
TILAPIA AQUACULTURE BUSINESS DEVELOPMENT STRATEGY (CASE STUDY OF TILAPIA FARMERS AT KEDUNG OMBO RESERVOIR, GROBOGAN REGENCY)

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ABSTRACT

This study aims to (1) identify internal factors representing strengths and weaknesses in the tilapia farming business at Kedung Ombo Reservoir, Grobogan Regency; (2) identify external factors representing opportunities and threats in the development of the tilapia farming business; and (3) formulate appropriate priority strategies for the development of the tilapia farming business. The research was conducted at Kedung Ombo Reservoir, Grobogan Regency. A descriptive method with a quantitative approach was employed. Respondents were selected using purposive sampling, comprising 25 tilapia farmers. The study utilized both primary and secondary data. Data analysis involved the Internal Factor Analysis Summary (IFAS), External Factor Analysis Summary (EFAS), Strengths, Weaknesses, Opportunities, Threats (SWOT) analysis, and the Quantitative Strategic Planning Matrix (QSPM). The results indicate that the IFAS analysis yielded a total score of 2.86, comprising a strength score of 2.02 and a weakness score of 0.84. The EFAS analysis yielded a total score of 2.73, comprising an opportunity score of 1.83 and a threat score of 0.90. The SWOT analysis placed the tilapia farming business in Quadrant I with coordinates (0.59; 0.47); therefore, the appropriate strategy to implement is the Strengths–Opportunities (S–O) strategy—leveraging strengths to optimize available opportunities. The QSPM analysis results indicate that the priority strategy for developing the tilapia farming business is to improve feed usage efficiency and maintain culture water quality, with a Sum Total Attractiveness Score (STAS) of 3.20.

KEYWORDS

Tilapia Farming, Business Development Strategy, SWOT, IFAS, EFAS, QSPM



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INTRODUCTION

The freshwater aquaculture sector in Indonesia has significant potential for development and offers promising business opportunities. One of the leading commodities in this sector is tilapia, which has been cultivated since the 1970s and continues to grow along with advances in aquaculture technology and fish breeding. Tilapia cultivation can be carried out using various methods, from earthen ponds, concrete ponds, fast-flowing ponds, tarpaulin ponds, to floating net cage systems, demonstrating the tilapia's adaptability to various media and environmental conditions. Nationally, tilapia production continues to increase due to ease of cultivation techniques, favorable economic value, and relatively stable market prices. According to data from the Indonesian Central Statistics Agency (BPS) in 2026, Central Java Province ranked third nationally in tilapia production, with a volume reaching 111,412 tons, after North Sulawesi (418,186 tons) and West Java (275,808 tons). However, at the district/city level, Grobogan Regency ranks eighth lowest in tilapia production in Central Java, with a total production of only 130,589 kg. This indicates that this region has not yet optimally contributed to regional tilapia production despite its significant aquatic resource potential through the Kedung Ombo Reservoir.

Nationally, tilapia production continues to increase due to ease of cultivation techniques, favorable economic value, and relatively stable market prices. According to data from the Indonesian Central Statistics Agency (BPS) in 2026, Central Java Province ranked third nationally in tilapia production, with a volume reaching 111,412 tons, after North Sulawesi (418,186 tons) and West Java (275,808 tons). However, at the district/city level, Grobogan Regency ranks eighth lowest in tilapia production in Central Java, with a total production of only 130,589 kg. This indicates that this region has not yet optimally contributed to regional tilapia production despite its significant aquatic resource potential through the Kedung Ombo Reservoir.

Based on this description, an in-depth study is needed to develop strategies for tilapia farming in the Kedung Ombo Reservoir, Grobogan Regency. This study aims to (1) analyze the internal factors of tilapia fish farming, (2) analyze the external factors of tilapia fish farming, and (3) formulate an appropriate strategy for developing tilapia fish farming to increase the productivity and competitiveness of farmers in the region. The results of this study are expected to provide benefits both theoretically in the development of agribusiness studies, and practically as a consideration for farmers and local governments in formulating policies for developing the aquaculture sector.

RESEARCH METHOD

This research was conducted in the Kedung Ombo Reservoir fish cage area, Geyer District, Grobogan Regency, Central Java Province. The data used consisted of primary data obtained directly from tilapia farmers through interviews, observation, and documentation, as well as secondary data sourced from relevant agencies such as the Central Statistics Agency (BPS) and the Fisheries Service, as well as relevant literature studies. Respondents were selected using a purposive sampling technique, which involves deliberately selecting a sample based on specific criteria aligned with the research objectives. Data analysis was conducted using a qualitative descriptive approach combined with several strategic analysis tools, namely: SWOT, IFAS, EFAS, and QSPM.

