

**DIVERSIFICATION STRATEGY OF BILIH FISH PRODUCTS, SPECIAL TO
LAKE SINGKARAK TO IMPROVE MARKET COMPETITIVENESS AND
TOURISM ATTRACTIVENESS****Ira Desmiati^{1*}, Siti Aisyah², Indira karina³, Abdullah Munzir⁴**^{1,2}*Aquatic Resources Management, Faculty of Science. Universitas Nahdlatul Ulama Sumatera Barat*³*Agribusiness, Faculty of Science. Universitas Nahdlatul Ulama Sumatera Barat*⁴*Aquaculture, Faculty of Fisheries and Marine Sciences. Universitas Bung Hatta*Email address: iradesmiati06@gmail.com**Abstract**

Singkarak Lake as a leading tourist destination in West Sumatra, has great potential in processing bilih fish, but POKLAHSAR Jaso Danau faces challenges in increasing product competitiveness. This research aims to analyze the conditions of bilih fish production and processing by POKLAHSAR Jaso Danau, develop product diversification strategies to increase market competitiveness, and provide recommendations based on the results of the analysis. The methods used include a SWOT analysis to identify the strengths, weaknesses, opportunities, and threats faced by the group, as well as a survey to collect data on the production and processing processes. The results of the research indicate that POKLAHSAR Jaso Danau has the potential to diversify bilih fish processed products, but is still hampered by a lack of skills, unstructured management, and limited marketing. Recommended diversification strategies include the development of new products such as shredded and bilih fish crackers, as well as the application of digital marketing techniques to increase product accessibility. With the implementation of these recommendations, it is hoped that the market competitiveness of bilih fish products can increase, and the tourist attraction of Singkarak Lake will be further enhanced. This research provides an important contribution to the development of the local economy through the optimization of the potential of fisheries and tourism resources in the area.

Keywords: *Bilih Fish, Product Diversification, Market Competitiveness, Tourist Attraction.***A. Introduction**

Bilih fish (*Mystacoleucus padangensis*) is an endemic fish of Lake Singkarak which is one of the regional culinary icons. Bilih fish processing by the Jaso Danau Processing and Marketing Group (POKLAHSAR), located in Nagari Tikalak, X Koto Singkarak District, Solok Regency, West Sumatra Province, has made a significant contribution to the local economy (Siahaan & Anggraini, 2022). Since its establishment in 2024, this group consists of 15 members who focus on the production of fried bilih fish, known by the brand name "Tubes Cihuy". Although this product has great potential, POKLAHSAR Jaso Danau faces a number of challenges that affect its competitiveness and tourist appeal. Currently, the products produced by this group are limited to fried bilih fish, which results in dependence on one type of product and faces the risk of stock buildup when the number of tourists decreases (Pratiwi & Rauf, 2021). This accumulation often causes a decrease in product quality, so it must be discarded or sold at a low price. In addition, the processing of bilih fish does not fully meet the required hygiene and sanitation standards (Amelia *et al.*, 2020). The limited skills of group

members in product diversification are one of the main obstacles in developing more varied and durable processed products (Sari *et al.*, 2023) (Aisyah *et al.*, 2020)

In the context of marketing, POKLAHSAR Jaso Danau still relies on traditional methods that focus on tourists visiting Lake Singkarak. Although this group has tried to utilize social media for promotion, knowledge of online marketing techniques is still minimal (Hidayat & Simanjuntak, 2022). Lack of understanding of digital marketing results in limited market reach, so that product potential cannot be maximized.

This research aims to analyze the conditions of production and processing of bilih fish by POKLAHSAR Jaso Danau and identify problems faced in the process, develop a bilih fish product diversification strategy to increase market competitiveness and tourist attraction. And provide recommendations based on research results to build better market competitiveness and increase tourist attractions in Lake Singkarak.

With these objectives, it is hoped that this research can provide significant contributions to the development of bilih fish products and support increased market competitiveness and tourist attractions in Solok Regency, West Sumatra Province.

