



## Strategic Management for the Development of Sand Lobster (*Panulirus Homarus*) Aquaculture in East Lombok Regency

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### ABSTRACT

This study examines the internal and external factors influencing scalloped spiny lobster (*Panulirus homarus*) aquaculture in East Lombok Regency, with a focus on Jerowaru District as a key production center in West Nusa Tenggara. Using a descriptive mixed-methods approach, primary data were collected through surveys and interviews with 30 purposively selected respondents and analyzed using a SWOT framework. The results indicate that a Weakness–Opportunities (WO) strategy is the most suitable development approach, emphasizing the reduction of internal constraints to take advantage of external opportunities. Strategic priorities include improving infrastructure and access to finance through government-supported funding and post-harvest facilities, as well as strengthening technical training and extension services to enhance productivity and feed quality through multi-stakeholder collaboration.

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## INTRODUCTION

Indonesia is one of the world's largest lobster producers, ranking third after Canada and the United States, with production reaching 16,482 tons. West Nusa Tenggara (NTB) Province is one of Indonesia's major lobster producing regions, with a potential development area of 7,466.98 hectares. Furthermore, abundant lobster seeds are found in the waters off NTB Province, which can support the development of sand lobster cultivation. Therefore, NTB Province, particularly Lombok Island, is a pioneer in saltwater lobster cultivation in Eastern Indonesia. Sand lobster (*Panulirus homarus*) cultivation is a fisheries subsector with high economic value and growing market demand, both domestically and for export. East Lombok Regency is a region designated as a center for lobster development in West Nusa Tenggara Province and even Indonesia. Jerowaru District has been designated as a lobster cultivation center. Lobster production in East Lombok Regency reaches 160.50 tons. However, current sand lobster cultivation in East Lombok Regency still faces several challenges, including unstable price fluctuations, underdeveloped lobster cultivation technology, and low feed quality. These challenges can impact the development of the sand lobster cultivation business.

To address the challenges facing sand lobster cultivation in East Lombok, a comprehensive study of strategies for developing sand lobster cultivation is necessary. To date, no research has been conducted on developing strategies for sand lobster cultivation in East Lombok Regency.

## THEORETICAL REVIEW

### *Sand Lobster (Panulirus homarus)*

The sand lobster, scientifically known as *Panulirus homarus*, belongs to the Palinuridae family, Decapoda order, Malacostraca class, Arthropoda phylum (Linnaeus, 1758; Holthuis, 1991). This species is also known as the scalloped spiny lobster because it has small spines on its carapace and a distinctive greenish-brown color pattern with white or blue spots. Unlike the fanged lobster (*Panulirus ornatus*), the sand lobster lacks large spines above its eyes and is relatively smaller in size, with an adult carapace length of around 8-12 cm (Wahyuningrum et al., 2023).

### *Cultivation Business*

Aquaculture, in the context of fisheries, is not simply the activity of raising aquatic organisms for harvest, but rather a complex, multidimensional agribusiness system that relies heavily on the interaction of biological, technical, economic, social, and environmental factors. Unlike capture fisheries, which are extractive and difficult to control in volume, aquaculture is productive and can be planned from site selection and facility preparation to seed procurement and feeding, through to harvesting and marketing (FAO, 2022). The essence of aquaculture is its ability to transform natural resources into measurable and sustainable economic value, while providing greater control over the quantity, quality, and timing of production. From a microeconomic perspective, aquaculture can be analyzed as a business unit that combines inputs (capital, labor, seed, feed), processes (technical and

operational management), and outputs (production, income, and added value), where efficiency and profitability are determined by the business actor's ability to optimally manage the value chain (Nugraha et al., 2020).

### *Development Strategy Concept*

An effective development strategy must be rooted in dynamic capabilities—an organization's ability to proactively adapt its structure, technology, and business processes to environmental changes. In lobster farming, this means the ability of farmers or business owners to respond to market price fluctuations, changes in government regulations (such as the ban on lobster seed exports), and ecological challenges such as climate change and seawater quality. Therefore, development strategies in this sector must be adaptive, innovative, and sustainable, rather than simply pursuing short-term production increases (Teece, 2014).

