

Strategic Planning of Striped Catfish (*Pangasianodon hypophthalmus*) Farming In East Tanjung Jabung Regency, Jambi Province

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Abstract

East Tanjung Jabung regency is a district that has a fairly large fisheries potential, but the existing potential has not been utilized maximally. The absence of a policy strategy leads to the problem of undeveloped striped catfish farming in this region. This study is amid to formulate the policy strategies of iridescent striped catfish farming. This study was conducted from July to September 2016 in East Tanjung Jabung Regency, Jambi Province. This study employed both descriptive qualitative and quantitative method followed by SWOT analysis which was used to determine the strengths, weaknesses, opportunities and threats of striped catfish farming. The results of SWOT analysis suggest some policy strategies to improve the striped catfish farming. First, prevent the increase of water level in the rainy season. Second, anticipate the acidity of water in the peat area. Third, increase human resources quality in economic field. Fourth, improve supervision and surveillance of the farming area. The last, develop the use of natural food.

Keywords: Strategic Planning; Striped Catfish Farming; SWOT analysis

INTRODUCTION

In various businesses need to plan their strategy for the business to be run can develop. One attempt was enough to produce iridescent striped catfish farming. In the international market, the price of fresh fish per kilogram iridescent striped catfish around USD 1, while for a fillet of fish iridescent striped catfish reached USD 3.4 [1].

East Tanjung Jabung is a regency in Jambi Province which has a strategic position for the marketing of striped catfish as it is located in the east coast of Sumatra Island, close to Riau Islands Province and located in the hinterland of triangular economic growth of Singapore-Batam-Johor (SIBAJO) [2]. In addition, East Tanjung Jabung is close to Muaro Jambi Regency, the only producer of shredded striped catfish in Jambi province. The production of shredded striped catfish of Muaro Jambi continues to increase by 200 kg every week in 2016. Jambi province itself produce 10.000-13.000 tons of striped catfish every day, out of local consumption and outside region markets (South Sumatra and Riau), which cost Rp 12.000 per kilogram [3].

Fisheries potential of Tanjung Jabung reached 24.000 hectares, although only about 41.5% have been explored with a production of 679 tons. Whereas the freshwater fish farming potential

reached approximately 14.000 hectares and only about 1.120 hectares (8%) have been used. Lack of information about striped catfish farming in the region resulted on untapped potential, so it needs a proper strategy to be implemented by the community or local government [2].

SWOT analysis can be used to formulate policy strategies. SWOT is an analysis to identify the various factors systematically to formulate a strategy. This analysis is based on the logical facts that maximizes the strengths and opportunities, but at the same time to minimize the weaknesses and threats [4].

RESEARCH METHODS

The methods used in this research were descriptive qualitative and quantitative. Descriptive qualitative and quantitative methods were aimed at revealing the facts, circumstances, variables and phenomena which occurred and they were supported by the data in the form of numbers. SWOT analysis approach was used to process the facts and the data obtained in the field.

To formulate fish farming land usage policy in East Tanjung Jabung, a logical framework using The selection of respondents is done in Jambi especially East Tanjung Jabung. There were 39 respondents, including the classification of Marine

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and Fisheries Agency Jambi Province, Department of Fisheries East Tanjung Jabung, Academics and people of East Tanjung Jabung.

Analysis used to determine SWOT coordinate position was based on a matrix of internal and external factors. SWOT matrix had four quadrants which were based on the division of S-W-O-T as four sets of possible strategies. Once the coordinates were known, the area of East Tanjung Jabung could be classified into a quadrant of SWOT analysis. In addition to the above approach, it was also described through the elaboration of a matrix of external factors and internal factors, so as to facilitate the assessment and decision-making. Analysis to determine strategies and policies for the development of striped catfish aquaculture in East Tanjung Jabung was performed using SWOT analysis which steps are as follows [4].

a. Data Collection phase

The data collection phase was divided into 2 (two), namely internal data and external data, in order to classify the data in the pre-analysis of internal and external factors. Internal data came from the utilization system of East Tanjung Jabung area, including the availability of land and natural resources, human resources quality and future development direction (strengths and weaknesses). The external data was derived from the external environment (opportunities and threats).

b. Analysis phase

SWOT Matrix Model was used in the analysis phase, where there were four (4) strategies resulted, namely SO, WO, ST and WT. Having obtained the SWOT matrix, then all strategies were ranked based on the factors making up the strategies.

