

Socio-Economic Conditions and Technical Capability for Coffee Agroforestry-Based Ecotourism: A SWOT-IFAS/EFAS Analysis in Pattapang, South Sulawesi

Socio-Economic Conditions of Farmers Participating in the Community Rice Field Development Program in Tanah Miring District, Merauke Regency

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ABSTRACT

Community-based ecotourism integrated with coffee agroforestry has emerged as a strategic approach to rural development in Indonesia, yet its success depends heavily on the socio-economic conditions and technical capabilities of the managing community. This study aimed to analyze the socio-economic conditions and technical capabilities of the local community that influence their ability to manage coffee agroforestry-based ecotourism in Kelurahan Pattapang, Gowa Regency, South Sulawesi, a buffer zone of the Malino Nature Tourism Park and a Limited Production Forest. A mixed-methods case study design was employed, combining a quantitative SWOT/IFAS-EFAS survey of 25 respondents with qualitative in-depth interviews and field observation. Internal and external factors were scored using a five-point Likert scale, weighted, and rated to construct the Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) matrices, from which a SWOT quadrant position and a TOWS strategy matrix were derived. Results showed that the community's total Strengths score (3.2605) exceeded its Weaknesses score (2.0713), while total Opportunities (3.2397) exceeded Threats (1.9262), yielding quadrant coordinates of (+1.1892, +1.3134) that placed the community firmly in Quadrant I (Aggressive/SO Strategy). The strongest internal factor was social forestry group support (score 0.7622), while the weakest was tour-guiding capability (0.2308); externally, new employment opportunities (0.7448) were the strongest driver, while competition from more established nearby destinations (0.1870) was the most serious threat. Composite priority scoring of 13 TOWS strategies identified institutional optimization of social forestry groups and development of agroforestry-based educational tourism packages as the two flagship strategies. These findings indicate that the community possesses a robust asset base for aggressive ecotourism development, provided that institutional and product-based strategies are prioritized over purely defensive measures.

KEYWORDS: Coffee Agroforestry, Community-Based Ecotourism, IFAS-EFAS, SWOT Analysis, TOWS Matrix

ABSTRAK

Ekowisata berbasis komunitas yang diintegrasikan dengan agroforestri kopi telah menjadi pendekatan strategis pembangunan pedesaan di Indonesia, namun keberhasilannya sangat bergantung pada kondisi sosial-ekonomi dan kapabilitas teknis komunitas pengelolaannya. Penelitian ini bertujuan menganalisis kondisi sosial-ekonomi dan kapabilitas teknis komunitas lokal yang memengaruhi kemampuan mereka mengelola ekowisata berbasis agroforestri kopi di Kelurahan Pattapang, Kabupaten Gowa, Sulawesi Selatan, sebuah kawasan penyangga (buffer zone) Taman Wisata Alam Malino dan Hutan Produksi Terbatas. Penelitian menggunakan desain studi kasus campuran, menggabungkan survei kuantitatif SWOT/IFAS-EFAS terhadap 25 responden dengan wawancara mendalam dan observasi lapangan. Faktor internal dan eksternal dinilai menggunakan skala Likert lima poin, dibobot, dan diberi rating untuk menyusun matriks Internal Factor Analysis Summary (IFAS) dan External Factor Analysis Summary (EFAS), yang selanjutnya digunakan untuk menentukan posisi kuadran SWOT dan matriks strategi TOWS. Hasil penelitian menunjukkan bahwa total skor Kekuatan

(Strengths) komunitas (3,2605) melampaui skor Kelemahan (Weaknesses) (2,0713), sementara total Peluang (Opportunities) (3,2397) melampaui Ancaman (Threats) (1,9262), menghasilkan koordinat kuadran (+1,1892; +1,3134) yang menempatkan komunitas secara tegas pada Kuadran I (Strategi Agresif/SO). Faktor internal terkuat adalah dukungan kelompok perhutanan sosial (skor 0,7622), sementara faktor terlemah adalah kemampuan memandu wisata (0,2308); secara eksternal, peluang kerja baru (0,7448) menjadi pendorong terkuat, sementara persaingan dengan destinasi yang lebih mapan menjadi ancaman paling serius (0,1870). Penskoran prioritas komposit atas 13 strategi TOWS mengidentifikasi optimalisasi kelembagaan kelompok perhutanan sosial dan pengembangan paket wisata edukasi berbasis agroforestri sebagai dua strategi unggulan. Temuan ini menunjukkan bahwa komunitas memiliki basis aset yang kukuh untuk pengembangan ekowisata secara agresif, dengan syarat strategi kelembagaan dan berbasis produk diprioritaskan dibandingkan langkah-langkah defensif semata.