### *SWOT Analysis*

A SWOT analysis is a strategic planning method used to evaluate the strengths, weaknesses, opportunities, and threats within a project or business venture. This process involves determining the specific objectives of the business venture or project and identifying the internal and external factors that support and hinder its achievement (Suryatama, 2020). According to Rangkuti (2005), a SWOT analysis is the systematic identification of various factors to formulate a company's strategy. This analysis is based on logic that maximizes strengths and opportunities while simultaneously minimizing weaknesses and threats.

### *IFAS and EFAS*

Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) were conducted to determine the variables included in the strength, weakness, opportunity, threats (SWOT) owned by the East Lombok sand lobster cultivation business. IFAS = Internal Strategic Factors Analysis Summary (Internal Strategic Factor Analysis), which consists of the strengths and development of the sand lobster cultivation business in East Lombok Regency. EFAS = External Strategic Factors Analysis Summary (External Strategic Factor Analysis), which consists of opportunities and threats to the development of the sand lobster cultivation business in East Lombok Regency (Rangkuti, 2005).

## **METHODOLOGY**

The research method used in this study is descriptive. Descriptive methods are data collection methods to test hypotheses or answer questions regarding the current status of an object, condition, system of thought, or event in the present with correct interpretation (Purba et al., 2021). The unit of analysis used in this study was the sand lobster (*Panulirus homarus*) cultivation business in East Lombok Regency. This research was conducted on sand lobster (*Panulirus homarus*) farmers in East Lombok Regency. The sample area was determined using purposive sampling, namely Jerowaru District in East Lombok Regency.

This location was selected because it is the largest and most important lobster cultivation center in East Lombok Regency. The number of respondents was determined by purposive sampling of 30 people, namely stakeholders who are considered to have a role in efforts to develop aquaculture businesses, including lobster farmers, heads of lobster farmer groups, collectors, representatives from the East Lombok Regency Maritime Affairs and Fisheries Service, agricultural extension workers who technically assist in cultivation activities, and restaurant entrepreneurs who utilize lobster as a main commodity in their business operations. The types of data used are qualitative and quantitative data with primary and secondary data sources. The data collection technique used in this study was conducting surveys or direct interviews with respondents. The data in this study were analyzed descriptively using a SWOT analysis tool, the formula for which is as follows:

**Analysis of Internal and External Factors**

Identifying internal factors (strengths and weaknesses) and external factors (opportunities and threats) can be formulated using the IFAS (Internal Factor Analysis Summary) matrix and the EFAS (External Factor Analysis Summary) matrix as follows:

Table 1. IFAS Matrix Data Format

Internal Factors	Weight	Rating Score	Score
Strength	Determined from the results of interviews between researchers and respondents	Scale 1-4	Weight x Rating
Weaknesses		Scale 1-4	Weight x Rating

Table 2. EFAS Matrix Data Format

External Factors	Weight	Rating Score	Score
Strengths (Opportunities)	Determined from the results of interviews between researchers and respondents	Scale 1-4	Weight x Rating
Threats		Scale 1-4	Weight x Rating

Based on the scores obtained through IFAS and EFAS, whether opportunities (+/-) or threats (+/-) and whether strengths (+) outweigh weaknesses (-), four recommendation quadrants are obtained as follows:



Picture 1. Grand Strategy Matrix

**SWOT Analysis (Strengths, Weaknesses, Opportunities, and Threats)**

According to Rangkti (2006), a SWOT analysis consists of data collection and analysis stages. After collecting data on strategic factors (both external and internal), various alternative strategies (SO, ST, WO, WT) can be created based on these strategic factors using the SWOT Matrix as follows:

