



## Approaches to enhancing the resilience and independence of smallholder coffee farmers

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### ABSTRACT

This study examines strategies to strengthen the self-reliance of smallholder coffee farmers in the Gayo Highlands, focusing on Bener Meriah and Central Aceh Regencies, which are recognized centers of Gayo Arabica coffee production. A strategic analysis approach was applied using the Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrices to assess farmers' internal strengths and weaknesses alongside external opportunities and threats. The IFE analysis produced a total score of 2.37, indicating a moderate level of internal capacity, driven by long experience in coffee cultivation, strong social cohesion, and favorable agro-climatic conditions. In contrast, the EFE score of 1.98 reflects a relatively weak ability to respond to external dynamics, including global price fluctuations, climate change impacts, and limited market access. Integrating these results into the Internal-External (IE) Matrix places smallholder coffee farmers in Quadrant VI, corresponding to a "Hold and Maintain" strategic posture. This position suggests that empowerment efforts should consolidate existing strengths while addressing vulnerabilities to external pressures. Recommended strategies include upgrading post-harvest technology, expanding direct market access, improving cooperative management, and strengthening climate resilience—steps expected to support sustainable coffee production, reduce dependence on intermediaries, and enhance the competitiveness of Gayo coffee in an increasingly dynamic global market.

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## INTRODUCTION

Coffee is one of Indonesia's flagship agricultural commodities and holds strategic value for both the national and local economies. Indonesia is recorded as the world's fourth-largest coffee producer after Brazil, Vietnam, and Colombia. (Adie et al., 2024; Juhari et al., 2024; Winarni et al., 2025) According to data from Statistics Indonesia (BPS, 2023), national coffee production reached 774,000

tons, cultivated across approximately 1.23 million hectares. More than 96% of this area is managed by smallholder farmers, with the remainder under large state-owned and private estates (Mettauer et al., 2021; Zen & Nibulan, 2018). This structure means that the sustainability and competitiveness of Indonesia's coffee sector depend heavily on the strength and self-reliance of smallholder coffee farmers as the primary actors at the upstream end of the value chain (Awuakye, 2023; Ribeiro dos Santos, 2022). Yet field realities show that these farmers continue to face a range of structural constraints that weaken their bargaining position and perpetuate dependence on external parties.

Key challenges commonly encountered include limited access to capital, agricultural technology, market information, and institutional support services. Smallholder coffee farm productivity also remains relatively low—about 700–900 kg/ha/year—well below the optimal potential yield of 1,500–2,000 kg/ha/year (Directorate General of Estate Crops, 2022). One major factor behind low productivity and limited value addition is the predominance of traditional production practices that are not supported by improved post-harvest technologies or efficient farm management systems. Within the broader coffee value chain, smallholders also tend to occupy the weakest position, functioning largely as price takers and depending heavily on tengkulak (local collectors/middlemen) or itinerant traders. This situation is often aggravated by minimal access to cooperatives or other farmer economic institutions that could strengthen collective bargaining power in the marketplace (Biswas, 2024; Shiferaw et al., 2008, 2011). At the same time, global demand for coffee has been rising significantly. World coffee consumption in 2022 was reported at more than 170 million 60-kg bags and is projected to continue increasing in line with the growth of specialty coffee markets and urban lifestyle trends (ICO, 2023). This expanding demand should represent an opportunity for Indonesia's smallholder coffee farmers to improve household income and welfare. However, capturing that opportunity will only be feasible if farmers possess adequate capacity and self-reliance in managing their production systems and agribusinesses. Farmer self-reliance must be understood not only in economic terms, but also across social, institutional, and knowledge dimensions (Ndlela & Worth, 2021; Silvert et al., 2021; Srithong & Limrattanaphattarakun, 2024).