KATA KUNCI: Agroforestri Kopi, Ekowisata Berbasis Komunitas, IFAS-EFAS, Analisis SWOT, Matriks TOWS

1. INTRODUCTION

The integration of ecotourism and agroforestry has been widely promoted as a pathway toward rural livelihood diversification and forest conservation, particularly in buffer-zone communities adjacent to protected areas (Nair, Kumar, & Nair, 2021). In Indonesia, coffee agroforestry landscapes offer a distinctive opportunity for community-based tourism, combining scenic highland environments, cultural heritage in coffee cultivation, and existing social forestry institutions (Hidayat, Hakim, & Parmawati, 2023). However, the successful transformation of a farming community into an ecotourism-managing community is rarely automatic; it depends critically on the socio-economic conditions and technical capabilities already present within the community, and on how well these internal capacities align with external market and policy opportunities (Ruiz-Real, Uribe-Toril, de Pablo Valenciano, & Gázquez-Abad, 2022).

Empirical studies across Indonesia consistently show that coffee agroforestry-based tourism initiatives face a common structural pattern: strong technical knowledge in cultivation and processing, but comparatively weaker capabilities in tourism-specific services such as guiding, digital promotion, and hospitality management (Utami, Dhewanto, & Lestari, 2023). Social forestry groups, where they exist, often serve as the institutional backbone that channels government support and organizes collective action, making their strength or weakness a decisive factor in a community's readiness for tourism development (Gunawan et al., 2022; Mazya, Nurrochmat, Kolopaking, Satria, & Dharmawan, 2023). At the same time, communities located in buffer zones of established tourism destinations must contend with external threats such as competition from more developed neighboring destinations and regulatory restrictions on conservation areas (Anugrah et al., 2022).

The Kelurahan Pattapang community in Gowa Regency, South Sulawesi, exemplifies this structural pattern. Located in the buffer zone of the Malino Nature Tourism Park and a Limited Production Forest, and situated near Malino, one of South Sulawesi's most established highland tourism destinations, the community has begun integrating coffee agroforestry with ecotourism through the facilitation of a social forestry group. However, systematic empirical evidence on the community's actual socio-economic conditions and technical capabilities—and how these internal factors interact with external opportunities and threats to shape a coherent development strategy—remains limited.

This study therefore aims to analyze the socio-economic conditions and technical capabilities of the local community that influence their ability to manage coffee agroforestry-based ecotourism in Kelurahan Pattapang, using a SWOT analysis strengthened by IFAS-EFAS quantitative scoring and a TOWS strategy matrix. The findings are expected to provide an empirically grounded, defensible basis for formulating development strategies that build on the community's existing strengths rather than merely addressing its deficits, consistent with an asset-based approach to community development (Ife & Tesoriero, 2021, as cited in the underlying thesis).

2. MATERIALS AND METHODS

2.1. Study Area

This study was conducted in Kelurahan Pattapang, Tinggimoncong Subdistrict, Gowa Regency, South Sulawesi Province, Indonesia. The location was purposively selected because it lies within the buffer zone of the Malino Nature Tourism Park (Taman Wisata Alam Malino) and a Limited Production Forest (Hutan

Produksi Terbatas), and because it possesses an active social forestry group and emerging coffee agroforestry-based tourism activity. Kelurahan Malino, the subdistrict capital located nearby, is a long-established highland tourism destination in South Sulawesi, making Pattapang's development trajectory particularly instructive as a case of a peripheral community seeking to build its own tourism niche adjacent to a dominant destination. Fieldwork was conducted from March to June 2026.

2.2. Research Design

This study employed a mixed-methods case study design, combining a quantitative SWOT/IFAS-EFAS survey with qualitative in-depth interviews and field observation. The quantitative component involved 25 respondents selected through purposive sampling, consisting of coffee farmers, farmer group members, ecotourism managers, and residents directly involved in or affected by ecotourism and coffee agroforestry activities. The SWOT instrument consisted of 24 statements (six per category: Strengths, Weaknesses, Opportunities, and Threats) developed from a literature review, preliminary observation, and the specific characteristics of the study area as a protected-area buffer zone. The qualitative component involved in-depth interviews with community leaders, farmer group heads, ecotourism managers, and village officials to enrich and triangulate the quantitative findings.