IFAS EFAS	<b>STRENGTHS (S)</b> Determine 1-5 internal factors	<b>WEAKNESSES (W)</b> Determine 1-5 Internal weaknesses
<b>OPPORTUNITIES (O)</b> Determine 1-5 external opportunity factors	<b>STRATEGY (SO)</b> Create a strategy that using strengths to take advantage of opportunities	<b>STRATEGY (WO)</b> Create a strategy that minimize weaknesses to take advantage of opportunities
<b>THREATS (T)</b> Determine 1-5 external threat factors	<b>STRATEGY (ST)</b> Create a strategy that using force to overcome threats	<b>STRATEGY (WT)</b> Create a strategy that minimize weaknesses and avoid threats

Picture 2. SWOT Matrix

**RESULT AND DISCUSSION**

***Overview of Sand Lobster Cultivation Business in East Lombok Regency***

Lobster is a commodity in the fisheries subsector and is a flagship program of the West Nusa Tenggara Provincial Maritime Affairs and Fisheries Service. East Lombok Regency was chosen as the center of lobster production in West Nusa Tenggara Province. The type of lobster cultivated by farmers in East Lombok Regency is the sand lobster (*Panulirus homarus*).

Jerowaru and Paremas villages, located in East Lombok Regency, are the centers of lobster cultivation in West Nusa Tenggara Province. This is due to the abundant availability of lobster seeds and natural food resources, supported by suitable water conditions such as temperature and salinity in this region for lobster cultivation. The lobster cultivated in Jerowaru and Paremas Villages is a type of sand lobster. The cultivation process is carried out in floating net cages (KJA) with cages measuring 3 x 3 x 3 meters. The length of sand lobster cultivation from seed (clear) to harvest varies depending on the target harvest size and cultivation conditions, especially in Jerowaru and Paremas Villages, East Lombok Regency. Sand lobsters are raised for approximately 6 to 9 months from small seeds (around 5-10 cm) until they reach consumption size (around 200-300 grams per tail). The selling price of sand lobsters ranges from IDR 250,000 to IDR 350,000 per kilogram. Sand lobsters are typically sold to collectors, who then ship them to Surabaya or Jakarta for export. Additionally, some farmers sell directly to consumers for consumption and processed food.

### **Respondent Characteristics**

#### *Respondent Age*

Age is a demographic factor that influences a person's ability, productivity, and decision-making in various activities. Age is often associated with a person's level of physical energy, experience, and innovativeness. Younger individuals tend to have greater physical strength, but their farming experience is often limited. Conversely, older individuals typically have more experience, but their physical capacity may decline (Tewu, 2015). The results of the study indicate that respondents' ages ranged from 25 to 90 years; for more details, see Table 3..

Table 3. Age of Respondents in the Research on Cultivation Business Development Strategies Sand Lobster in East Lombok Regency in 2025

No	Age (Years)	Number of people)	Percentage (%)
1.	≤ 24	1	3.33
2.	25-34	9	30
3.	35-44	7	23.33
4.	45-54	6	20
5.	≥ 55	7	23.33
Average		30(42)	100.00

Source: Processed Primary Data (2025)

Based on Table 3, the average age of respondents was 42 years. The highest percentage was in the 25-34 age range, representing 9 individuals, or 30 percent. This indicates that lobster farmers are able to carry out their cultivation activities effectively because they are in their productive age. This productive age indicates that respondents are able to carry out activities productively, are innovative, and have high motivation in carrying out their work (Musafiri, 2016).

#### *Level of Education*

Education is the most important aspect in improving human resources (HR) in a region. The higher a person's education, the more advanced their mindset (Sari, 2024). The education levels of the respondents in this study can be seen in Table 4.

