



Strategy for Developing Aquaculture Villages in East OKU Regency

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ARTICLE INFO

Article History:

Received: 28 March 2024

Final Revision: 22 May 2024

Accepted: 25 May 2024

Online Publication: 26 May, 2024

KEYWORDS

Strategy, developing, aquaculture village, SWOT

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A B S T R A C T

East OKU Regency, located in South Sumatra, is one of the largest catfish producers through pond cultivation. Recently, the Ministry of Marine Affairs and Fisheries designated East OKU Regency as a center for catfish farming, a status formally recognized by officials from South Sumatra and East OKU Regency. The catfish cultivation village spans 1,200 hectares and produces 30 tons annually. To ensure sustainable and environmentally friendly aquaculture practices, and to enhance fish farmers' incomes, effective development strategies are necessary. This research explores strategies for developing aquaculture villages in East OKU Regency. The study employs a case study method, focusing on Belitang District as a representative example of an aquaculture village in South Sumatra Province. A simple random sampling method was used to select 90 farmer groups from a population of 900 fish farmers. The research data were processed and analyzed using SWOT analysis to identify strategies for advancing fish farming villages in East OKU Regency. The findings suggest that the optimal development strategy (SO Strategy) involves providing training and skills related to technology and production systems to boost catfish output. Additionally, strengthening cultivator group institutions is crucial for facilitating the adoption of product quality standards and improving production quality to meet market demands.

1. INTRODUCTION

1.1. Research Background

The fisheries subsector is one of the subsectors that has the potential to improve the community's economy. The contribution of the fisheries subsector is said to be able to improve the Indonesian economy, especially the community economy, and can support economic growth in Indonesia, demand for materials will continue to increase along with climate and environmental changes and global economic conditions [1] [2]. Efforts to continuously increase aquaculture production are being carried out, one of which is encouraging an increase in aquaculture production through the aquaculture industrialization program.

Patin fish has a delicious, tasty, savory taste and the texture of the meat is slightly chewy, the price is relatively affordable so people like to consume it. This is indicated by the large demand for catfish in traditional and modern markets and even from

culinary businesses such as restaurants, eateries, and street vendors so the market prospects are very promising. However, this good market prospect cannot be utilized as well as possible by cultivators to increase production to meet market needs. South Sumatra is recorded as the largest producer of catfish cultivation in Indonesia, contributing around 47.4% of the total national production coming from the province of South Sumatra. Director of Fish Feed and Medicine, Directorate General of Aquaculture, Ministry of Maritime Affairs and Fisheries (KKP), production of catfish from South Sumatra can reach more than 250,000 tons per year. Since 2017 I have seen data on South Sumatra's catfish production, which has always been above 200,000 tons, and once even reached 250,000 tons, so the potential is extraordinary. The prospect of fisheries every year almost shows quite promising numbers [3].

Cultivation Fishery Village is an area designated for aquaculture activities based on superior and/or local commodities which are implemented based on local wisdom by synergizing various potentials to encourage the development of independent, competitive, and sustainable fish cultivation



businesses integrated from upstream to downstream, as well as driven by the community and encouraged and facilitated by the government. One of the districts in South Sumatra that is currently developing fisheries cultivation villages is East OKU District.

East OKU Regency is one of the regencies in South Sumatra, which is one of the regencies producing the largest catfish from pond cultivation. Currently, the ministry has appointed East OKU Regency as the center for catfish farming villages which was inaugurated by South Sumatra officials and officials within East OKU Regency. The catfish cultivation village has an area of 1,200 hectares and is capable of producing 30 tonnes per year. Nationally, 130 Cultivation Fisheries Villages have been established in Regency/City areas, each determined based on the Republic of Indonesia KP Ministerial Decree Number 64 of 2021 for 6 locations and Indonesian KP Ministerial Decree Number 16 of 2022 for 124 locations. The Patin Fish Cultivation Fishery Village in East Ogan Komering Ulu Regency is ranked number 2 in the Republic of Indonesia KP Ministerial Decree Number 64 of 2021.