Zulfiningrum et al., (2019) defines farmer self-reliance as the ability to make independent decisions in managing one's farming enterprise, including in production planning, marketing, and risk management. Accordingly, efforts to strengthen the self-reliance of smallholder coffee farmers should focus on developing individual capacity, reinforcing farmer organizations and local institutions, and building sustained linkages to markets and technology. The government has introduced a number of initiatives to support the coffee sector—such as the Peremajaan Kopi Rakyat (Smallholder Coffee Rejuvenation, PEKAR) program, the development of "Coffee Villages," and Good Agricultural Practices (GAP) training delivered through estate crop services and related agencies (Auld, 2010; Millard, 2017; Wright et al., 2024). Even so, the effectiveness of these programs requires re-examination, particularly with respect to their contribution to farmer empowerment and long-term self-reliance. Many initiatives remain top-down in design, are not fully aligned with the actual needs of farmers on the ground, and are not well integrated with financing schemes or reliable market access pathways. Against this backdrop, the present study is timely: it seeks to identify effective strategies for strengthening the self-reliance of Indonesia's smallholder coffee farmers, especially through participatory, locally grounded approaches that leverage existing community assets and agroecological potential.

## RESEARCH METHOD

This study is a descriptive qualitative research employing a case study approach to gain an in-depth understanding of the conditions, potentials, challenges, and empowerment strategies of smallholder coffee farmers in enhancing their economic and institutional independence, particularly in the coffee-producing regions of Bener Meriah and Central Aceh Regencies, Aceh Province. A qualitative approach was chosen to explore the perceptions, experiences, and socio-cultural realities of key actors in the coffee ecosystem, including smallholder farmers, traditional and community

leaders, cooperative administrators, field agricultural extension workers, and representatives from local government agencies and NGOs supporting farmer development. The research was conducted from February to May 2025, with data collected from selected Arabica coffee-producing villages that are recognized nationally and internationally for their high-quality Gayo coffee. Informants were selected purposively based on specific criteria, namely: smallholder farmers managing at least 0.5 hectares of land, farmer group or cooperative leaders, village officials and agricultural extension officers, as well as stakeholders from the plantation office and relevant NGOs. The number of informants was determined through the principle of data saturation, where data collection was concluded once no new insights were found. Data collection techniques included in-depth interviews to capture insights into cultivation practices, structural challenges, and adaptive strategies; field observations to directly assess farming conditions, infrastructure, and institutional roles; document analysis to gather relevant secondary data such as regional profiles, agricultural statistics, and program reports; and Focus Group Discussions (FGDs) involving farmers, cooperative leaders, and institutional actors to discuss strategic issues (Made Jiwa Astika et al., 2021). The collected qualitative data were analyzed thematically through a process of data condensation, categorization, and interpretation to identify key patterns and insights. To strengthen the formulation of strategic directions, a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis framework was applied after the thematic coding process. Internal factors such as strengths (e.g., farming experience, indigenous knowledge, and group solidarity) and weaknesses (e.g., limited access to capital, outdated post-harvest technologies, and weak institutional management), as well as external factors such as opportunities (e.g., global demand for specialty coffee, government policy support, and access to certification markets) and threats (e.g., price volatility, climate change, and intermediary dominance), were identified and systematically mapped into a SWOT matrix (Zulkarnain et al., 2018). The matrix was then used to formulate four categories of strategic options: SO strategies (leveraging strengths to seize opportunities), WO strategies (addressing weaknesses using available opportunities), ST strategies (utilizing strengths to mitigate threats), and WT strategies (minimizing both weaknesses and threats simultaneously), as suggested by Hamidi & Delbahari, (2011). The SWOT analysis served as a complementary tool to the thematic analysis, providing a structured basis for identifying feasible empowerment strategies to strengthen the self-reliance of smallholder coffee farmers in the study areas.