Table 4. Education Level of Respondents in the Research on Sand Lobster Cultivation Development Strategy in East Lombok Regency in 2025

No	Education (Year)	Number of people)	Percentage (%)
1.	Not in School (0)	7	23.33
2.	Elementary School (1-6)	6	20
3.	Junior High School (7-9)	12	40
4.	High School (10-12)	4	13.33
5.	Higher Education (> 12)	1	3.33
Average		30(7)	100.00

Source: Processed Primary Data (2025)

Based on data from Table 4, the respondents' formal education level is relatively low, with an average of 7 years, or junior high school level. The

education level of lobster farmers is dominated by junior high school education, with 12, or 40 percent, and only one, or 3.33 percent, of lobster farmers with a university education. Educational level reflects the level of knowledge and skills of lobster farmers in adopting technology and innovation.

**Business Experience**

Sari et al. (2023); business experience refers to the respondent's experience in cultivating sand lobsters in the research area. The longer a farmer cultivates lobsters, the more experience they gain, making more accurate decisions. This will result in greater production, resulting in higher income. The length of experience of sand lobster farmers can be seen in Table 5.

Table 5 Business Experience of Research Respondents on Sand Lobster Cultivation Business Development Strategy in East Lombok Regency in 2025

No	Experience (Years)	Number of people)	Percentage (%)
1.	≤ 5	7	23.33
2.	6-10	8	26.66
3.	11-15	5	16.66
4.	16-20	4	13.33
5.	≥ 21	6	20
Average		30(13)	100.00

Source: Processed Primary Data (2025)

Respondents' business experience reflects their ability to run a business. The more experienced respondents are, the more skilled they are in lobster cultivation and able to select appropriate technologies and innovations. The average experience of respondents in lobster cultivation is 13 years. Respondents with 6-10 years of business experience accounted for the largest percentage, at 8 people (26.66 percent).

**Number of Dependents**

The number of dependents in a family is the number of family members who are burdened in meeting various needs for their survival. Therefore, the more dependents a family has, the heavier the burden the head of the family must bear. According to BPS (1997) in Shinta (2008), family size can be categorized as small (≤4 people), medium (5-7 people), and large (>7 people). The number of dependents of sand lobster farmers can be seen in Table 6.

Table 6. Number of Respondents in the Research on Sand Lobster Cultivation Business Development Strategy in East Lombok Regency in 2025

No.	Number of Dependents (Persons)	Number of people)	Percentage (%)
1.	0	3	10

2.	1-2	2	6.66
3.	3-4	24	80
4.	>4	1	3.33
Amount		30(3)	100.00

Source: Processed Primary Data (2025)

The average number of dependents in the study area was 24, with the highest percentage being 3-4, at 80 percent. The lowest percentage of dependents was 1 person, at 3.33 percent.

### *SWOT Analysis*

SWOT analysis is a systematic method for examining the condition of a company in general. By analyzing internal strengths and weaknesses, as well as opportunities and threats from the external environment, companies can formulate strategies that can maximize competitive advantages and minimize the risks they may face (Rangkuti, 2014).

#### *Internal Factors of Sand Lobster Cultivation Business*

To understand the potential and constraints faced by sand lobster farmers, we need to examine internal factors. These internal factors are conditions or situations within the sand lobster farmer's operations that can be directly identified and managed by the farmers. Internal factors can be seen in the IFAS matrix, Table 7.

The IFAS analysis in Table 7 represents the evaluation of the identification of internal strategic factors, including strengths and weaknesses, that influence the development of lobster farming in the Telong Elong area of East Lombok Regency. The value obtained from the internal factor evaluation, based on the table above, is -0.064. Weakness factors still dominate compared to strength factors. This indicates that the development of lobster farming in East Lombok Regency has not been able to optimize its strengths or overcome its weaknesses.

Table 7 IFAS Matrix of Sand Lobster Cultivation Business Development Strategy in East Lombok Regency in 2025.

