Air panas Suaman)	2	20,38%	2	21,00%	2	18,34%
C (Batu Gajah)	3	21,95%	3	20,49%	3	20,29%
D (Air Terjun Sipogas)	4	17,42%	4	17,69%	4	19,61%
E (Danau Sipogas)	5	15,68%	5	16,06%	5	17,27%

Source: Authors

Table 5 shows the results of the calculation on each alternative. Calculations for alternative weights are carried out in the same way as calculations on criteria weights. The results above show different alternative priorities for each criterion. The global weight of the existing criteria and alternatives is obtained by multiplying the weights of both.

Table 6: Weight Global Priorities

Prioritas Global		
Location Rank	Rank	%
A (Air panas Hapanasan)	1	24,62%
B (Air panas Suaman)	2	20,28%
C (Batu Gajah)	3	21,20%
D (Air Terjun Sipogas)	4	17,85%
E (Danau Sipogas)	5	16,05%

Source: Authors

The calculations show that the priority policy in the development of aquatic tourism is infrastructure development, which weighs 50.79%. Second, empowerment of local communities and MSMEs with a weight of 33.97%. Third, tourism promotion weighs 15.24%. Figure 2 and Table 6 above show the results of the calculation of global priorities in full of the order of criteria and alternatives reflected in the writing of rankings 1-5. Based on this analysis, there are several policy criteria that stakeholders can utilize to realize sustainable tourism. After that, the same calculation is carried out based on the existing alternatives and then multiplied by the results of the criteria calculation. The results of the multiplication will produce a global priority of criteria and alternatives that can be sorted based on the level of importance per criterion (see Table 6). The policies with the highest priority for the development of water tourism include infrastructure development, which holds a weight of 50.79%, followed by the empowerment of local communities and MSMEs at 33.97%, and tourism promotion, which accounts for 15.24%. Overall, the application of these policies is deemed crucial for alternative tourist sites, ranked in the following order: first, Hapanasan Hot Spring with a weight of 24.62%; second, Batu Gajah at 21.20%; third, Suaman Hot Spring at 20.28%; fourth, Sipogas Waterfall at 17.85%; and fifth, Lake Sipogas with a weight of 16.05%. These findings are anticipated to enhance water tourism development in Pawan and Sialang Jaya villages.

5. Discussion

5.1. Tourism Potential and Resources Pawan Village and Village Sialang Jaya

Pawan Village and Sialang Jaya Village possess distinctive tourism potential rooted in their natural landscapes. Characterized by abundant water resources, these villages attract visitors interested in water-based tourism activities. As previously mentioned, these areas feature various water attractions, such as Hapanasan Hot Springs, Suaman Hot Springs, Batu Gajah, Sipogas

Waterfall, and Sipogas Lake. However, local stakeholders, including community members and tourism managers, acknowledge that the tourism potential in this region still needs to be utilized. Community enthusiasm and involvement in the development, implementation and management of tourism activities is essential, so that communities can have control over their own tourism future (Kurniadinata & Suhartini, 2024). Moreover, the development of tourism resources in these villages faces significant challenges. Inadequate infrastructure, limited marketing efforts, and insufficient investment are substantial barriers. These issues are common in rural tourism contexts and can hinder tourism growth (Al Matris, 2023). Community involvement is essential for sustainable tourism, with studies suggesting that empowering local communities through training and participatory planning can enhance tourism development and ensure that economic benefits are equitably distributed among residents (Snyman, 2015).

The natural resources in Pawan Village and Sialang Jaya Village, such as the unique hot and cold-water attractions, provide a solid foundation for community-based water tourism development. The analysis, based on information from informants and an assessment of the tourism potential in these villages, highlights strengths such as abundant natural resources. However, areas for improvement include better infrastructure, opportunities to develop the water tourism market, and threats like environmental degradation. Strategic recommendations for enhancing tourism potential include infrastructure development, promoting sustainable tourism practices, and intensifying marketing efforts. In conclusion, Pawan Village and Sialang Jaya Village hold significant tourism potential that can be realized through targeted development strategies. By addressing challenges and leveraging strengths, these villages have the potential to emerge as prominent tourist destinations, contributing to local socio-economic development.