This study is a descriptive qualitative research employing a case study approach aimed at gaining an in-depth understanding of the conditions, potentials, challenges, and empowerment strategies of smallholder coffee farmers in enhancing their economic and institutional independence, particularly in the coffee-producing regions of Bener Meriah and Aceh Tengah Regencies, Aceh Province. A qualitative approach was chosen to explore the perceptions, experiences, and social realities of key actors within the coffee ecosystem, including coffee farmers, traditional and community leaders, cooperative administrators, agricultural extension workers, and representatives from local government agencies and supporting institutions. The study was conducted from February to May 2025, with data collection focused on several Arabica coffee-producing villages in the two regencies, which are recognized both nationally and internationally as prominent producers of high-quality Gayo coffee. Informants were selected purposively based on specific criteria: smallholder coffee farmers actively managing at least 0.5 hectares of farmland, leaders of farmer groups or coffee cooperatives, village officials and field agricultural extension officers, as well as representatives from the plantation office and NGOs involved in farmer empowerment programs. The number of informants was not predetermined but adjusted according to the principle of data saturation. Data collection techniques included in-depth interviews to explore farmers' understanding of cultivation systems, structural challenges, and adaptive strategies; field observations to directly assess farm conditions, farming activities, post-harvest infrastructure, and institutional arrangements; document analysis to gather secondary data such as regional profiles, agricultural statistics, and program reports; and Focus Group Discussions (FGDs) with farmers,

cooperative leaders, and other stakeholders to identify strategic factors in strengthening the independence of smallholder coffee farmer (Made Jiwa Astika et al., 2021)s. The collected data were analyzed using a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis framework, beginning with the identification of internal factors such as strengths (e.g., farming experience, local knowledge, and group solidarity) and weaknesses (e.g., limited access to capital, inadequate post-harvest technology, and weak institutional management), as well as external factors such as opportunities (e.g., global coffee consumption trends, government support, and the emergence of the specialty coffee market) and threats (e.g., global coffee price fluctuations, climate change, and the dominance of middlemen and instant coffee markets). These SWOT factors were then mapped into a SWOT matrix to formulate four main strategic options (Zulkarnain et al., 2018): SO strategies (leveraging strengths to seize opportunities), WO strategies (addressing weaknesses by utilizing opportunities), ST strategies (using strengths to confront threats), and WT strategies (minimizing both weaknesses and threats simultaneously) (Hamidi & Delbahari, 2011). An internal SWOT analysis was conducted to identify the key strengths and weaknesses of smallholder coffee farmers in the Bener Meriah and Central Aceh regions, serving as the basis for formulating strategies to strengthen their self-reliance.

## RESULTS AND DISCUSSIONS

### Internal Factor Analysis in the Strategy to Strengthen the Independence of Smallholder Coffee Farmers

To formulate an effective strategy for strengthening the independence of smallholder coffee farmers in Bener Meriah and Aceh Tengah Regencies, it is essential to develop an in-depth understanding of internal conditions that influence farming dynamics, institutional performance, and farmers' economic resilience. Therefore, a SWOT analysis was applied to identify and assess two critical internal factors: strengths and weaknesses. These components represent both the internal capacities already possessed and the structural constraints that still hinder the main actors within the Gayo coffee ecosystem. From the strength perspective, coffee farmers in this region possess significant socio-cultural capital, including long-standing experience in cultivating Arabica coffee passed down through generations, the utilization of local knowledge and traditional wisdom to maintain farm sustainability, and strong solidarity among farmers reflected in the active role of farmer groups and cooperatives. Furthermore, Gayo coffee's recognition as one of the finest specialty coffees at both national and international levels serves as a crucial driver in strengthening farmers' bargaining position in the market. The region's favorable agroclimatic conditions also provide a comparative advantage that is not easily replicated in other areas. However, several internal weaknesses need to be addressed to comprehensively enhance farmers' independence. Among these are limited access to financing and working capital, which hampers farmers' ability to scale up production and adopt technological innovations. Post-harvest technology remains relatively simple and does not yet meet the stringent quality standards required for export markets. Institutionally, cooperative management has not been fully optimized, both in terms of managerial capacity and member services. Additionally, the declining interest of younger generations in coffee farming poses a serious threat to the sector's sustainability, compounded by farmers' limited access to direct export markets without intermediaries.