RESULTS AND DISCUSSION

In conducting a SWOT analysis, firstly conducting analysis of the issues and problems that are existing in East Tanjung Jabung. Analysis of the issues and problems covered three aspects such as ecological, economic and social. These three aspects were then identified based on internal factors (strengths and weaknesses) and external factors (opportunities and threats).

Ecologically, East Tanjung Jabung geographic conditions were pretty good for catfish culture. The observation on soil and water quality showed the Eastern Tanjung Jabung has water quality and soil and supported the availability of a wide area. The potential for freshwater fish farming in East Tanjung Jabung which is just 8% were utilized [2]. However, there are several factors that must be considered such as deficiencies based on Statistics of East Tanjung Jabung 2015, East Tanjung Jabung included in one of the districts prone to annual

flooding. In addition, Statistics of East Tanjung Jabung also noted that East Tanjung Jabung has a peaty soil conditions with a thickness of 5-13 meters of the feared capable of affecting the acidity of waters. Based on field observations and interviews to the public, it should be noted also fish predators. These predators include snakes, lizards, hawks and others that may threaten fish farming iridescent striped catfish [5].

Socially, some deficiencies that exist in East Tanjung Jabung between human resources (HR) level East Tanjung Jabung is relatively low so that was very influential on labor conditions. Based on Statistics of East Tanjung Jabung 2015, the level of public education by category never went to school up to primary school amounted to 59.9%, while for the category diploma and degree only 18.4% and the remaining middle and high school graduates [1]. In addition, the society is still very difficult to obtain information related to fish farming iridescent striped catfish so little is interested in fish farming iridescent striped catfish. The limited number of staffs becomes an inhibiting flow of information from the Statistics of East Tanjung Jabung 2015 headcount of Fisheries and Marine amounted to only 12 people [5].

Based on the economic aspects that need considerations included competition iridescent striped catfish farming outside East Tanjung Jabung. Data from the Directorate General of Fisheries in 2015, the largest Patin fish production in Jambi Province is still on hold if Muaro Jambi. In addition, the small number of feed distributor in East Tanjung Jabung feared a problem of the increasing price of feed for fish farming in the region iridescent striped catfish. However, the availability of farm wastes such as oil cake and rice fields can be used and high quantity snails can be an alternative to cope with the increasing feed prices. Moreover, no less important to note in this area is its infrastructure, the observation shows the infrastructure of East Tanjung Jabung district region is still quite limited, especially in sides of the the bridge construction, so it disturbs the distribution and sales of production iridescent striped catfish farming. Some of the advantages possessed by fish iridescent striped catfish in East Tanjung Jabung is including sufficient number of irrigation channels, so to cut production costs in charging and turn the pool water, the availability of seed Patin by BBAT Jambi and also a market for selling produce fish farming iridescent striped catfish. In addition, constraints East Tanjung Jabung community to undertake fish farming iridescent striped catfish is the weak capital of the community)

From the identification of Internal Strategic Factors Analysis Summary (IFAS), 10 factors was

obtained, which consist of five strengths and five weaknesses of striped catfish farming in East Tanjung Jabung. The strengths were the geographical position, the availability of farming land, the availability of irrigation canals, good water quality and good soil condition. The weaknesses lies on the low quality of human resources, poor infrastructure, minimum interest to aquaculture, limited number of labor and also lack of information about striped catfish farming.