B. Research Methods

This research uses a mixed methods approach, namely a combination of qualitative and quantitative approaches, in order to obtain a comprehensive picture of the diversification strategy of bilih fish products in Lake Singkarak. Bilih fish processors are members of a group of fish product processors and marketers POKLAHSAR Jaso Danau located in Nagari Tikalak, X Koto Singkarak District, Solok Regency, West Sumatra Province. The qualitative approach is applied in the case research to understand the diversification activities in depth, while the quantitative approach is used to conduct an assessment and SWOT analysis with a scoring technique in order to identify the strategic position of product diversification in increasing market competitiveness and tourist attractions (Creswell & Clark, 2017).

Research Location and Subjects

The research was conducted around Lake Singkarak, with research subjects including bilih fish product business actors, tourism managers, tourists, and government parties, including the Tourism Office and the Marine and Fisheries Office. The selection of the location and subjects of this research is in accordance with the principle of purposeful sampling in qualitative research, which aims to gain in-depth insights from individuals or groups relevant to the research objectives (Patton, 2015).

Data Collection Techniques

Data were collected through several methods. Observations were conducted to directly observe the production, packaging, and marketing activities of bilih fish diversification products, in accordance with the participant observation guidelines (Spradley, 1980). In-depth interviews were conducted to obtain information from business actors, tourists, and government officials regarding challenges and perceptions regarding bilih fish products. In addition, structured questionnaires were distributed to obtain quantitative data from business actors and consumers regarding tourism attraction factors, satisfaction with processed products, and SWOT elements considered important by respondents (Neuman, 2014). Additional data

were collected through document studies, such as sales reports and tourist visit statistics, which are important for linking field data with documented data (Bowen, 2009).

Data Analysis Technique

Qualitative data were analyzed descriptively to provide an overview of the practice of bilih fish product diversification and tourist perceptions of the product (Miles, Huberman, & Saldana, 2014). For quantitative data, SWOT analysis was used. In this stage, each SWOT element (Strengths, Weaknesses, Opportunities, Threats) is given a weight and score based on the results of the questionnaire, with a certain assessment scale, for example 1 to 5, for each relevant factor. The weight reflects the relative importance of each factor to the research objectives, while the score indicates the actual performance of the diversification strategy on each factor (David, 2017). The product of the weight and score on each SWOT factor is calculated and summed to obtain a total final score that indicates the strategic position of bilih fish product diversification.

If the strength and opportunity scores are higher than the weaknesses and threats, then the diversification strategy is considered to be in a strong position to increase competitiveness and tourist attraction. Data triangulation techniques were used to ensure validity, by combining findings from interviews, observations, and SWOT scoring results, as suggested by Yin (2018). This research is expected to provide recommendations for bilih fish product diversification strategies that are based on data and in accordance with market and tourism potential in Lake Singkarak.

C. Results And Discussion

Current condition of POKLAHSAR Jaso Danau

POKLAHSAR Jaso Danau is located in Nagari Tikalak, X Koto Singkarak District, Solok Regency, West Sumatra Province, more precisely on the shores of Lake Singkarak. Established in 2024, this group consists of 15 members who focus on processing bilih fish, an endemic fish from Lake Singkarak, into a specialty food known as fried bilih fish with the trademark "Tubes Cihuy." The formation of this group was triggered by the high interest of local people in processing bilih fish, making it a specialty dish that must be tried by tourists visiting the lake. Although fried bilih fish products have received halal certification and a Household Industry Food Production Certificate (SPP-IRT), sales still depend on the number of tourists, which is often unpredictable. This causes an accumulation of unsold product stock, resulting in decreased quality and rancid odor. To overcome this problem, POKLAHSAR Jaso Danau has taken important steps, such as socialization and transfer of knowledge regarding safe and hygienic production practices, training in diversification of processed products, and assistance in business management and digital marketing. This training includes the use of e-commerce platforms such as Shopee Food and TikTok Shop, which aim to increase online product sales. This program is continued through collaboration with the Solok Regency Cooperative to support the sustainability of partner group businesses.