Table 1. Internal Factors (Strengths–Weaknesses) of Smallholder Gayo Coffee Farming Households in Bener Meriah and Central Aceh

	Internal Factors	Weight	Rating	Score
<b>Strengths</b>				
1.	Extensive experience in cultivating Arabica coffee (Gayo).	0.12	4	0.48

2. Strong local knowledge and traditional wisdom in farm management.	0.10	3	0.30
3. Cohesive farmer groups and active cooperatives.	0.10	3	0.30
4. Established reputation of Gayo coffee in national and international markets.	0.08	3	0.24
5. Highly suitable agroclimatic conditions.	0.05	3	0.15
Subtotal Strengths	0.45		1.47
<b>Weaknesses</b>			
1. Limited access to financing and capital.	0.12	2	0.24
2. Simple and underdeveloped post-harvest technology.	0.10	2	0.20
3. Suboptimal cooperative management.	0.08	2	0.16
4. Lack of generational renewal among young farmers.	0.07	2	0.14
5. Limited direct access to export markets.	0.08	2	0.16
Subtotal Weaknesses	0.45		0.90
<b>Total Internal Factors</b>	<b>0.90</b>		<b>2.37</b>

The internal factor analysis resulted in a total score of 2.37, indicating a moderately weak internal position as weaknesses slightly outweigh strengths. Key strengths include extensive experience in Gayo Arabica cultivation, strong local knowledge, cohesive farmer groups, and a well-established international reputation, supported by favorable agroclimatic conditions. However, these advantages are constrained by major weaknesses such as limited access to financing, underdeveloped post-harvest technology, suboptimal cooperative management, lack of young farmer regeneration, and restricted direct access to export markets.

### **External Factor Analysis in Strengthening the Independence of Smallholder Coffee Farmers**

In addition to internal conditions, the success of initiatives aimed at empowering and enhancing the independence of smallholder coffee farmers is significantly influenced by dynamic external factors that are largely beyond local actors' direct control. These external factors encompass opportunities that can be leveraged to foster growth in the smallholder coffee sector, as well as threats that may hinder progress in production, marketing, and institutional development. On the opportunity side, the increasing global consumption of coffee—particularly within the specialty coffee segment—represents a positive trend that opens broader markets for Gayo coffee, which is renowned for its unique characteristics and distinctive flavor profile. Government support programs in the form of training, financing, and export facilitation further provide avenues for farmers and cooperatives to enhance their capacity and competitiveness. Additionally, growing partnerships between farmers and private sector actors—such as roasters, MSMEs, and local coffee industry players—strengthen the value chain from upstream to downstream. The potential development of coffee-based agro-tourism and the rising coffee consumption trend among millennials also offer strategic opportunities to expand the consumer base and diversify farmers' business ventures.

However, these opportunities coexist with substantial external threats. Global coffee price fluctuations can directly affect farmers' income, particularly in the absence of adequate price protection mechanisms. Climate change poses significant agronomic risks, including extreme weather, pest outbreaks, and unpredictable seasonal patterns. Dependence on middlemen or "ijon" systems within the marketing chain continues to erode farmers' bargaining power. Furthermore, competition from cheaper instant coffee products and imported coffee threatens the sustainability of local smallholder coffee in the domestic market. Land fragmentation caused by inheritance systems further reduces farm efficiency and economic scale. A thorough analysis of these external factors is essential for designing adaptive and responsive strategies that enable smallholder coffee farmers not only to survive but also to thrive within an increasingly competitive and complex business environment.