The patin village that was the object of the visit was Belitang District, considering that this sub-district is the sub-district that has the largest cultivation pond, namely 203 hectares, and has the largest number of fishing households (RTP), namely 900 RTP, and contributes quite a large amount of patin production in East OKU district, namely 7,373.86 tons in 2021. In this regard, the central government is paying attention to pond farmers, with the recent disbursement of assistance from the Director General of Capture Aquaculture, Ministry of Maritime Affairs and Fisheries. The assistance distributed to East OKU was in the form of one excavator unit, a biofloc system catfish cultivation package, and 30 hectares of minapadi system fish cultivation. 200,000 Siamese catfish seeds, this is one of the strengths of the catfish farming business in Belitang District. Seeing the potential that exists in East Ogan Komering Ulu Regency, specifically in Belitang District, the Ministry of Maritime Affairs and Fisheries (KKP) has made Bumi Sebiduk Sehaluan a center for breeding catfish seeds.

Based on data from the Livestock and Fisheries Service from 2023, catfish production will always increase accompanied by an increase in cultivation area. However, this was not accompanied by an increase in production per ha, although the increase in production per year has increased production per ha has decreased. This indicates that increasing the amount of production in catfish cultivation has not been optimal. One of the causes is pollution due to the decline in water quality due to the excessive entry of nutrients such as feed, fertilizer, and other chemicals [4]. Along with increasing production, cultivation activities have a big impact on the environment. To support successful cultivation and increase production, good management is needed. Therefore, it is necessary to utilize the potential of fisheries' biological resources to improve the welfare of society without disturbing the environmental balance [5].

Other problems include limited knowledge and skills of cultivators, the technology used is simple and limited and production techniques do not meet cultivation SOPs. The characteristics of cultivation locations in East OKU Regency are the same as the cultivation locations in research [6] namely that production techniques do not meet standards and pool construction is irregular. Therefore, it is necessary to strive for

an appropriate and effective strategy in its development, so that with this strategy it is hoped that it can support and support sustainable and environmentally friendly cultivation businesses and increase the income of fish farmers. Based on this phenomenon, this research aims to examine further the strategy for developing aquaculture villages in East OKU Regency.

1.2. Literature Review

In Indonesia, catfish generally live in large rivers, river estuaries, and lake waters. As freshwater fish, catfish live in freshwater habitats, such as large rivers, river estuaries, and lakes. Based on the anatomy of its mouth which is located slightly below its head, it can be concluded that this fish lives at the bottom of the water. This mouth position is used to search for food in the muddy bottom layer of the river. Catfish are known as fish that don't blame their environment too much, in other words, this type of fish is quite easy to adapt to [7]. However, the most optimal environment for catfish growth is greatly influenced by water quality, including temperature, oxygen levels, and acidity levels. The best water temperature for keeping catfish is between 25 and 33 degrees Celsius. While the most optimal acidity or pH level is in the range of 7 to 8.5, this fish is still able to survive in water with a pH of 6 and 9.

This type of fish can be found throughout freshwater waters in Southeast Asia. In Indonesia, almost all freshwater areas are inhabited by catfish, starting from rivers on the island of Sumatra, such as the Musi River, rivers on the island of Kalimantan such as the Mahakam River, rivers on the island of Java such as the Brantas River, and various other islands. Patin are known as a group of omnivorous animals that can eat animals or plants, but based on their habits, these fish tend to be carnivorous. Under normal conditions in freshwater areas, catfish usually eat small animals more often. The food that this fish likes most is shrimp which are very small in size, insects or insects, and soft animals or mollusks. These three types are the main food for catfish apart from other complementary foods, such as small fish, rotifers, and leaves that grow in the waters [8].

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decreased [9]. This indicates that increasing the amount of production in catfish cultivation has not been optimal. One of the causes is pollution due to the decline in water quality due to the excessive entry of nutrients such as feed, fertilizer, and other chemicals [10]. Along with increasing production, cultivation activities have a big impact on the environment. To support successful cultivation and increase production, good management is needed. Therefore, it is necessary to utilize the potential of fisheries' biological resources to improve the welfare of society without disturbing environmental balance, it is necessary to strive for an appropriate and effective strategy in its development so that with this strategy it is hoped that it can support and support sustainable and environmentally friendly cultivation businesses and increase the income of fish farmers [11].