INTERNAL STRATEGIC FACTORS	RELATIVE WEIGHT	RATING	SCORE
<b>Strength</b>			
Availability of lobster seeds in nature	0.11	3	0.2829
Experience and skills of lobster farmers	0.10	3	0.2969
Has ideal water conditions for sand lobster cultivation	0.11	4	0.3746
Coastal communities have local knowledge about lobsters and marine ecosystems.	0.09	3	0.2603
The existence of a group of sand lobster cultivators	0.10	3	0.3245
<b>Total</b>	<b>0.51</b>		<b>1,5393</b>
<b>Weakness</b>			
Lack of storage and processing facilities for lobster cultivation products	0.10	3	0.3256

Low access to information and modern cultivation technology	0.10	3	0.3254
Limited capital of farmers	0.10	3	0.2777
Low levels of education and technical training among farmers	0.09	4	0.3254
Lack of quality and affordable feed	0.11	3	0.3639
<b>Total</b>	<b>0.49</b>		<b>1.6180</b>
<b>Total Internal Factors</b>	<b>1.00</b>		
<b>Difference between Strengths and Weaknesses</b>			<b>-0.0778</b>

Source: Processed Primary Data (2025)

#### *External Factors of Sand Lobster Cultivation Business*

To understand the opportunities and threats facing lobster farmers, we need to examine external factors. These external factors are conditions or situations beyond the control of lobster farmers that can impact the development of their lobster farming business. External factors can be seen in the EFAS matrix in Table 8. The EFAS analysis in Table 8 shows that the evaluation of external factors yielded a total score of 0.3051. Opportunities still dominate compared to threats. This indicates that the potential or opportunities for lobster farming development in East Lombok Regency can be utilized to address existing threats.

Table 8 EFAS Matrix of Sand Lobster Cultivation Business Development Strategy in East Lombok Regency in 2025

EXTERNAL STRATEGIC FACTORS	RELATIVE WEIGHT	RATING	SCORE
<b>OPPORTUNITY</b>			
Development of Science and Technology Lobster	0.11	4	0.3758
The development of E-Commerce makes it easier to market directly to consumers.	0.10	3	0.2663
Export demand increases	0.11	3	0.3755
Government support for the development of the marine sector	0.10	3	0.3340
Potential for collaboration with universities for research and training	0.09	3	0.2853
<b>Total</b>	<b>0.51</b>		<b>1.6368</b>
<b>THREAT</b>			
Unstable market price fluctuations	0.11	3	0.3436
There is fierce competition	0.10	2	0.2092
Marine pests and predators that damage cultivation	0.09	3	0.2301
Climate change causes detrimental changes in temperature and ocean currents.	0.10	3	0.2847
Lobster theft occurred	0.10	3	0.2936
<b>Total</b>	<b>0.49</b>		<b>1.3610</b>
<b>Total External Factors</b>	<b>1.00</b>		<b>0.2758</b>

Source: Processed Primary Data (2025)

*Grand Strategy Matrix*

Determining the coordinates of the points produces the SWOT quadrant. The vertical arrow indicates external factors, the upward arrow indicates opportunities, and the downward arrow indicates threats. The horizontal arrow indicates internal factors, with the right arrow indicating strengths and the left arrow indicating weaknesses. To more clearly see the coordinates that describe the conditions and lobster cultivation business in East Lombok Regency can be seen in Figure 3.

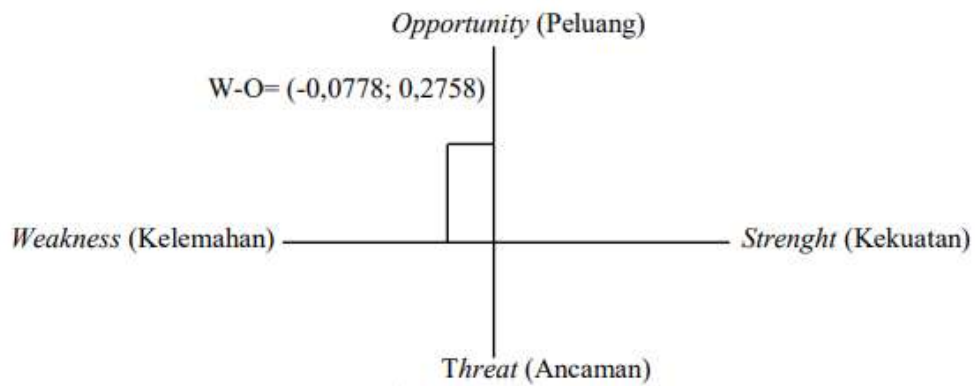


Figure 3. Matrix Diagram Grand Strategy for Sand Lobster Cultivation Business in East Lombok Regency