Table 2 External Factor ( Opportunities – Threats) of Smallholder Gayo Coffee Farming Households in Bener Meriah and Central Aceh

External Factor	Weight	Rating	Score
<b>Opportunities</b>			
1. Increasing global coffee consumption and the rise of specialty coffee.	0.10	4	0.40
2. Government support programs (training, financing, and export facilitation).	0.10	3	0.30
3. Partnerships with the private sector (roasters and SMEs).	0.08	3	0.24
4. Potential for coffee-based agro-tourism.	0.05	2	0.10
5. Growing coffee-drinking trend among millennials.	0.05	2	0.10
Subtotal Opportunities	0.38		1.14
<b>Threats</b>			
1. Fluctuations in global coffee prices.	0.10	2	0.20
2. Impacts of climate change (extreme weather and pests).	0.10	2	0.20
3. Dependence on middlemen or advance payment systems.	0.08	2	0.16
4. Competition from instant and imported coffee products.	0.07	2	0.14
5. Land fragmentation due to inheritance.	0.07	2	0.14
Subtotal Threats	0.42		0.84
Total external Factors	0.80		1.98

The external factor analysis resulted in a total score of 1.98, indicating a below-average response to external conditions. While there are significant opportunities such as rising global coffee consumption, government support, and potential private sector partnerships, these are offset by major threats including price fluctuations, climate change impacts, reliance on middlemen, and increasing competition. This suggests that farmers need proactive strategies to capitalize on market opportunities while mitigating risks to remain competitive.

### Sustainability Analysis of Strategies for Strengthening Smallholder Coffee Farmers in the Gayo Highlands

This analysis evaluates the empowerment strategies for smallholder coffee farmers using the Internal and External Factor Evaluation (IFE and EFE) matrices. The purpose is to assess internal strengths and weaknesses alongside external opportunities and threats, in order to determine the strategic position of smallholder coffee farmers, particularly in Bener Meriah and Aceh Tengah – recognized as the core production areas of Gayo Arabica coffee in Aceh Province.

The IFE Matrix results indicate a total score of **2.37**, reflecting a moderate level of internal capacity. This score signifies that farmers possess notable strengths, such as extensive experience in coffee cultivation, strong farmer group cohesion, and highly suitable agro-climatic conditions. However, these advantages are counterbalanced by significant weaknesses, including limited market access, underdeveloped post-harvest technology, and the low involvement of younger generations in coffee farming. Conversely, the EFE Matrix shows a total score of **1.98**, indicating that farmers' ability to capitalize on external opportunities and mitigate threats remains relatively weak. External challenges include global price fluctuations, the impacts of climate change, dependence on middlemen, and competition from instant coffee products. Despite these obstacles, there are promising opportunities to leverage – such as the rising global demand for coffee, government support programs, and the potential development of coffee-based agro-tourism.

By integrating these scores into the Internal-External (IE) Matrix, the strategic position of smallholder coffee farmers falls within Quadrant VI, corresponding to the “Hold and Maintain”

strategy. This positioning suggests that while internal strengths provide a foundation for resilience, external pressures remain substantial. Therefore, the most appropriate strategic direction involves preserving existing strengths while enhancing adaptive capacity to external factors. Key priorities should include expanding direct market access, improving climate resilience, and strengthening cooperative and institutional systems, ensuring that Gayo coffee farmers remain competitive and sustainable in an increasingly dynamic and uncertain market environment.

Table 3. Internal-External (IFE-EFE) Strategic Assessment: Gayo Highland Smallholder Coffee Sector.

		Score Total EFE		
		High 3,0-4,0	Medium 2,0-2,99	low 1,0-1,99
score Total IFE	Higt 3,0-4,0	I	II	III
	Medium 2,0-2,99	IV	V	VI ← Current Position
	low 1,0-1,99	VII	VIII	IX

Quadrant VI indicates that the recommended strategy is “Hold and Maintain.” The strategic focus should be directed toward preserving internal strengths, such as the cohesion of farmer groups, while simultaneously addressing external factors, including improving market access, enhancing post-harvest technology, and strengthening protection against climate and price risks.