RESULT AND DISCUSSION

General Description of the Research Location

Grobogan Regency is located at 6°55'–7°16' South Latitude and 110°15'–111°25' East Longitude, with an area of approximately 2,025.86 km², comprising 19 sub-districts, 273 villages, and 7 urban villages. This region has a varied topography, ranging from lowlands and hills to limestone mountains, and has a tropical climate with temperatures ranging from 24°C to 34°C. These geographic and climatic conditions support various agricultural and aquaculture activities, including tilapia cultivation in the Kedung Ombo Reservoir area, which covers approximately 2,830 ha of water.

Tilapia cultivation using floating net cages in the Kedung Ombo Reservoir has grown since its inauguration and has seen a steady increase in the number of entrepreneurs each year. Despite experiencing a decline in productivity due to the impact of the COVID-19 pandemic at the end of 2019, this business has gradually recovered and remains a primary source of livelihood for the communities surrounding the reservoir. Each harvest season, farmers are able to produce around 40 tons per cycle, which is marketed through collectors, restaurants, and directly to consumers.

Respondent Characteristics

The characteristics of the study respondents were assessed based on age, education level, cage size, and land ownership status. Most tilapia farmers were in the productive age range of 36–45 years (40%), indicating that the majority of farmers still have good physical abilities and are more open to innovation and new cultivation technologies. In terms of education, the majority of respondents (45%) had a junior high school education, followed by high school/vocational school (30%) and elementary school (25%), indicating that the farmers' education level is still considered lower-middle class, potentially impacting the rate of adoption of cultivation technology and innovation.

Cultivation activities are carried out using a floating net cage system measuring 6 x 6 meters per unit, with a total of 45 cages owned by all respondents. In terms of ownership status, the majority of respondents (93%) owned their own fish cages, while the remainder (7%) operated businesses under a profit-sharing system. The predominance of independent ownership indicates that most farmers have complete freedom to manage their businesses and make production decisions without relying on third parties.

Internal Factor Analysis Summary (IFAS)

IFAS analysis was used to identify and evaluate the strengths and weaknesses of the tilapia fish farming business in the Kedung Ombo Reservoir. The results of the analysis are presented in the following table.

Table 1. Results of Internal Factor Analysis (IFAS)

Internal Factor	Weight	Rating	Score
Strength			
Availability of reservoir water	0.15	4	0.60
Experience of farmers	0.10	4	0.40
High market demand	0.12	4	0.48
Strategic farming locations	0.08	3	0.24
Support from farmer groups	0.10	3	0.30
Weaknesses			
Limited business capital	0.15	2	0.30
Reliance on manufactured feed	0.10	2	0.20
Uneven seed quality	0.08	2	0.16
Untidy business records	0.06	1	0.06

Internal Factor	Weight	Rating	Score
Conventional marketing	0.06	2	0.12
Total	1.00		2.86

Source: Primary Data (processed), 2026

The analysis results show a total IFAS score of 2.86, consisting of a strength score of 2.02 and a weakness score of 0.84. The strength factor with the highest score is the availability of reservoir water (0.60), confirming that adequate water sources are a key factor in sustaining year-round production. High market demand (0.48) and farmer experience (0.40) also contribute to the business's success. On the weakness side, limited business capital is the most dominant obstacle (0.30), followed by dependence on manufactured feed (0.20), which makes production costs vulnerable to market price fluctuations. A total IFAS score above the midpoint (2.50) indicates that the internal conditions of the tilapia aquaculture business in the Kedung Ombo Reservoir are considered quite strong.

External Factor Analysis Summary (EFAS)

EFAS analysis is used to identify opportunities and threats originating from the business's external environment. The results of the analysis are presented in the following table.

Table 2. Results of the External Factor Analysis (EFAS)

External Factor	Weight	Rating	Score
Opportunities			
Increasing demand for fish for consumption	0.15	4	0.60
Government program support	0.10	3	0.30
Partnerships with traders/collectors	0.12	4	0.48
Developing digital marketing	0.08	3	0.24
Opportunities for business diversification	0.07	3	0.21
Threats			
Feed price fluctuations	0.14	2	0.28

Source: Primary Data (processed), 2026

The total EFAS score of 2.73 indicates that the tilapia aquaculture business in the Kedung Ombo Reservoir has responded quite well to its external environmental conditions, with an opportunity score of 1.83 and a threat score of 0.90. The greatest opportunities stem from the increasing demand for fish for consumption (0.60) and the potential for partnerships with traders or collectors (0.48), both of which can be leveraged to expand marketing and increase the certainty of harvest absorption. Meanwhile, the most significant threats are fluctuations in feed prices (0.28), which directly impact production costs, followed by the risk of fish disease (0.24) and changes in water quality (0.18), which can affect fish survival and growth rates.

