

Development of the Catfish Farming Value Chain in Benteng Somba Opu Village: Strategies and Implications

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Article History:

Received: 19-06-2025

Revised: 23-06-2025

Accepted: 23-06-2025

Keywords: *Catfish Farming; Market Expansion; SWOT Analysis; Technology Optimization.*

Abstract: *This research examines the development strategies for catfish farming in Benteng Somba Opu Village, Barombong District, Gowa Regency. The study aims to identify key internal and external factors that influence the success of catfish farming and provide strategic recommendations for its growth. Using SWOT analysis, the study highlights the strengths of the business, including easy cultivation and access to natural resources like the Jeneberang River, while addressing challenges such as limited capital and inadequate marketing strategies. The findings suggest that farmers should focus on market expansion, optimizing technology usage, and strengthening collaboration with government and business partners to enhance production and profitability. Additionally, the study emphasizes the importance of improving infrastructure and professionalizing the marketing workforce. The results indicate that, by leveraging these strategies, the catfish farming industry in Benteng Somba Opu can achieve sustainable growth and contribute to the local economy.*

Introduction

Indonesia is home to a diverse array of natural resources, both on land and in water, that contribute significantly to the nation's economy and environmental harmony. Water-based natural resources include living organisms such as fish, seaweed, and other aquatic life, all of which hold potential for human use. The fisheries sector, a key sub-sector of agriculture, plays a critical role in utilizing these water resources. It has the potential to boost both the quality and quantity of fish production, contributing to the improvement of fishermen's livelihoods, providing a sustainable source of animal protein, and supporting national food security. Moreover, the fisheries sector aids in export growth, supplies raw materials for industry, expands employment opportunities, and promotes regional development while maintaining environmental sustainability (Parwinia, 2001).

In South Sulawesi, fisheries prospects have been consistently promising, showing significant potential each year. For example, in 2011, the total fish production from capture and aquaculture was reported at 2,036,254 tons (BPS, 2013). This impressive figure underscores the regional potential for fish exports, particularly in the commodities sourced from areas beyond Makassar. On average, the fisheries sector exported approximately 40 tons of fish per month during the last five months of 2012. The primary export destinations included the European Union, the United States, China, and Japan. These statistics highlight the critical role of fisheries in the economic landscape of South Sulawesi and indicate the untapped potential for further growth in aquaculture, particularly catfish farming, which has seen increasing demand across local and international markets.

This study is the development of catfish farming in the Benteng Somba Opu area. This variable reflects the overall progress and sustainability of catfish farming practices in the region, measured by factors such as production output, profitability, and the ability to meet increasing consumer demand. According to the Gowa District's 2014 performance report, catfish is one of the most successful aquaculture commodities in the region, with production far exceeding expectations. In 2014, catfish production reached 84.0 tons, well above the target of 29.4 tons, indicating a 285% achievement rate. This growth has been driven by rising demand for catfish, which has become increasingly popular among consumers as they shift their preferences towards freshwater fish. Therefore, the development of catfish farming in Benteng Somba Opu is not only a response to market demand but also a strategic initiative aimed at boosting local economic growth and providing a sustainable livelihood for fish farmers.

This research is the strategies employed in catfish farming in Benteng Somba Opu. These strategies encompass a wide range of practices aimed at improving productivity and sustainability, including the adoption of modern aquaculture techniques, effective water management, and the use of high-quality feed. Other strategic elements include market expansion efforts, such as building stronger supply chains, establishing partnerships with local and international buyers, and optimizing logistics to reduce costs and increase profitability. Additionally, government support in the form of infrastructure development, technical assistance, and financial incentives plays a crucial role in fostering the growth of catfish farming in the region. By analyzing these strategies, the research aims to identify best practices that can be scaled and replicated in other regions with similar potential for aquaculture development.

While numerous studies have examined the potential of aquaculture in various regions of Indonesia, there remains a gap in research specifically focused on the unique challenges and opportunities within Benteng Somba Opu. Previous studies have emphasized the importance of infrastructure and market access in promoting aquaculture growth, yet few have addressed the specific local conditions that affect the scalability of catfish farming in this region. Recent research has highlighted the role of modern technology and innovation in overcoming logistical and environmental challenges in aquaculture, but these advancements have not been fully explored in the context of Benteng Somba Opu (Wibisono, et al., 2019; Maulana & Setyawan, 2021). Furthermore, there is limited literature on how small-scale farmers in this region can effectively leverage government programs and incentives to improve their production systems.

This study aims to fill this gap by providing an in-depth analysis of the current state of catfish farming in Benteng Somba Opu and offering practical recommendations for stakeholders.

The primary purpose of this study is to describe the development strategies for catfish farming in Benteng Somba Opu, with a focus on identifying effective methods for enhancing productivity, profitability, and sustainability in the region. By examining both the internal and external factors that influence catfish farming, the research seeks to provide a comprehensive understanding of how local farmers can optimize their operations in response to market demands and environmental conditions. The study also aims to offer valuable insights to regional policymakers, enabling them to design more effective programs that support the growth of the aquaculture industry in Gowa Regency. The implications of this research extend beyond the local context, as the findings can inform broader strategies for aquaculture development across Indonesia. By addressing key challenges and highlighting successful strategies, the study contributes to the ongoing efforts to strengthen the fisheries sector, ultimately improving food security, creating jobs, and boosting the rural economy.