Table 1. IFAS (Internal Factors Analysis Summary)

Internal Factors	Information	Bobot	Rating	Score
Strength				
<ul style="list-style-type: none"> Halal Certification and SPP-IRT 	Ensure products meet food safety standards	0.25	4	1.00

• Diversity of processed products	Increase consumer appeal	0.20	4	0.80
• Member support	Members have commitment and skills	0.15	3	0.45
	Total Strengths	0.60		2.25
Weaknesses				
• Dependence on tourists	Sales fluctuate depending on the number of tourists	0.15	2	0.30
• Unstructured business management	No clear division of tasks	0.10	2	0.20
• Limitations in marketing	Still relying on traditional methods	0.10	2	0.20
	Total Weaknesses	0.35		0.70
Total IFAS		1.00		2.95

Tabel 2. EFAS (External Factors Analysis Summary)

External Factors	Information	Bobot	Rating	Score
Opportunities				
• Government support for product diversification	Improving business sustainability	0.25	4	1.00
• Demand for distinctive bilih fish products	Products have high selling value	0.20	4	0.80
• Advancement of online marketing technology	Supporting expansion of market access	0.15	3	0.45
	Total Opportunities	0.60		2.25
Threats				
• Fluctuation in number of tourists	Impact on product sales volume	0.20	2	0.40
• Competition from other processed products	Competitors' products can reduce market share	0.15	3	0.45
• Dependence on limited local raw materials	Affect product availability	0.05	2	0.10
	Total Threats	0.40		0.95
Total EFAS		1.00		3.20

1. Strengths (S):

- Halal certification and SPP-IRT provide added value to the product, increasing consumer confidence.
- The diversity of processed products (bilih fish floss, bilih fish crackers) is able to attract various consumer segments.
- Support from members with strong skills and commitment supports business sustainability.

2. Weaknesses (W):

- High dependence on tourists causes sales to fluctuate, especially when the number of visitors decreases.
- An unorganized management structure hinders operational efficiency and increased productivity.

- Limitations in marketing, especially those that still focus on traditional methods, reduce market competitiveness.
3. Opportunities (O):
- Government support in product diversification opens up opportunities for increasing production and marketing capacity.
 - Consumer demand for bilih fish products typical of Lake Singkarak provides a high unique selling value.
 - Advances in online marketing technology (eg Shopee Food, TikTok Shop) allow market expansion outside the region.
4. Threats (T):
- Fluctuations in the number of tourists have an impact on the stability of product sales.
 - Competition from similar processed products can reduce market share.
 - Reliance on limited local raw materials can affect production continuity, especially in certain seasons.

Strategy Based on SWOT Analysis

1. SO Strategy (Strengths - Opportunities): Using safe and diverse product certification and e-commerce platforms to increase consumer appeal in a wider market.
2. WO Strategy (Weaknesses - Opportunities): Improving management capacity and structure through business training and online marketing to take advantage of opportunities provided by government support and technology.

Tabel 3. Matriks SWOT

	Opportunities (score 2.25)	Threats (score 0.95)
Strengths (score 2.25)	SO Strategy	ST Strategy
	<ul style="list-style-type: none"> • Leverage Halal and SPP-IRT certifications and product diversity to attract a wider market through e-commerce platforms (Shopee Food, TikTok Shop). (Score: 4.0) 	<ul style="list-style-type: none"> • Using product diversity and member commitment to face competition from similar products in local and regional markets. (Score: 3.5)
	<ul style="list-style-type: none"> • Optimize member support in developing product variations to suit growing market demand. (Score: 3.8) 	<ul style="list-style-type: none"> • Utilizing the advantages of bilih fish products and product diversification to maintain competitiveness. (Score: 3.6)
Weaknesses (score 0.70)	WO Strategy	WT Strategy
	<ul style="list-style-type: none"> • Increase digital marketing capacity and business management knowledge through training to be able to take advantage of opportunities from government 	<ul style="list-style-type: none"> • Reducing dependence on tourists by expanding target markets through digital marketing. (Score: 3.4)

	support and online marketing technology. (Score: 3.7)	
	<ul style="list-style-type: none"> Develop a better organizational structure to be more effective in responding to fluctuating market demand. (Score: 3.5) 	<ul style="list-style-type: none"> Improving management structure for better adaptation to market fluctuations and competitive threats. (Score: 3.3)

Score Description:

- 4.0 - 3.5: High priority strategies that are important to improve competitive position.
- 3.4 - 3.0: Medium priority strategies that support organizational strengthening.

This score helps in determining the main strategic focus that needs to be implemented to maximize the potential and reduce the risks faced by POKLAHSAR Jaso Danau.