Tabel 1. Identification of Internal Strategic Factors Analysis Summary (IFAS)

No	Aspects	Value s	Rates	Scores
1	2 Strength Factors (S)	3	4	5
1	The geographical position of East Tanjung Jabung used to farm striped catfish	0,141	4	0,565
2	The availability of land for striped catfish farm	0,127	4	0,509
3	The Land Quality Condition	0,092	3	0,276
4	The Water Quality Condition	0,085	3	0,254
5	The availability of irrigation canals for water supply	0,141	4	0,565
	Total Strength factors score	0,587		2,170
	2 weakness Factors (W)			
1	The quality of human resource of striped catfish farming	0,120	3	0,360
2	The means of infrastructure (roads and bridges)	0,099	4	0,396
3	The public interest on striped catfish farming	0,039	1	0,039
4	The labor condition of the striped catfish farming	0,049	1	0,049
5	The public access to information related to striped catfish farming	0,106	4	0,424
	Total Weakness Factors Score	0,413		1,269
	Total Value of IFAS (S+W)	1		3,438
	The difference between strength total score and weakness total score(S-W)	X		0,901

Internal strategic factor which become the main strength is irrigation canal availability which

support the water supply throughout the year with the highest level at 0.565. While the major weakness is limited access to farming information by 0.424. The total score of IFAS is 3.407 and the difference between IFAS scores is 0.901 which means the value of strength is greater than weakness. When strength factor is greater, and it is indicated by a positive value (+), the formulation of the strategy is in the right quadrant Pearce & Obinson [6] as can be found in Tabel 1.

Tabel 2. Identification of External Strategic Factors Analysis Summary (EFAS)

No	Aspects	Value s	Rates	Scores
1	2 Opportunity factors (O)	3	4	5
1	The availability of fish fry every year	0,115	3	0,346
2	The Market demand on the striped catfish	0,131	3	0,392
3	The availability of natural food sources for striped catfish farming	0,088	3	0,265
4	The availability of fixed consumers of striped catfish	0,085	1	0,085
5	The people's time devoted to striped catfish farming	0,088	3	0,265
	Total Opportunity Factors Score	0,50		1,354
No	Aspects	Values	Rates	Scores
1	2 Thread Factors (T)	3	4	5
1	The Annual Flood	0,154	4	0,615
2	The Fish Predator	0,077	2	0,154
3	The effect of peat land acidity to water resource	0,108	3	0,323
4	The Increase of food prices	0,108	3	0,323
5	The competition with striped catfish farming outside East Tanjung Jabung Regency	0,046	1	0,046
	Total Thread Factors Score	0,492		1,462
	Total score of IFAS (O+T)	1,000		2,815
	The difference between Opportunity Total Score and Thread total score (O-T)	Y		-0,108

The opportunities of the development of striped catfish farming in East Tanjung Jabung are the availability of the prey throughout the year, high market demand, the availability of natural food sources, the availability of consumers and the