**Analytic Hierarchy Process (AHP) for Strengthening the Independence of Smallholder Coffee Farmers**

The Analytic Hierarchy Process (AHP) was applied in this study to prioritize the strategic factors influencing efforts to strengthen the independence of smallholder coffee farmers. This decision-making method structures complex problems by comparing sub-factors in pairwise fashion, generating relative weights that reflect the importance of each factor. In this context, AHP was used to assess the contribution of four major dimensions—**Strengths, Weaknesses, Opportunities, and Threats**—each broken down into specific sub-factors evaluated through pairwise comparison matrices. The resulting weights provide clear guidance on which factors should be prioritized in strategic planning: leveraging internal strengths and external opportunities while addressing internal weaknesses and mitigating external threats.

Table 4. Results of the AHP for Strengthening the Independence of Smallholder Coffee Farmers: Strengths

Sub-Factor	Comparison Matrix	Weight	Description
1. Extensive experience in cultivating Arabica coffee (S1)	1, 2, 3, 2, 1	0.27	Deep and inherited technical knowledge
2. Local knowledge and traditional wisdom (S2)	0.5, 1, 2, 1, 0.5	0.20	Sustainable farming practices rooted in local wisdom
3. Cohesive farmer groups and active cooperatives (S3)	0.5, 1, 1, 2, 0.5	0.20	Strong social solidarity enhancing bargaining power
4. Strong reputation of Gayo coffee (S4)	0.3, 0.5, 0.5, 1, 0.25	0.18	Well-recognized nationally and internationally
5. Favorable agro-climatic conditions (S5)	0.25, 0.5, 0.5, 1, 0.2	0.15	High altitude and climate suitable for Arabica coffee
Weaknesses			

1.	Limited access to financing and capital (W1)	1, 2, 2, 3, 1	0.27	Hinders expansion and production improvement
2.	Underdeveloped post-harvest technology (W2)	0.5, 1, 1, 2, 0.5	0.22	Reduces final quality and market value of coffee
3.	Suboptimal cooperative management (W3)	0.5, 1, 1, 2, 0.3	0.18	Administration and governance remain suboptimal
4.	Lack of generational renewal among young farmers (W4)	0.3, 0.5, 0.5, 1, 0.25	0.17	Low involvement of younger generations
5.	Restricted direct access to export markets (W5)	0.25, 0.5, 0.5, 1, 0.25	0.16	Dependence on export intermediaries
<b>Opportunities</b>				
1.	Increasing global coffee consumption and the rise of specialty coffee (O1)	1, 3, 2, 2, 1	0.28	International market demand continues to increase
2.	Government support programs (training, export facilitation, financing) (O2)	1, 2, 1.5, 1, 0.5	0.26	Numerous initiatives to enhance farmer capacity
3.	Private sector partnerships (roasters, SMEs) (O3)	0.5, 1, 1, 1.5, 0.5	0.22	Opens opportunities for distribution and downstream processing
4.	Potential for coffee-based agro-tourism (O4)	0.25, 0.5, 0.5, 1, 0.25	0.12	Becomes an alternative source of income
5.	Growing coffee-drinking trend among millennials (O5)	0.25, 0.5, 0.5, 1, 0.25	0.12	A potential and continuously growing domestic market
<b>Threats</b>				
1.	Fluctuations in global coffee prices (T1)	1, 2, 1.5, 1, 0.5	0.26	Unstable market prices affect farmers' income
2.	Climate change and pest outbreaks (T2)	1, 2, 1.5, 1, 0.5	0.26	Extreme weather reduces productivity
3.	Dependence on middlemen/advance payment systems (T3)	0.5, 1, 1, 1.5, 0.5	0.20	Disadvantages farmers in terms of pricing
4.	Competition from instant and imported coffee products (T4)	0.3, 0.5, 0.5, 1, 0.25	0.14	Decreases market interest in local coffee
5.	Land fragmentation due to inheritance (T5)	0.3, 0.5, 0.5, 1, 0.25	0.14	Farmers' business scale becomes increasingly smaller