1.3. Research Objective

This research aims to examine further the strategy for developing aquaculture villages in East OKU Regency.

2. METHODS

2.1. Research method

The research method used is a case study method where Belitang District is the only case. Belitang District is an example of an aquaculture village in South Sumatra Province. The sampling method used is a simple random method. Where as many as 90 farmer groups were taken as samples from a population of 900 fish farmers. Research data is processed and analyzed using SWOT analysis to find strategies that can be recommended for developing fish villages in East OKU Regency.

This research was carried out in Belitang District in Triyoso Village and Sukosari Village, East OKU Regency. The location determination was carried out purposively considering that Belitang District, East OKU Regency is the center of aquaculture villages in South Sumatra, especially East OKU. East OKU received the title of patin village from the Ministry of Animal Husbandry and Fisheries which continues to experience increased production in South Sumatra Province after becoming a producer of catfish. The research will be carried out in September 2023.

3. RESULT AND DISCUSSION

3.1. Internal and External Factors Strategy for Development of Patin Fish Cultivation in East OKU Regency

Based on the results of research conducted in East OKU Regency, it was found that internal factors influence the development of catfish cultivation in East OKU Regency. The results of internal analysis on the strength attribute, namely own land have a score of 1.07. This shows that land ownership greatly influences catfish cultivation in East OKU Regency and farmers consider it very important in developing catfish cultivation in East OKU Regency, following the results [12] research states that the ownership status of catfish cultivation

land is one's land, the same [2] research that ownership status is divided into 3 groups, namely own land owners, land tenants and cultivators and own land is the main force in internal factors. Apart from that, land ownership status greatly influences farmers' income, so land ownership is included as an internal factor.

Table 1. Internal analysis factor

| Internal analysis factor | Value (B) | Rating (R) | Score (BxR) |
|---|-----------|------------|-------------|
| STRENGTH : | | | |
| Own land | 0.27 | 4 | 1.07 |
| Government support | 0.27 | 4 | 1.07 |
| Strategic pool location | 0.20 | 3 | 0.60 |
| Fixed marketing | 0.27 | 4 | 1.07 |
| Score amount | 1.00 | 15 | 3.80 |
| WEAKNESS : | | | |
| Bookkeeping of businesses that are owned | 0.14 | 1 | 0.14 |
| Production techniques do not standards | 0.29 | 2 | 0.57 |
| Not yet able to produce independent seeds | 0.29 | 2 | 0.57 |
| Amount | 6.7 | 7 | 1.86 |

The next internal factor is government support with a score of 1.07, this shows that government support is a very influential factor in the cultivation of catfish in East OKU Regency, the East OKU Regency government is very grateful and proud of the decision of the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia number 64 of 2021 [3]. Regarding the designation of East OKU as one of six districts in Indonesia as an aquaculture village with catfish as a commodity. With the launch of Patin Village, the economic development of aquaculture in East Oku based on local wisdom and superior commodities will be implemented by synergizing various potentials. Of course, this is to encourage the development of competitive and sustainable aquaculture systems and businesses. By mobilizing the community and being facilitated by the government, it can guarantee continuous and scheduled production. With 208 fisheries groups ready to support the successful implementation of aquaculture villages as potential areas that can become production centers for superior catfish aquaculture commodities with high levels of production, productivity, and quality according to market demand through intensification and extensification.

The results of internal analysis on the weakness attributes, namely the first: Limited and simple technology, has a score of 0.14, meaning it is quite low. This is caused by the Government of course still preparing support in various sectors, adding to improving infrastructure, and still really hoping for assistance in the form of technological tools. sophisticated and effective from the central government. The second, namely business bookkeeping that is not yet owned, is an internal factor of

weakness because it has a score of 0.57. This follows the results of research by [13] which states that catfish farmers rarely have special bookkeeping, most of them only remember existing expenses and income, and as a result, they have difficulty calculating net income in catfish cultivation.