2.3. Data Analysis

Each SWOT statement was scored by respondents on a five-point Likert scale, averaged across respondents, weighted according to its relative importance within its category (so that weights within each category summed to 1.00), and assigned a rating (1-4 for Strengths/Opportunities; 1-4 reverse-scored for Weaknesses/Threats, where a rating of 1 indicates the most serious weakness or threat). The weighted score for each factor was calculated as $\text{weight} \times \text{rating}$, and factor scores were summed to obtain the total IFAS (Strengths + Weaknesses) and EFAS (Opportunities + Threats) scores. The SWOT quadrant coordinates were then calculated as $X = (\text{Total Strengths Score}) - (\text{Total Weaknesses Score})$ and $Y = (\text{Total Opportunities Score}) - (\text{Total Threats Score})$, positioning the community's strategic posture within one of four quadrants: Quadrant I (Aggressive/SO Strategy), Quadrant II (Diversification/ST Strategy), Quadrant III (Turn-Around/WO Strategy), or Quadrant IV (Defensive/WT Strategy). Finally, a TOWS matrix combining pairs and triads of high-scoring internal and external factors was constructed, and each resulting strategy was assigned a composite priority score based on the summed scores of its constituent factors, enabling an evidence-based ranking of strategic priorities.

3. RESULTS AND DISCUSSION

3.1. Internal Factors: Strengths and Weaknesses

Table 1 presents the IFAS matrix, summarizing the six Strengths and six Weaknesses factors identified through the survey and their weighted scores.

Table 1. Internal Factor Analysis Summary (IFAS) Matrix for Coffee Agroforestry-Based Ecotourism Management in Kelurahan Pattapang (n = 25)

Code	Factor	Average	Weight	Rating	Score
S1	Community knowledge of coffee agroforestry	4.24	0.1853	4	0.7413
S5	Social forestry group support for tourism development	4.36	0.1906	4	0.7622
S4	Strong community cooperation and mutual assistance	4.20	0.1836	3	0.5507
S6	High environmental conservation awareness	3.84	0.1678	3	0.5035
S2	Post-harvest coffee processing skills	3.60	0.1573	3	0.4720
S3	Ability to serve as local tour guides	2.64	0.1154	2	0.2308
Total Strengths (S)		22.88	1.0000	19	3.2605
W5	Suboptimal management of tourism facilities	4.36	0.1943	1	0.1943
W4	Inadequate tourism facilities	4.20	0.1872	2	0.3743

Code	Factor	Average	Weight	Rating	Score
W6	Limited coffee tourism promotion tools	3.84	0.1711	2	0.3422
W2	Low digital marketing capability	3.32	0.1480	3	0.4439
W1	(Capital limitation factor)	–	–	–	–
W3	Limited tourism administration and bookkeeping skills	2.64	0.1176	3	0.3529
Total Weaknesses (W)		22.44	1.0000	13	2.0713

As shown in Table 1, the highest-scoring strength was S5 (social forestry group support for tourism development, score 0.7622), closely followed by S1 (community knowledge of coffee agroforestry, score 0.7413), both classified as major strengths (rating 4). This indicates that the community's existing institutional foundation and generations-accumulated cultivation knowledge constitute its two principal assets for ecotourism development. In contrast, S3 (ability to serve as local tour guides, score 0.2308) was the weakest strength (rating 2, minor strength), reflecting that tourism-specific service skills remain underdeveloped relative to core agricultural competencies—an expected gap given that ecotourism is a comparatively recent activity for a community historically known for coffee farming. On the weaknesses side, W5 (suboptimal management of existing tourism facilities, score 0.1943) was the most serious weakness (rating 1, since weakness ratings are reverse-scored), followed closely by W4 (inadequate tourism facilities, score 0.3743), together pointing to physical and managerial infrastructure as the community's most pressing internal constraint.

3.2. Internal Factors: Strengths and Weaknesses

Table 2 presents the EFAS matrix, summarizing the six Opportunities and six Threats factors.

Table 2. External Factor Analysis Summary (EFAS) Matrix for Coffee Agroforestry-Based Ecotourism Management in Kelurahan Pattapang (n = 25).