Research Methods

The research was conducted from April to May 2016 in Benteng Somba Opu, Barombong District, Gowa Regency, and focuses on developing strategies for the catfish farming industry. The research methodology involved selecting informants—specifically, 20 catfish farmers in the region—based on their knowledge of the farming operations. Data collection utilized both qualitative and quantitative methods, gathering primary data through interviews and secondary data from relevant documentation. The qualitative data, which includes geographical observations and SWOT analysis, was complemented by quantitative data like the weighting and rating of factors influencing catfish farming success. Three primary techniques were employed: observation, interviews, and documentation, ensuring a comprehensive understanding of the current conditions. The SWOT analysis was used to identify external factors, including opportunities like increasing local and international demand, and threats such as fluctuating water quality. Internal factors examined the strengths and weaknesses of the local farming practices. The matrix enabled the formulation of strategies that leverage strengths to exploit opportunities (S-O strategy), mitigate weaknesses while taking advantage of opportunities (W-O strategy), counter threats using strengths (S-T strategy), and minimize weaknesses and threats (W-T strategy). The research provides actionable insights for enhancing the productivity and sustainability of the catfish farming sector in the region, with broader implications for aquaculture development strategies in Indonesia (Rangkuti, 2014).

Result and Discussion

The characteristics of respondents engaged in the catfish farming business in Benteng Somba Opu Village, Barombong District, Gowa Regency, provide valuable insights into their socioeconomic backgrounds and how these factors influence their approach to farming. The socioeconomic characteristics, such as age, education, family dependents, land size, and experience, collectively shape the capacity of these farmers to manage and grow their businesses. These factors are not just descriptive markers but significantly impact the decision-

making processes, operational efficiency, and risk tolerance of the farmers. For instance, age plays a dual role in catfish farming: it affects both the physical ability to perform demanding farm tasks and the openness to adopting new, more efficient farming strategies. According to Yatno et al. (2018), the respondents in this study ranged in age from 23 to 70 years, with the majority falling within the productive age group. Farmers in their productive years, typically between 30 and 50 years of age, are generally more energetic and better equipped to engage in physically demanding farming activities, such as maintaining ponds, feeding fish, and managing harvests.

Moreover, age also impacts a farmer's receptiveness to innovation. Younger farmers tend to be more open to adopting new technologies and modern farming techniques, which can significantly improve productivity and sustainability in the long run. On the other hand, older farmers may rely on traditional methods that they have practiced over the years, which may or may not be as efficient. However, experience, which often increases with age, can also be a valuable asset, as older farmers may possess a wealth of practical knowledge that younger farmers lack. Education is another key factor influencing farm management. Farmers with higher levels of education are more likely to understand and apply modern techniques, marketing strategies, and technological advancements to enhance their farming operations. In contrast, lower levels of education can limit a farmer's ability to access important information and innovations that could improve their productivity and market competitiveness. Additionally, factors such as family dependents and land size play significant roles. Farmers with more family dependents may have greater financial pressure, which could affect their ability to reinvest in their farms or adopt riskier but potentially more profitable strategies. Similarly, land size dictates the scale of production, with larger land areas allowing for more significant output and possibly more diverse farming activities. These socioeconomic factors together create a complex environment in which farmers must make decisions, balance risks, and adapt to changing conditions, influencing the overall success of their farming businesses.

The majority of catfish farmers in Benteng Somba Opu, with 55% having only completed elementary school, reflect a relatively low level of formal education, which likely hinders their ability to adopt modern farming techniques and stay informed on market trends and technological advancements (Alfian & Setyawan, 2020). Education is crucial in enhancing an individual's capacity to innovate and implement strategic approaches, ultimately improving productivity. Farmers with higher educational backgrounds are more inclined to adopt new methods and marketing strategies, driving better outcomes in their businesses. Despite this, the data reveals that only 10% of respondents have attained higher education, which may limit the sector's overall growth and modernization. This low educational attainment could prevent many farmers from accessing and utilizing the knowledge and technologies that are essential for staying competitive in the market, thereby restricting the potential for significant development in the catfish farming industry. Thus, educational interventions could be key to fostering broader industry improvements.

The level of experience that catfish farmers possess plays a crucial role in determining their success and efficiency within the industry. Based on research, the majority of respondents

in the study had over 17 years of experience in catfish farming, which signifies their deep familiarity with the business and its intricacies (Wibisono et al., 2019). Experience in farming is a valuable asset, as it directly correlates with the farmer's ability to acquire practical knowledge and skills that are critical for managing day-to-day operations. Over time, seasoned farmers develop an understanding of the most efficient practices for catfish cultivation, from breeding to feeding, disease prevention, and harvesting. Their extensive experience also allows them to foresee and mitigate common challenges in the farming process, such as fluctuations in water quality, seasonal variations, and managing stock effectively. More importantly, this accumulated knowledge leads to the mastery of environmental management practices that ensure sustainability and long-term productivity of their farming operations. Farmers who have been in the business for a long time can also pass down these vital skills to newer generations, ensuring the continuation of best practices within the community.