Based on Figure 3 of the Grand Strategy Matrix Diagram, the sand lobster cultivation business in East Lombok Regency is in quadrant III (negative), namely -0.0778 and 0.2758. This means it supports a turnaround strategy by minimizing existing weaknesses to seize opportunities.

*SWOT Matrix*

From the results of the analysis of internal and external factors, alternative development strategies are prepared. sand lobster cultivation business in East Lombok Regency which can be seen in table 9.

Table 9. Results of SWOT Matrix Analysis of Sand Lobster Cultivation Business Strategy in East Lombok Regency in 2025

<p>IFAS</p> <p>EFAS</p>	<p><b>STRENGTH (S)</b></p> <ol style="list-style-type: none"> <li>1. Availability of lobster seeds in nature</li> <li>2. Experience and skills of lobster farmers</li> <li>3. It has ideal water conditions for cultivating sand lobsters.</li> <li>4. Coastal communities have local knowledge about lobsters and marine ecosystems.</li> <li>5. The existence of a group of sand lobster cultivators</li> </ol>	<p><b>WEAKNESS (W)</b></p> <ol style="list-style-type: none"> <li>1. Lack of storage and processing facilities for lobster cultivation products</li> <li>2. Low access to information and modern cultivation technology</li> <li>3. Limited capital of farmers</li> <li>4. Low levels of education and technical training among farmers</li> <li>5. Lack of quality and affordable feed</li> </ol>
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<p><b>OPPORTUNITIES (O)</b></p> <ol style="list-style-type: none"> <li>1. Development of Lobster Science and Technology</li> <li>2. The development of E-Commerce makes it easier to market directly to consumers.</li> <li>3. Export demand increases</li> <li>4. Government support for the development of the marine sector</li> <li>5. There is potential for collaboration with universities for research and training</li> </ol>	<p><b>STRATEGY (SO)</b></p> <ol style="list-style-type: none"> <li>1. Taking advantage of the availability of seeds and ideal water conditions to develop cultivation businesses based on technological innovation and research (S1, S2, S3; O1, O5).</li> <li>2. Increase added value and expanding the marketing of sand lobster through the use of digital technology (E-Commerce) (S2, S4; O2, O3).</li> </ol>	<p><b>STRATEGY (WO)</b></p> <ol style="list-style-type: none"> <li>1. Improving facilities AndInfr astructure and capital for cultivation businesses through government support in the form of financing, construction of cold storage and post-harvest facilities (W1, W2, W3; O4).</li> <li>2. Improving training and technical counseling for lobster cultivation businesses to increase production and quality feed through collaboration with various parties (W2, W4, W5; O1, O3, O4, O5).</li> </ol>
<p><b>THREAT (T)</b></p> <ol style="list-style-type: none"> <li>1. Unstable market price fluctuations</li> <li>2. There is fierce competition</li> <li>3. Marine pests and predators that damage cultivation</li> <li>4. Climate change causes detrimental changes in temperature and ocean currents.</li> <li>5. Lobster theft occurred</li> </ol>	<p><b>STRATEGY (ST)</b></p> <ol style="list-style-type: none"> <li>1. Increasing local understanding and awareness to build adaptive cultivation systems to climate change (S3, S4; T4).</li> <li>2. Increasing the role of farmer groups in monitoring the theft of sand sluices (S2, S5; T2, T3).</li> </ol>	<p><b>STRATEGY (WT)</b></p> <ol style="list-style-type: none"> <li>1. Increasing the efficiency of cultivation business lobstersand in facing price fluctuations and business competition. (W3, W5; T1, T2).</li> <li>2. Improve cultivation business skills in dealing with predator and disease attacks on lobstersand (W2, W4; T3).</li> </ol>

Source: Processed Primary Data (2025)

The WO (Weakness-Opportunities) strategy formulation as the main strategic priority is as follows:

1. Improving facilities and infrastructure as well as capital for cultivation businesses through government support in the form of financing, cold storage development and post-harvest facilities. (W1, W2, W3; O4).
2. Improving training and technical counseling for lobster cultivation businesses to increase production and quality feed through collaboration with various parties (W2, W4, W5; O1, O3, O4, O5).

