Innovative Catfish: Knitting Stunting Solutions Through Advanced Production Strategies And Cultivation Development In Semboro Village, Semboro District, Jember Regency

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Abstract

Stunting is one of the targets of the Sustainable Development Goals (SDGs) which is included in the second sustainable development goal, namely eliminating hunger and all forms of malnutrition. Semboro Village, Jember Regency is one of the villages that has a fairly high stunting problem. The solutions implemented are still not fully efficient, one of the best solutions to overcome the problem of stunting is through the development of independent catfish farming businesses which have a role in providing nutrition for toddlers in addition to being able to support SDGs point 2 without hunger and SDGs point 8, namely economic growth. Increasing catfish cultivation as a form of independent entrepreneurship needs to be supported by information regarding cultivation potential and effective development strategies. This Community Service Program aims to reduce stunting rates and create independent entrepreneurs in Semboro Village. The results of this program will include a SWOT analysis and practical suggestions. One of the main strategies taken from the SWOT analysis is the Strength-Opportunities approach which is located in quadrant I. To achieve this goal, improvements in cultivation skills, seed quality, and the application of information technology are considered capable of increasing efficiency, productivity, and business sustainability. The three main recommendations put forward are: (1) Encourage relevant departments to organize training in environmentally friendly cultivation techniques and the provision of superior seeds; (2) Develop marketing networks and expand business through the use of information technology, while strengthening cooperation between cultivators; (3) Optimizing catfish cultivation throughout the community to fulfill nutritional needs in solving stunting cases.

Keywords: Catfish, Stunting, Cultivation, SWOT, Strategy
JEL Classification: E24, E31, E52, E58, F31

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Introduction

Stunting is one of the targets of the Sustainable Development Goals (SDGs) which is included in the second sustainable development goal, namely eliminating hunger and all forms of malnutrition. Based on risks as data, the prevalence of stunting in 2022 in Indonesia will reach 19.2%, while in Jember Regency it will reach 34.9% and is the highest in East Java. In order to accelerate the reduction of stunting, one of the villages in Jember Regency, namely Semboro Village, together with the Semboro Community Health Center, held a Socialization on Parental Assistance for Toddlers in Providing Food and Growth and Development in the Context of Accelerating the Reduction of Stunting. However, this program is not sustainable and does not actively contribute to overcoming the stunting problem in Jember Regency, especially in

Semboro Village. The factors causing the high stunting rate in children include environmental, material, financial, methods, facilities and infrastructure, and human resources. In solving the stunting problem, there is one solution to reduce the stunting rate by creating an independent catfish farming business which will later be processed into food suitable for consumption to provide nutrition for toddlers. The sector that has a big role in independent entrepreneurship, especially in catfish cultivation and reducing stunting rates, is the fisheries sector. The fisheries sector has an important position as a crucial part of the economy in Indonesia (Abraham et al., 2018). Therefore, the government continues to work hard to develop the fisheries sector as one of the main sectors that can provide food supplies, and employment opportunities and improve the economic welfare of the community. Factors that influence the development of fisheries cultivation in an area include available land, geographical location, natural conditions, and availability of labor (Ali et al., 2017). Jember Regency has an area of 1,586 km², which is divided into 23 sub-districts with diverse topographic characteristics. One of these sub-districts is Semboro District in Jember Regency. Semboro District consists of a total of 12 villages. One of the villages in Semboro District is Semboro village.

Semboro Village is one of the areas in the Semboro subdistrict that has high-quality springs that are available in abundance. There are three hamlets in Semboro Village, namely Krajan I, Krajan II, Lampes, and Selat. The existence of easily accessible springs in this village has a major influence on the main livelihood of its residents. The majority of Semboro Village residents are involved in cultivating freshwater fish thanks to the availability of springs that are easy to find. The growth of freshwater aquaculture production in Semboro Village from 2019 to 2023 is dominated by catfish commodities. The development of catfish cultivation in Semboro village is likely due to high demand from consumers, strong market demand, and rapid growth of catfish. This provides economic benefits for catfish farmers, as stated by this source (Ayuniar & Hidayat, 2018). In line with this, the Semboro Village government has made catfish a superior commodity for freshwater cultivation as well as a mainstay source of nutritious food at affordable prices for the community. This fish is suitable to be developed in areas with social, cultural, and environmental conditions such as in Semboro Village, Semboro District. In terms of environmental aspects, catfish can be cultivated in narrow areas with high stocking densities, save water, and can be kept in various types of containers so it is appropriate to develop them in the Semboro Village area, Semboro District, which is an industrial area with limited land. (Darmansah et al., 2016).