Code	Factor	Average	Weight	Rating	Score
O5	New employment opportunities for the community	4.32	0.1862	4	0.7448
O1	Rising trend of nature-based tourism and ecotourism	4.24	0.1828	4	0.7310
O4	Growth of digital media for tourism promotion	4.20	0.1810	3	0.5431
O6	Potential for coffee-based MSME development	3.80	0.1638	3	0.4914
O2	Support from social forestry programs	3.64	0.1569	3	0.4707
O3	Potential partnerships with travel agents and cafés	3.00	0.1293	2	0.2586
Total Opportunities (O)		23.20	1.0000	19	3.2397
T4	Conservation-area regulatory restrictions (TWA Malino/HPT)	4.20	0.1801	2	0.3602
T6	Seasonal fluctuation and dependence on tourist visits	4.16	0.1784	2	0.3568
T5	Limited road accessibility and infrastructure	3.96	0.1698	2	0.3396
T1	Competition from more established nearby destinations	4.36	0.1878	1	0.1870

Code	Factor	Average	Weight	Rating	Score
Total Threats (T)		23.32	1.0000	12	1.9262

Externally, O5 (new employment opportunities, score 0.7448) and O1 (rising trend of nature-based tourism, score 0.7310) were the two dominant opportunities, both classified as major (rating 4), indicating that the most promising external momentum for the community lies in the direct economic impact of tourism development combined with a nationally growing nature-tourism market. Conversely, T1 (competition from more established nearby destinations, score 0.1870) was the most serious threat (rating 1, major threat) despite not having the highest average perceived severity among individual respondents in isolation—a finding consistent with Pattapang's geographic position adjacent to Malino, South Sulawesi's long-established highland tourism hub.

3.3. SWOT Quadrant Position

Based on the IFAS and EFAS totals in Tables 1 and 2, the SWOT quadrant coordinates were calculated as $X = 3.2605 - 2.0713 = +1.1892$ and $Y = 3.2397 - 1.9262 = +1.3134$. Figure 1 illustrates the resulting quadrant position.

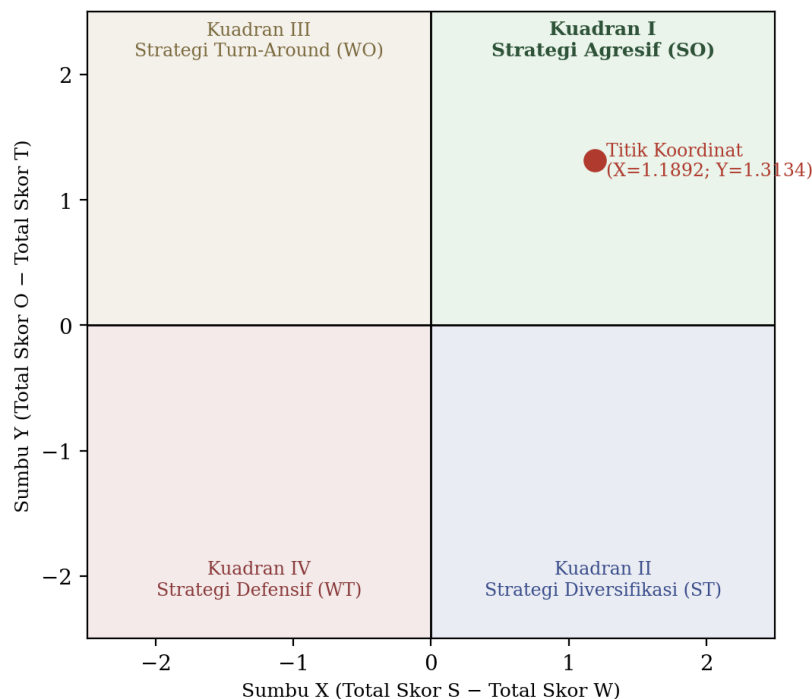


Figure 1. SWOT Quadrant Position for Coffee Agroforestry-Based Ecotourism Management in Kelurahan Pattapang

The positive values on both axes place Kelurahan Pattapang firmly within Quadrant I, the Aggressive (SO) Strategy quadrant, indicating that the community's internal strengths outweigh its weaknesses, and its external opportunities outweigh its threats. Notably, the coordinate point (+1.1892, +1.3134) lies well beyond the origin on both axes, suggesting that this quadrant position is reasonably robust to moderate shifts in underlying factor scores rather than being a marginal or borderline classification. This robust Quadrant I position does not imply the absence of internal weaknesses or external threats; rather, it indicates that the community's overall strategic posture favors leveraging existing strengths to capture opportunities as the primary development pathway, while weaknesses and threats are addressed as secondary, supporting considerations.