Furthermore, experience gives farmers a significant advantage when navigating market dynamics. Catfish farming is not only about production but also about understanding consumer demand, pricing, and market trends. Farmers with many years of experience are better positioned to anticipate shifts in market conditions and adjust their production levels accordingly. They are likely to have built strong relationships with suppliers, buyers, and other key players in the supply chain, which facilitates smoother business transactions and better access to market information. The ability to make informed decisions is particularly crucial in managing risks, as experienced farmers are more adept at handling uncertainties such as price volatility or environmental changes. According to Wibisono et al. (2019), such experience contributes to a farmer's ability to adapt to external pressures, such as market competition or regulatory shifts, by implementing strategies that help maintain profitability while minimizing losses. Overall, the wealth of experience that these farmers bring to the table not only enhances their own business outcomes but also strengthens the resilience and competitiveness of the catfish farming industry as a whole.

Family dependents also play a significant role in shaping the farmers' ability to manage their resources effectively. As noted in the study, respondents with fewer dependents are more likely to allocate a larger portion of their income toward improving production facilities, while those with more family members to support may face financial constraints (Batoa, 2021). This can affect their ability to invest in better equipment or expand their farming operations. The number of family dependents also influences labor availability, as family members often contribute to the farming activities, particularly in small-scale, family-run operations. This dynamic highlights the importance of balancing household needs with business investments to ensure sustainable growth in the farming enterprise.

The size of the land owned by the respondents varied, with most farmers owning between 0.16 and 0.21 hectares. Land size is directly related to production capacity, as larger areas allow for greater output (Rahim & Hastuti, 2018). However, the research findings show that many farmers face difficulties in expanding their land due to financial limitations and the availability of arable land. Increasing land size is often seen as a key strategy for improving production, but in the case of Benteng Somba Opu, this may not be a viable option for many

due to external constraints such as limited capital and access to land. Therefore, optimizing the use of available land through improved farming techniques and better resource management becomes a critical strategy for these farmers.

The external environment also significantly affects the success of catfish farming in this region. Factors such as fluctuating water levels in the Jeneberang River, which supplies water for the farms, pose a major threat, especially during the dry season when water levels drop significantly, leading to fish mortality and reduced yields (Sukmana et al., 2020). Similarly, competition from other fish producers, including those farming in nearby districts and those producing marine fish, creates market pressure that affects the pricing and profitability of catfish farming. The research highlights that catfish farmers in Benteng Somba Opu must navigate these external challenges by adopting adaptive strategies, such as seeking alternative water sources or diversifying their product offerings to remain competitive.

The internal strengths of catfish farmers in Benteng Somba Opu, such as their long-standing experience and access to the Jeneberang River, must be leveraged to overcome both internal weaknesses, like limited formal education, and external threats, such as market competition and environmental challenges. By adopting a strategic approach that combines their strengths with opportunities such as technological advancements and market demand for processed fish products, farmers can enhance their productivity and profitability. The findings from this research provide a comprehensive framework for developing targeted interventions that address both the internal and external factors affecting catfish farming in this region, ultimately contributing to the sustainability and growth of the industry (Rangkuti, 2021).

Conclusion and Recommendation

Based on the research conducted in Benteng Somba Opu Village, Barombong District, Gowa Regency, the conclusions highlight the importance of leveraging existing strengths to seize market opportunities and optimize technological usage in catfish farming. The primary development strategies identified include market expansion, maximizing the use of modern technology, enhancing collaboration with stakeholders such as customers and business partners, and making the best use of natural resources. Additionally, fostering cooperation with the government is crucial to supporting the sustainable growth of the industry. However, challenges such as limited access to capital, inadequate infrastructure, and the need for professional marketing personnel remain significant obstacles. To address these, the study recommends that the government provide financial support programs and training to improve the skills of catfish farmers in business development. Farmers are also encouraged to work closely with government agencies to meet their operational needs. Furthermore, expanding market reach through promotional efforts using various media outlets, such as brochures, newspapers, radio, and television, will help tap into new markets. Maintaining strong relationships with customers and business partners is equally important for sustaining and growing the catfish farming business. By adopting these strategies, catfish farmers in Benteng Somba Opu can overcome existing challenges and increase both their production and profitability, ensuring the long-term success of their operations.

Acknowledge

I would like to express my deepest gratitude to all those who have contributed to the successful completion of this research. First and foremost, I extend my sincere thanks to the community of Benteng Somba Opu Village, Barombong District, Gowa Regency, for their invaluable participation and support throughout the data collection process. I am also immensely grateful to my academic supervisors and colleagues for their guidance, insightful feedback, and encouragement, which greatly enriched this study. Furthermore, I am indebted to the local government and related agencies for their cooperation and for providing access to crucial resources. Last but not least, I extend heartfelt thanks to my family and friends, whose unwavering support and understanding were instrumental in completing this research. Without the contributions of these individuals and organizations, this study would not have been possible.

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