5.2. Community Based Tourism in Empowerment of MSMEs

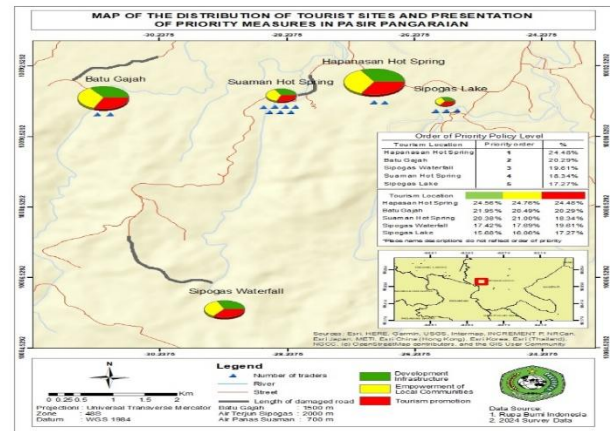
In Pawan and Sialang Jaya, MSMEs include local crafts, food vendors, and small accommodations, all contributing to the tourism economy. The status of MSMEs in these villages still shows a traditional business direction in serving tourists, such as the sale of snacks and rental of swimming equipment. While some MSMEs have managed to break into the tourism market, others need more market access, have financial limitations, and have limited business skills. These challenges are similar to those identified by Manzoor, who noted that rural MSMEs often face significant barriers to growth precisely due to financial limitations (Manzoor et al., 2021). CBT provides a platform for MSMEs to thrive by

creating a direct link between tourists and local businesses (Han et al., 2019). This relationship ensures that the economic benefits of tourism remain within the community, promoting local entrepreneurship and reducing economic leakage. However, MSMEs face challenges such as limited access to capital, inadequate business training, as well as erratic and even declining visitors. Overcoming these challenges requires targeted interventions, microfinance schemes, business development programs, as well as marketing support.

Empowering MSMEs through CBT involves integrating local businesses into the tourism value chain. This can be achieved through initiatives such as local product promotion, business partnerships, and capacity-building programs that enhance business skills and market access. The role of government and NGOs is critical in supporting MSMEs by providing financial assistance, business training, and infrastructure development. Their involvement ensures that MSMEs receive the necessary support to grow and compete in the tourism market, particularly in aquatic tourism. In conclusion, empowering MSMEs in CBT can have a good impact on tourism and the progress of existing local businesses. This shows the potential for MSMEs to thrive with the support of CBT initiatives. Therefore, CBT is a solid approach to empowering MSMEs in Pawan and Sialang Jaya. By creating an enabling environment and overcoming challenges, these villages can develop a vibrant tourism sector that benefits local businesses and promotes sustainable economic development.

5.3. Priority Policies in Water-Based Tourism

The five tourist sites sit among oil palm plantations, located at considerable distances from residential areas. Sipogas Waterfall is the most remote location, nestled between hills, creating tricky and steep terrain. In contrast, Hapanasan Hot Springs, Batu Gajah, Lake Sipogas, and Suaman Hot Springs all occupy flat terrain. Furthermore, road access to these tourist sites needs improvement, particularly for reaching Sipogas Waterfall. Despite their remoteness and limited road access, these five tourist attractions draw many visitors. Each location experiences varying visitor numbers, with the average weekend attendance (Saturday to Sunday) ranging from 50 to 100 people. Field surveys, including interviews with visitors, managers, and residents, reveal that Hapanasan Hot Springs ranks as the top tourist destination, necessitating priority development in infrastructure, community empowerment, and tourism promotion. Following Hapanasan, Batu Gajah takes second place in priority development, with Sipogas Waterfall in third, Suaman Hot Spring in fourth, and Lake Sipogas in fifth.



Source: Indonesia's central statistics agency

Figure 3: Location Map and Presentation of Priority Policies

The development of tourist attraction infrastructure can be done through the construction and maintenance of the tourist attraction itself as well as road access to the tourist location. Based on data from the Central Bureau of Statistics in Rokan Hulu in Figures Year 2024, roads in Rokan Hulu district are not all made of asphalt. Some roads are still gravel roads and even dirt roads. Data for 2023 shows that roads in Rokan Hulu Regency are still dominated by gravel roads (57.97%) with a length of 1,054.12 km, while asphalt roads (24.15%) along 439.08 km, dirt roads along 280.89 km (15.45%) and other roads (2.43%) along 44.19 km. In developing road infrastructure, of course, in addition to looking at the type of road, it is also necessary to pay attention to the condition of the existing road, whether it needs to be repaired because of damaged roads or potholes. The 2023 data shows that the road conditions in Rokan Hulu vary from reasonable to significantly damaged. There are roads in good condition (18.66%) along 339.37 km, roads with moderate conditions (20.72%) along 376.74 km, roads with damaged conditions (29.77%) along 541.22 km, and roads with significantly damaged conditions (30.85%) along 560.95 km. Around the location of these five tourist attractions, there are also several roads with damaged conditions, namely on the road to Batu Gajah tourist attraction with a damaged road along 1.5 km, the road to Sipogas Waterfall along 2 km, and the road to Suaman Hot Water 0.7 km.