The next internal factor is that technical production does not meet standards, it has a score of 0.57 which is quite low, this is because technical production does not meet standards, so far Catfish farmers are still in the learning process because the new catfish village was launched in 2022, but currently Technically things are getting better and better. By following production techniques that meet good standards with the right steps in hatching and nursery, as well as maintaining water quality and managing waste well, you can have a successful and sustainable catfish farming business. The final internal factor, namely not being able to reproduce independent seeds, shows a score of 0.57 which is quite low, and this factor is considered important for farmers. Farmers know the importance of breeding fish seeds because this is an important factor in the main capital, currently, catfish farmers still buy fish seeds from other areas such as Lampung, farmers in the future hope to create independence, such as having independent feed and seeds, this will increase profits for farmers. catfish power in East OKU.

Table 2. External factor analysis

| External factor analysis | Value (B) | Rating (R) | Skor (BxR) |
|--|------------------|-------------------|-------------------|
| OPPORTUNITY | | | |
| The market opportunity is quite high | 0.27 | 4 | 1.07 |
| Good road access and transportation facilities | 0.27 | 4 | 1.07 |
| Increasing consumer demand | 0.20 | 3 | 0.60 |
| Assistance technical outreach | 0.27 | 4 | 1.07 |
| Amount | 1.00 | 15 | 3.80 |
| THREAT : | | | |
| Pest and diseases | 0.14 | 1 | 0.14 |
| High feed price | 0.29 | 2 | 0.57 |
| Unpredictable weather condition | 0.29 | 2 | 0.57 |
| Lack of access to capital institutions | 0.29 | 2 | 0.57 |
| Amount | 1.00 | 7 | 1.86 |

The results obtained from calculating internal analysis factors that influence the catfish development strategy in East OKU Regency are 3.80 for strengths and 1.86 for weaknesses, meaning that internal factors influence the catfish development strategy in East OKU Regency. Greater strength than weakness. The internal factors of weakness are categorized as low to medium, for this reason, a strategic approach is needed in developing catfish cultivation by improving the internal factors of weakness attributes in cultivating catfish.

Based on external results, there are opportunities and threats. Based on the results of the opportunity factor analysis, it consists of 4 attributes, namely high market opportunities, good

road access and transportation facilities, increasing consumer demand, government assistance with technical outreach in catfish cultivation in East OKU Regency with an average score of 3.80 for opportunities and 1.86 for threats.

In OKU Regency, the government strongly supports the development of catfish cultivation as evidenced by the existence of 208 fisheries groups that are ready to support the successful implementation of aquaculture villages as potential areas that can become production centers for superior commodities for catfish cultivation with high levels of production, productivity, and quality according to market demand through intensification and extensification. The main opportunity that can be seen is a fairly high market opportunity,

Then the second opportunity, namely good road access and transportation facilities, has a score of 1.07, which shows a fairly high score, road infrastructure can influence local economic growth by opening up new accessibility, facilitating the distribution of goods and services, and opening up new jobs. Apart from that, the Government is ready to support various sectors and will also improve infrastructure for East OKU.

The third opportunity, namely increasing consumer demand, has a score of 0.60. This is supported by the increasing demand for catfish in the domestic market, the per capita consumption rate of catfish tends to increase every year, reaching 21.9% starting from 2014 to 2023 with a preference for products consumed by fresh fish of 76%, fish foreign preserved 15%. The last external opportunity factor, namely Government Assistance, and Technical Extension, has a score of 1.07. It is hoped that this will help farmers who have limited knowledge, at least the government will make it a little easier and help them to obtain feed and seeds independently as well as deal with pests and diseases in catfish cultivation.