The results of the Analytic Hierarchy Process (AHP) indicate that strengthening the independence of smallholder coffee farmers should capitalize on key strengths such as extensive experience in Arabica coffee cultivation (weight 0.27) and the strong reputation of Gayo coffee (0.18) to enhance competitiveness. At the same time, it is essential to address major weaknesses, including limited access to financing (0.27) and the use of basic post-harvest technology (0.22), which reduces product quality. The greatest opportunities lie in the growing global consumption of coffee and specialty coffee (0.28) and government support programs (0.26), which can be leveraged to expand markets and strengthen farmers' capacity. However, threats such as fluctuations in global coffee prices (0.26), climate change (0.26), and dependence on middlemen (0.20) must be mitigated through innovation, diversification, and strengthening marketing networks. Therefore, the resulting strategy should integrate institutional strengthening, technological improvements, and the utilization of global market opportunities to achieve sustainable independence. These findings align with previous studies emphasizing that smallholder coffee farmer empowerment requires a strategic approach that integrates internal strengths and external opportunities while addressing key

weaknesses and threats. Hakim & Rifin, (2023) highlighted the need for capacity-building programs, modern post-harvest technology, and cooperative institutions to improve farmers' bargaining power in South Sulawesi. Similarly, Hidayat and Ristanti (2020) found that access to market information and agribusiness training significantly enhanced income stability and product quality in Lampung. Basri et al., (2024) stressed the role of local institutions and multi-stakeholder synergy – including government and NGOs – in facilitating access to certification, credit, and collective marketing, thus reinforcing farmer independence. In East Java, Faila Sophia Hartatri et al., (2019) demonstrated that value-added strategies through agro-processing and branding of specialty coffee improved market access and export potential. (Wardhiani et al., 2023) further revealed that areas with strong farmer organizations and traceability systems were more resilient to global market shocks and climate change, supported by tools like organic certification and digital marketing. These findings corroborate the results of the present AHP analysis, which shows that leveraging strengths like experience in Arabica cultivation and Gayo coffee's strong reputation, while mitigating weaknesses such as limited financing and poor post-harvest handling, is critical.

## CONCLUSION

The strategic position for strengthening the independence of smallholder coffee farmers in Bener Meriah and Aceh Tengah Regencies is identified as falling within Quadrant VI of the SWOT matrix – categorized as a Hold and Maintain strategy – with an Internal Factor Evaluation (IFE) score of 2.37 and an External Factor Evaluation (EFE) score of 1.98. This position reflects the importance of preserving internal strengths while simultaneously addressing internal weaknesses and leveraging existing external opportunities. Key strengths, such as farmers' long-standing cultivation experience, strong group cohesiveness, and the established global reputation of Gayo coffee, must be optimized to compensate for weaknesses including limited access to capital, inadequate post-harvest processing technologies, and weak institutional management. At the same time, significant opportunities – such as the rise in global demand for specialty coffee, increasing government support for agribusiness development, and the potential for agro-tourism – must be capitalized upon to proactively address threats such as international price volatility, the impacts of climate change, and dependency on middlemen in coffee distribution chains. Based on these dynamics, the recommended core strategies include: (1) strengthening cooperative institutions to improve collective bargaining power and governance; (2) improving access to financing through microcredit schemes or farmer-bank linkage programs; (3) modernizing post-harvest technology to enhance product quality and competitiveness; and (4) expanding market access through direct export channels, branding, and certification schemes, allowing farmers to adapt more effectively to shifting market demands and environmental pressures. Practically, these strategies provide a roadmap for local governments, cooperatives, and development agencies to design integrated programs that enhance farmer self-reliance, income stability, and sustainability. Academically, the findings enrich the discourse on rural development and agricultural empowerment by offering a localized model of strategy formulation rooted in empirical, participatory analysis. Furthermore, this research offers an original contribution to the literature on coffee farmer empowerment in Indonesia by presenting a contextualized strategic framework grounded in the socio-economic realities of Gayo highland communities – an area that has been underrepresented in past studies. The integration of qualitative thematic analysis with SWOT-based strategic planning not only bridges empirical findings with actionable outcomes but also provides a replicable approach for future research and policy development in other commodity-based rural economies across the country.

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