Tourism is intrinsically linked to transportation, as the large-scale movement of tourists heavily relies on transportation infrastructure. Each element of this infrastructure enhances tourism development by significantly increasing the attractiveness and competitiveness of the destination (Mandić et al., 2018). Even if transport infrastructure is not specifically designed with tourism in mind, it effectively connects destinations to

the outside world, facilitating the influx of visitors (Zhang & Zhang, 2022). This connectivity is essential for tourism development, as it forms a crucial component of the overall tourism experience. Thus, the quality of transportation infrastructure directly influences the volume and satisfaction of tourist visits, ultimately contributing to the success of the tourism sector.

Based on data on road types and road conditions in Rokan Hulu Regency, road infrastructure development is significant in supporting the development of tourist sites. With easy and comfortable access, tourists will be more interested in visiting various tourist attractions in Rokan Hulu Regency, especially Hapanasan Hot Springs, Batu Gajah, Lake Sipogas Suaman Hot Springs, and Sipogas Waterfall. Empowerment of local communities and MSMEs is also essential in the development of tourist attractions. Involving the surrounding community in developing tourist attractions is one of the ways used to ensure that the economic benefits of tourism are distributed among community members. The development of MSMEs to support tourism activities can be carried out by the community by providing goods and services that enhance the tourist experience, such as providing food and beverages or services that visitors may need, such as photo services. The more varied types of MSMEs that exist in tourist sites, of course, will also be more attractive to visitors because, in addition to experiencing the traveling experience, they also get a unique experience from various types of MSMEs that can be tried. However, the existence of MSMEs, especially traders in the five tourist attractions, still needs to grow. There are only two stalls in the Hapanasan Hot Water tourist attraction: 7 stalls in the Suaman Hot Water tourist attraction, two stalls in the Cipogas Lake tourist attraction, and two stalls in the Batu Gajah tourist attraction. Another major factor in developing tourism objects is the promotion factor of tourism objects. The more parties who know the existence and potential of a tourist attraction, the more likely it is that there will be an increase in the number of tourists visiting. The promotion of tourist attractions today can be quickly done with the existence of technology and social media that are widely used by the community. In addition to aiming to attract visitors, with the promotion, it is hoped that there will be collaboration with related parties who see the potential of tourist attractions that can be developed even better.

6. Conclusions

This study aimed to explore how distribution economics and logistics management can support the empowerment of Micro, Small, and Medium Enterprises (MSMEs) within the context of Community-Based Tourism (CBT) in Pawan Village and Sialang Jaya Village. The findings indicate that

an effective distribution strategy, including efficient management of distribution channels and supply chains, is key to strengthening the sustainability and competitiveness of MSMEs in the tourism sector. Adequate logistics infrastructure, such as road access and information technology, is also crucial to ensuring the smooth distribution of local products produced by MSMEs to tourists.

By implementing proper Supply Chain Management (SCM) practices, MSMEs can optimize the provision of products to consumers, both directly at tourism destinations and through digital platforms. The adoption of digital technologies in distribution, such as e-commerce and Customer Relationship Management (CRM), further enhances the operational efficiency of MSMEs and expands their market reach. Additionally, collaboration between local governments and MSMEs in the development of distribution infrastructure has been shown to strengthen the competitiveness of tourism destinations and improve tourist satisfaction. The results of the Analytical Hierarchy Process (AHP) identified priority policies that include infrastructure development, MSME empowerment, and tourism promotion. If implemented strategically, these policies will support the achievement of sustainable tourism in Pawan and Sialang Jaya Villages and drive local economic growth through the optimization of MSME product distribution.

Overall, this study emphasizes the importance of distribution economics and logistics management in creating sustainable tourism and empowering MSMEs in rural areas. A strong integration between digital technology, distribution management, and infrastructure development will provide a solid foundation for the successful development of community-based tourism in regions with tourism potential but limited logistical and distribution access.

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