Strategic Position in SWOT Matrix (SWOT)

The strategic position of a tilapia fish farming business is determined based on the difference in internal and external factor scores. The X-axis value is obtained by dividing the strengths and weaknesses scores by two ($2.02 - 0.84 = 1.18 \div 2 = 0.59$), while the Y-axis value is obtained by dividing the opportunities and threats scores by two ($1.83 - 0.90 = 0.93 \div 2 = 0.47$). The calculation results in a coordinate point (0.59; 0.47), which places the tilapia fish farming business in Quadrant I of the SWOT matrix.

Quadrant I indicates that the business has strong internal conditions while being supported by significant external opportunities. Therefore, the most appropriate strategy to

implement is an aggressive Strengths–Opportunities (S–O) strategy. This strategy emphasizes leveraging all existing strengths—such as reservoir water availability, farmer experience, high market demand, strategic location, and support from farmer groups—to maximize external opportunities, such as increasing demand for fish for consumption, government program support, trade partnerships, digital marketing, and business diversification. With this position, the tilapia fish farming business in the Kedung Ombo Reservoir is considered to have good growth prospects if the development strategy is implemented consistently.

Strategic Priorities Based on QSPM Analysis (QSPM)

Based on the SWOT analysis results, four alternative business development strategies were developed, which were then evaluated using the Quantitative Strategic Planning Matrix (QSPM) to determine implementation priorities. The results of the QSPM analysis are presented in the following table.

Table 3 . Results of the QSPM Analysis (Sum Total Attractiveness Score)

Alternative Strategies	STAS	Priority
S1: Improve feed efficiency and water quality	3.20	I
S3: Improve technical training and access to capital	2.94	II
S2: Strengthen marketing collaboration with collectors/traders	2.79	III
S4: Develop business records and digital marketing	2.61	IV

Source: Secondary Data (processed), 2026

The QSPM analysis results show that strategy S1, which increases feed efficiency and maintains aquaculture water quality, achieved the highest Sum Total Attractiveness Score (STAS) of 3.20, making it the top priority for developing tilapia aquaculture in the Kedung Ombo Reservoir. This strategy was chosen because it directly leverages the business's core strengths, namely the availability of adequate reservoir water and the experience of farmers, to respond to the opportunity for high market demand while simultaneously reducing production costs through feed efficiency.

The second priority strategy is improving technical training and access to capital (STAS 2.94), which focuses on strengthening the capacity of farmers through training in cultivation techniques, business management, and fish disease control, as well as facilitating access to capital for business scale expansion. The third priority is strengthening marketing collaboration with collectors and traders (STAS 2.79), which aims to expand the marketing network and increase certainty of harvest absorption. The fourth priority is developing business records and digital

marketing (STAS 2.61), which is aimed at improving business financial management while expanding market reach through the use of digital media.

These four alternative strategies are complementary and can be implemented in stages, depending on priority and the availability of farmer resources. The implementation of the top-priority strategy is expected to have the most significant impact in a relatively short time, while the next-priority strategies can serve as follow-up steps to strengthen the long-term sustainability of tilapia farming in the Kedung Ombo Reservoir.

CONCLUSION

Based on the analysis and discussion, several conclusions can be drawn. First, the internal factor analysis (IFAS) showed a total score of 2.86, consisting of a strength score of 2.02 and a weakness score of 0.84. The business's main strengths include the availability of reservoir water, farmer experience, high market demand, strategic location, and support

from farmer groups. While the main weaknesses include limited capital, dependence on manufactured feed, inconsistent seed quality, inaccurate business records, and conventional marketing.

Second, the external factor analysis (EFAS) showed a total score of 2.73, consisting of an opportunity score of 1.83 and a threat score of 0.90. The main opportunities include increasing demand for fish for consumption, support from government programs, partnerships with traders/collectors, developments in digital marketing, and opportunities for business diversification. While the main threats include fluctuating feed prices, the risk of fish disease, changes in water quality, extreme weather, and competition for supply from other regions.

Third, based on the results of the SWOT analysis, the tilapia fish farming business in the Kedung Ombo Reservoir is in Quadrant I with coordinates (0.59; 0.47), which indicates strong internal conditions and large external opportunities, so the appropriate strategy to implement is the aggressive Strengths–Opportunities (S–O) strategy. The results of the QSPM analysis recommend priority strategies in the form of increasing the efficiency of feed use and maintaining the quality of cultivation water, with the highest STAS value of 3.20, followed by increasing technical training and access to capital, strengthening marketing cooperation, and developing business records and digital marketing as further strategies.

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