3.4. TOWS Strategy Formulation and Priority Ranking

Combining the highest-scoring internal and external factors, a TOWS matrix of 13 strategies spanning the SO, WO, ST, and WT categories was formulated. Each strategy was assigned a composite priority score based on the summed scores of its constituent factors. Table 3 and Figure 2 present the ten highest-priority strategies.

Table 3. Top-Ranked Strategies from the TOWS Composite Priority Matrix for Coffee Agroforestry-Based Ecotourism Development in Kelurahan Pattapang

Rank	Code	Strategy	Factors	Composite Score
1	SO1	Institutional optimization of social forestry groups as the driver of tourism-based employment creation	S5+O2+O5	1.9777
2	SO2	Development of coffee agroforestry educational tour packages (coffee farm tours) and MSME linkages	S1+O1+O6	1.9637
3	ST1	Product differentiation through agroforestry and conservation-themed educational tourism to counter competition	S1+S6+T1	1.4318
4	ST2	Strengthening formal partnerships with conservation area authorities	S5+T4	1.1224
5	SO3	Digitalization of promotion through a collectively self-managed content team	S4+O4	1.0938
6	WO3	Intensive digital literacy and online marketing training	W2+O4	0.9870
7	ST3	Development of coffee derivative products (MSMEs) as an alternative seasonal income source	S4+T6	0.9075
8	WO1	Facilitating access to capital/investment grants via social forestry programs	W1+O2	0.8343
9	WO4	Simple tourism business administration and bookkeeping mentoring	W3+O2	0.8236
10	WT2	Prioritizing basic facility and governance improvement before expanding promotion	W4+W5+T1	0.7556

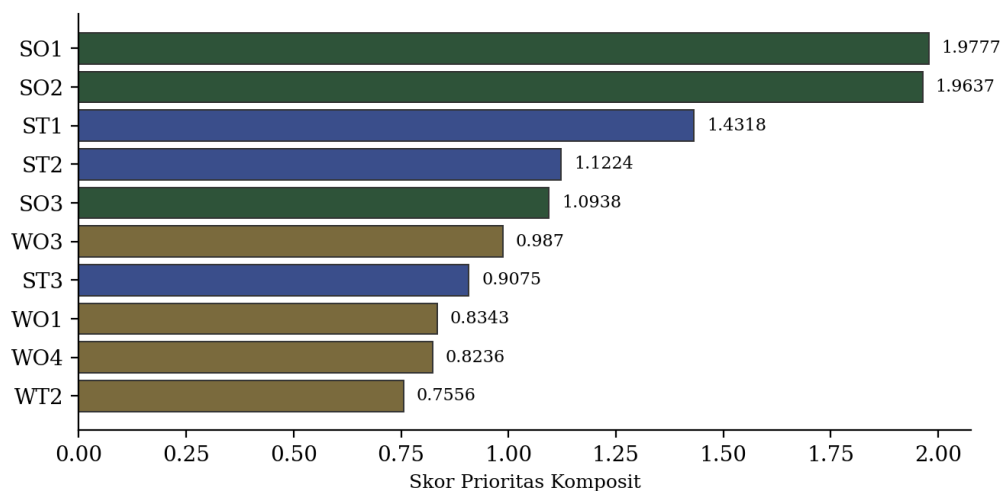
**Figure 2.** Composite Priority Scores of the Ten Highest-Ranked TOWS Strategies for Coffee Agroforestry-Based Ecotourism Development in Kelurahan Pattapang

Table 3 shows that the five top-ranked strategies (SO1, SO2, ST1, ST2, SO3) all belong to the SO and ST strategy groups, consistent with the community's Quadrant I (Aggressive) position established in Section 3.3. The two leading strategies, SO1 (institutional optimization of social forestry groups, score 1.9777) and SO2 (development of agroforestry educational tourism packages, score 1.9637), are very closely matched and substantially outrank the third-ranked strategy (ST1, score 1.4318), indicating that these two strategies—one institutional-structural and one product-substantive—represent complementary flagship priorities for the community's ecotourism development program.

3.5. Discussion

The Quadrant I position identified in this study is consistent with findings from comparable coffee agroforestry-tourism initiatives elsewhere in Indonesia. Hidayat, Hakim, and Parmawati (2023) similarly found that community-based coffee agro-tourism in East Java exhibited strong sustainability potential when existing agricultural knowledge was strategically repositioned as a tourism asset rather than treated merely as a production input. Likewise, Utami, Dhewanto, and Lestari (2023) identified institutional capacity and product differentiation as the two most decisive success factors for rural tourism entrepreneurship across multiple Indonesian tourism villages, mirroring the SO1 and SO2 priorities identified in the present study.