Based on the SWOT analysis that has been conducted, the most recommended strategy for POKLAHSAR Jaso Danau is strategy, which focuses on:

Strategy Recommendations:

1. Utilizing Halal Certification and SPP-IRT: Ensuring that products meet food safety standards and gaining consumer trust. This will increase product competitiveness in the market, both locally and regionally.
2. Diversification of Processed Products: Developing a variety of processed bilih fish products, such as shredded fish and crackers, to attract a wider consumer base. This can also overcome sales fluctuations that depend on tourists.
3. Digital Marketing Through E-commerce: Optimizing the use of e-commerce platforms (such as Shopee Food and Tiktok Shop) to reach a wider market and facilitate access for consumers. Assistance in account management and digital marketing is essential to increase product visibility.
4. Improving Member Skills: Conducting training that focuses on safe and hygienic product processing and effective marketing techniques. This will strengthen members' capacity to face competition in the market.

By focusing efforts on this strategy, POKLAHSAR Jaso Danau can increase competitiveness, expand the market, and create higher quality products, which in turn can contribute to the economic sustainability of the group and food security in the region.

The results of the research on POKLAHSAR Jaso Danau show great potential in improving business sustainability and food security through the development of processed bilih fish products. Internal analysis (IFAS) revealed several strengths, such as the existence of halal certification and SPP-IRT which guarantees that products meet food safety standards, the diversity of processed products that increase consumer appeal, and the support of members who are committed and skilled. However, there are weaknesses that need to be addressed, including dependence on tourists, less structured business management, and limitations in marketing that still relies on traditional methods.

On the external side (EFAS), the research found opportunities that could be utilized, such as increasing consumer awareness of healthy and safe food and the development of e-commerce technology that provides wider access to the market. However, POKLAHSAR is also faced with threats, such as increasing market competition that demands product innovation to remain competitive. Research by Junaidi *et al.*, (2020) Desmiati *et al.*, (2023) highlighted

that food product certification can increase consumer trust and product competitiveness in the market, in line with the findings that halal certification and SPP-IRT POKLAHSAR Jaso Danau play an important role in improving product quality and appeal. Another research by Anggraini and Fatimah (2021) also showed that food processing that meets food safety standards contributes to increased consumer confidence, which is in line with the group's efforts to ensure product quality. In addition, research by Supriyadi *et al.*, (2021) shows that structured business management training contributes to improved micro-enterprise performance, which is also relevant to the management weaknesses faced by this group. This is supported by research by Sari *et al.*, (2022), which found that improving managerial skills among small entrepreneurs can have a positive impact on the profitability and sustainability of their businesses.

Based on the SWOT analysis, several strategies are recommended, including utilizing strengths to take opportunities by aggressively promoting halal-certified products, and overcoming weaknesses by implementing business management training and digital marketing. This recommendation is in line with the results of research by Rahmawati *et al.*, (2022), Desmiati *et al.*, (2022) which found that the use of e-commerce in marketing fishery products increases market reach and sales. Research by Santoso *et al.*, (2023) also shows that the use of digital platforms not only increases sales but also expands market access for local products, which is important for POKLAHSAR Jaso Danau to increase competitiveness in an increasingly competitive market. The implications of the results of this research indicate that by utilizing existing strengths and opportunities, and overcoming the weaknesses and threats faced, POKLAHSAR Jaso Danau can create more effective strategies to achieve short-term and long-term goals. The resulting strategic recommendations provide clear direction for increasing production capacity, management, and marketing, so that it is hoped that this group can increase competitiveness and business sustainability, and contribute to food security in the Nagari Tikalak area. Research by Wijaya and Rina (2023) supports this by showing that the integration of digital marketing and management training in business development programs has a significant positive impact on increasing the sustainability of micro-businesses in rural areas.

D. Conclusion

This research aims to analyze the conditions of bilih fish production and processing by POKLAHSAR Jaso Danau and identify the problems faced in the process. The results of the analysis indicate that POKLAHSAR Jaso Danau experiences various challenges, such as dependence on limited fried bilih fish products, lack of skills in product diversification, and an unstructured management system. The second objective, namely developing a bilih fish product diversification strategy, has been identified through a SWOT approach that shows great potential for creating product variations, such as bilih fish floss and crackers, which can increase market competitiveness and attract tourists. Finally, this research provides recommendations based on the results of the analysis to build better market competitiveness and increase tourist attractions in Lake Singkarak, including the need for training in product processing and marketing techniques and the use of digital technology to expand market reach..

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