Apart from that, several external factors threaten the catfish development strategy, namely pests and diseases, high feed prices, unpredictable weather conditions, and lack of access to capital institutions. The first external threat factor, namely pests and diseases in catfish cultivation, has a score of 0.14. One of the failures in keeping catfish is pest attacks and diseases such as poisoning, Aeromonas, white spot, stress, MES, parasite attacks, bacterial infections, and fungal attacks. For this reason, you must know how to deal with them so that when pest and disease attacks occur, they can be dealt with properly. This is a factor in the failure of catfish cultivation businesses. In the analysis of catfish cultivation, one of the problems often faced in catfish cultivation is the presence of pests and diseases. To prevent pests from entering the pond, Tani Friends can install lighting around the pond to prevent pests from entering. Meanwhile, diseases in catfish can be caused by infectious and non-infectious factors. Non-infectious diseases are not contagious and are caused by other factors that are not pathogens. Meanwhile, infectious diseases are caused by pathogens that attack the fish organism. By carrying out appropriate treatment to eradicate pests and diseases, catfish growth can be optimal and the quality will be better.

Then the second threat is high feed prices with a score of 0.57. Feed prices are too high because domestic stocks are decreasing, and there are also not enough from abroad. As for a permanent solution, the government must build national stock reserves, which also means encouraging the productivity of corn farmers as a basic ingredient for making feed. The third external threat factor is Unpredictable Weather Conditions with a score

of 0.57. This shows that weather factors cannot be predicted. During the rainy season, the water overflows until it comes out, it is not uncommon for many fish to come out of the pond, whereas if the weather is hot the catfish can overheat and cause the fish to die.

The results obtained from the calculation of external analysis factors that influence the catfish development strategy in East OKU Regency with an opportunity of 3.80, meaning that the external factors that influence the catfish development strategy in East OKU Regency are high, for this reason, a strategic approach is needed in developing catfish cultivation by improving external factors, threat attributes so that the development of catfish cultivation businesses continues to develop and can be made into a commodity in East OKU Regency.

3.2. Matriks SWOT Analysis

The results of the SWOT matrix show that the position of the OKU catfish village development strategy is at a value of $x > 0$, a value of $y > 0$, namely. This means that the position of the shallot agribusiness development strategy is located in quadrant I. Quadrant I is a quadrant bounded by the x-axis and y-axis, both of which have a positive sign and the recommended alternative strategy is aggressive, namely the SO strategy, where this quadrant has the most profitable position because the strengths and opportunities in the position matrix are good so that with the strengths possessed by catfish cultivation it is possible to take advantage of existing farming opportunities and develop them. Patin fish cultivation in East OKU Regency is in quadrant I with a score of 1.94, meaning that the catfish cultivation business has strength factors in good condition, but on the other hand faces several internal obstacles/weaknesses. The focus of the development strategy is to minimize internal problems. This is following the research results of [4] which states that if the SWOT analysis results are in quadrant III, it is a situation where the business faces large market opportunities but on the other hand there are several internal obstacles. The focus of this strategy is to minimize internal weaknesses so that it can capture the market well or reverse the wrong decisions made previously and change from a loss-making company to a profit-making company.

4. CONCLUSION

From the research results, several internal and external factors were obtained, internal factors namely strength of owned Land, Government Support, Strategic Pond Location, Fixed Marketing, Limited and Simple Technological Weaknesses, Unowned Business Bookkeeping, Production Techniques Do Not Meet Standards, Not Able to Procure Independent Seedlings. Meanwhile, external factors are opportunities: quite high market opportunities, good road access, and transportation facilities, increasing consumer demand, and government assistance with technical outreach in catfish cultivation. Threats, pests and diseases, high feed prices, unpredictable weather conditions, and lack of access to capital institutions

2. From the research results, it can be seen that the development strategy used to develop catfish in East OKU Regency is the SO Strategy (Providing training, and skills regarding the use of technology and production systems to increase overall catfish

production, Strengthening cultivator group institutions so that it is easier to follow socialization of product quality standards to improve production quality and face market demands), ST Strategy (Improving production quality, fostering independent catfish feed manufacturing and breeding), WT Strategy (Using natural feed or additional feed, access to capital loans from the KUR program from banks) and WO Strategy (Increasing cooperation between cultivators and local related agencies in providing counseling regarding the implementation of production standards, needing government assistance such as counseling, assistance with appropriate tools and other production facilities, improving management of farmer groups regarding bookkeeping).

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