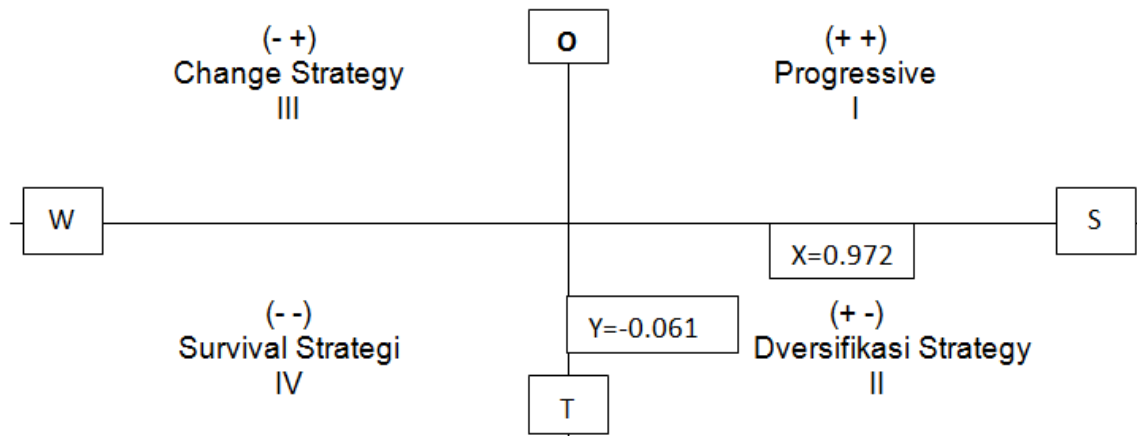


Figure 1. SWOT Quadrant

availability people's time devoted to farm activities. The threat are annual flood, predatory fish, the effect of peat land acidity to soil and water quality, the rise of food price, the competition with results of farm outside East Tanjung Jabung. However, the highest opportunity is the market demand which stand at 0.392 point and the main threat is the annual floods with a value of 0.615. The annual floods which come almost every year served as the biggest threat in the farming activities of striped catfish. From the results of the questionnaire, it is known that total score of opportunities and threats are 2.815 and the total difference of the scores is -0.108 which means the value of a greater threat than an opportunity. When the threat is greater and it is indicated by a negative value (-) the formulation of the strategy is in quadrant under Pearce & Obinson [6] as can be seen in Tabel 2.

The observations have been made resulted on strategic factors in the form of numbers which were processed in the matrix of Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS), as can be seen in Table 3.

Tabel 3. Matrix of IFAS and EFAS

Internal Factor Total Score	External Factor Total Score
(S-W = x)	(O-T = y)
2,117+0.572 = 2,690 (S)	1,366+0.512 = 1,878 (O)
1.290+0.428 = 1,717 (W)	1,450+0.489 = 1,939 (T)
X=0.972	Y=-0.061

The SWOT analysis on internal and external factors resulted four groups of alternative strategies. These strategies determine every decision taken and implemented in striped catfish farming activities in East Tanjung Jabung. The four groups consist of Strength-Opportunities Strategy (SO), Strength-Threats Strategy (ST), Weaknesses-

Opportunities Strategy (WO) and Weaknesses-Threats Strategy (WT).

Based on the analysis on the scores as presented in Table 1, the obtained x-axis =0.972 and y-axis=-0.061. Then, the results of the analysis were placed in the image of SWOT quadrant by Pearce & obinson (Figure 1). From the analysis in Figure 1, it is known that the x-axis and y-axis have positive-negative values. Therefore, organizations position which was located in quadrant II showed that there are many threats but they can be compensated by the strengths. The strategy in accordance with this condition is ST strategy. The strategy suggested is use the strengths to address the threats such as: preventing the increase of water flow in rainy season, improving oversight and surveillance of the area, anticipating water acidity at the peat land, using natural food sources and improving the quality of human resources in the fisheries and economics field.

The strategy needs to be done is using the strengths to deal with the existing threats, through the steps below:

- Preventing the rise of water flow in the rainy season. To prevent the flow of water in the rainy season, there are several ways can be taken such as building or repairing the dam in every irrigation canal, adding the depth of irrigation canals and increasing the height of levees to prevent water flow into aquaculture area.
- Improving the supervision and surveillance in the cultivation area by building higher levee, fencing around the farming area and providing lighting at night
- Anticipating acidity of the peat land by utilizing water circulation in the irrigation river, spreading substance lime on the land and using tarp or concrete design of pool.
- Maximizing the use of natural food sources by training the farmers to produce natural food and

to optimize the use of foods available in the surrounding of aquaculture area.

- Increasing the quality of human resources in the fisheries and the economics by forming groups of farmers

based on the farming stages such as fry producers, fish farmers and results processors in addition to providing training on fisheries and marketing of fishery products.

CONCLUSION AND SUGGESTION

Conclusion

Policy strategies suggested to improve the striped catfish farming activities in East Tanjung Jabung is prominently by preventing the flow of water in the rainy season. Secondly, it can be done by anticipating the acidity of the peat land. Third, develop human resources in the economics field. Fourth, improve the supervision and surveillance of the culture area. The last, maximize the use of natural food sources.

Suggestion

In this research, strategy formulation is conducted using SWOT analysis. It is necessary to use other analysis to formulate strategies of striped catfish farming in order to get more accurate strategy.

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