There are supporting strategy formulations in the development of sand lobster (*Panulirus homarus*) cultivation businesses in East Lombok Regency, including the SO, ST and WT strategies as follows:

- a. SO Strategy (Strengths-Opportunities)
  1. Utilizing the availability of seeds and ideal water conditions to develop cultivation businesses based on technological innovation and research (S1, S2, S3; O1, O5).
  2. Increasing added value and expanding the marketing of sand lobster through the use of digital technology (e-commerce) (S2, S4; O2, O3).
- b. ST Strategy (Strengths-Threats)
  1. Increasing the understanding and awareness of local communities in building cultivation systems that are adaptive to climate change (S3, S4; T4).
  2. Increasing the role of farmer groups in monitoring sand lobster theft (S2, S5; T2, T3).
- c. WT Strategy (Weaknesses-Threats)
  1. Improving the efficiency of sand lobster cultivation businesses in facing price fluctuations and business competition (W3, W5; T1, T2).
  2. Improving the skills of farmers in dealing with predator attacks and diseases in sand lobsters (W2, W4; T3).

## CONCLUSION

Based on the research that has been conducted, the following conclusions were obtained:

1. Internal and external factors of the sand lobster cultivation business in East Lombok Regency include internal factors consisting of strengths and weaknesses, while external factors consist of opportunities and threats. Ideal water conditions for sand lobster cultivation are the dominant strength factor, while the dominant weakness is the still-poor feed quality factor. Then, the dominant opportunity factor is the development of science and technology for lobster, and the dominant threat factor is unstable market price fluctuations.
2. The strategy for developing sand lobster cultivation in East Lombok Regency is the WO (Weaknesses-Opportunities) Strategy, which includes (1) Improving facilities and infrastructure as well as capital for cultivation through government support in the form of financing, construction of cold storage and post-harvest facilities. (2) Improving training and technical counseling for lobster cultivation in increasing production and quality feed through collaboration with various parties.

## RECOMMENDATION

Recommendations that can be given for the development of sand lobster cultivation businesses in East Lombok Regency are as follows:

1. Regional governments need to strengthen support for the development of sand lobster cultivation by providing supporting facilities such as cold storage, post-harvest facilities, and more adequate cultivation

infrastructure. Furthermore, the government needs to facilitate easier access to financing, for example through the fisheries sector's People's Business Credit (KUR), and stabilize local trade systems to mitigate the impact of market price fluctuations.

2. Farmers need to increase their knowledge and skills in farming through active participation in training, technical assistance, and the application of appropriate technology. They also need to strengthen their economic collective, for example through joint venture groups, to reduce feed costs, increase production efficiency, and strengthen their bargaining position against market price fluctuations.

### **FURTHER STUDY**

Future research is recommended to further analyze the effectiveness of the proposed WO (Weaknesses–Opportunities) strategy in improving the productivity and sustainability of sand lobster cultivation in East Lombok Regency. Subsequent studies could examine the economic feasibility of government-supported infrastructure development, such as cold storage and post-harvest facilities, as well as the impact of improved feed quality on growth rates and survival. In addition, research on market stabilization mechanisms, value chain development, and price risk management may provide deeper insights into reducing the vulnerability of cultivators to market fluctuations. Expanding the scope of research to include environmental carrying capacity and long-term ecological impacts will also support the development of a more resilient and sustainable sand lobster aquaculture industry.

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