The prominence of social forestry group support as the single strongest internal factor (S5) aligns with the broader literature on social forestry as an institutional vehicle for community-based natural resource management in Indonesia (Gunawan et al., 2022; Mazya, Nurrochmat, Kolopaking, Satria, & Dharmawan, 2023). This suggests that, unlike many ecotourism initiatives that must build community institutions from scratch, Kelurahan Pattapang can leverage an institution that already carries legitimacy, government linkages, and organizational experience-substantially lowering the transaction costs of an SO1-type intervention compared to communities without such pre-existing structures.

At the same time, the identification of tour-guiding capability (S3) and facility management (W4, W5) as the community's most pronounced weaknesses is consistent with Benzaghta, Elwalda, Mousa, Erkan, and Rahman's (2021) broader observation, drawn from an integrative review of SWOT applications across sectors, that internal weaknesses in emerging service-oriented ventures are most frequently concentrated in service-delivery and operational-management competencies rather than in core production knowledge. This pattern reinforces the WT2 strategy's emphasis on prioritizing basic facility and governance improvements before expanding promotional activities, since promoting a destination whose service and facility foundations remain weak risks generating visitor dissatisfaction that could undermine the very momentum the SO-strategies aim to capture.

The most serious external threat, competition from the established Malino destination (T1), reflects a structural challenge common to peripheral tourism destinations situated near dominant hubs, as noted in broader rural tourism development literature (Ruiz-Real, Uribe-Toril, de Pablo Valenciano, & Gázquez-Abad, 2022). Rather than competing directly on Malino's terms, the ST1 strategy of differentiating Pattapang through agroforestry- and conservation-themed educational tourism represents a niche-positioning response that is consistent with recommendations in the rural tourism entrepreneurship literature to pursue product differentiation rather than head-to-head competition (Utami, Dhewanto, & Lestari, 2023).

Overall, these findings suggest that Kelurahan Pattapang's socio-economic conditions and technical capabilities-strong agricultural knowledge and social capital, tempered by underdeveloped tourism-service skills and infrastructure-position the community favorably for an aggressive, institutionally anchored development strategy, provided that facility and service-capacity gaps are addressed in parallel rather than treated as an afterthought to promotional expansion.

The methodological approach of translating a structured internal-external factor assessment into a ranked, evidence-based set of strategic priorities, as applied through the TOWS composite scoring in this study, mirrors a broader pattern in Indonesian agricultural strategy research. Simatupang, Redu, and Ginting (2025), in formulating a glocal supply-chain adaptation strategy for lowland rice farming risk management in Merauke Regency, similarly demonstrated that strategy formulation grounded in systematically scored internal and external factors yields more defensible and actionable priorities than strategy lists derived from qualitative judgment alone. This convergence across different agricultural sub-sectors-rice supply-chain risk management on one hand and coffee agroforestry ecotourism on the other-reinforces the broader applicability of structured, quantitatively anchored strategy formulation for community- and commodity-based development planning in the Indonesian agricultural context.

4. CONCLUSIONS

The socio-economic conditions and technical capabilities of the Kelurahan Pattapang community favor an aggressive strategy for coffee agroforestry-based ecotourism development. The community's total Strengths score (3.2605) exceeded its Weaknesses score (2.0713), and its total Opportunities score (3.2397) exceeded its Threats score (1.9262), yielding SWOT quadrant coordinates of (+1.1892, +1.3134) that place the community firmly in Quadrant I. Social forestry group support and coffee agroforestry knowledge constitute the community's principal strengths, while tour-guiding capability and tourism facility management remain its most pressing weaknesses; new employment opportunities and the rising ecotourism trend are the leading

external opportunities, while competition from the more established nearby Malino destination is the most serious threat. Composite priority scoring of the resulting TOWS matrix identifies institutional optimization of social forestry groups and development of coffee agroforestry educational tourism packages as the two flagship strategies, both substantially outranking other alternatives. These findings indicate that ecotourism development in Kelurahan Pattapang should be anchored in the community's existing institutional and knowledge assets, with parallel, deliberate investment in service-capacity and facility gaps to ensure that aggressive promotional expansion is matched by an equally aggressive improvement in service delivery quality.

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