The opportunities that are still available in the market make catfish farming businesses have attractive potential to be expanded as a source of independent entrepreneurship. In 2019, the percentage of catfish production and sales was 37.5%, dropping to 19.37% in 2020. Then in the following year, it fell by 2% every year. This is also the reason why the 8th SDG point still has a low score, namely recorded on the website sid.kemendesa.go.id at 24.19. Therefore, it is necessary to evaluate catfish cultivation activities, especially in terms of development. Apart from having an impact on fulfilling economic growth, it will also have an impact on fulfilling nutrition for toddlers in Semboro Village in reducing the stunting rate. To increase production to meet consumer demand and fulfill nutritional requirements for children under five, a strategy is needed that is based on production performance data and geographical aspects. This strategy will later become a guide in preparing government activity programs in Semboro Village, Semboro District, Jember Regency.

Literature Review

a. Cultivation of Production Aspects

Freshwater fish farming activities in Semboro Village are dominated by catfish as the main commodity. Catfish is a type of fish that can be bred through various production systems, ranging from large systems with sparse fish populations to dense systems with large fish populations. (Erlania et al., 2011). Su'udi & Wathon (2018) Divide the production range into three categories, namely small scale (in the range of 1 to 50 tons per year), medium scale (in the range of 50 to 1,000 tons per year), and large scale (with production of more than 1,000 tons per year). With this explanation, it can be concluded that in Semboro village, cultivation activities are generally small-scale businesses with production output of less than 50 tons per year. Based on the results of a survey of catfish farmers, it was found that out of a total of 44 catfish farmers, 43 were men and only 1 was female. This indicates that catfish farming is an activity that is mostly carried out by men. The general view in society recognizes the role of men as the head of the family and as the main actors in the cultivation business. Most of the agricultural areas used are primarily owned by the farmers themselves or their families. However, currently, the land owned by farmers is shrinking. This shrinkage is estimated to be caused by rapid population growth and the development of housing and industrial development projects. Therefore, it is important for the authorities to pay special attention to the ownership status of this land..

The selling price per kilogram of ready-to-eat catfish is IDR 24,000. After calculating all production costs, which reach IDR 22,000 per kilogrammeme, the net profit obtained by the farmers is around IDR 2,000 per kilogrammeme of fish. In catfish rearing activities in these four hamlets, the average income of the cultivators reaches around IDR 1,000,000 per month. For comparison, it can be inferred that the district or city minimum wage in 2023 in Jember Regency is around IDR 2,015,000. Based on KKP (2015), Minimum wage is the lowest wage limit given to employees by companies in an industry in their region. Variations in minimum wages in each region are caused by differences in decent living needs in each region. Catfish cultivation businesses are generally carried out on a small scale, having less than five ponds per farmer. Administrative records have not been implemented, and management is still simple. Each cultivator has around 1 to 2 ponds of various shapes and sizes. Edrus (2015) Regarding catfish-rearing businesses on a household scale, it is recommended to have a minimum of five pounds. These ponds are divided into three catfish rearing units: one unit to accommodate the harvest to be sold and one unit as a reserve pond. In cultivation, box-shaped ponds of various sizes are used, but the most common are sizes between 2.8 and 5.0 meters wide and 5.0 and 15.0 meters long. The depth of the pool ranges from 50 to 120 cm, with the water height reaching 30-90 cm. Cultivation practices are generally carried out in the form of monoculture, with fish stocking densities varying between 35 and 400 fish per square meter. The maintenance process is carried out for 70 to 90 days per cycle, and in one year, up to four harvest cycles can be carried out. The average fish survival rate reached 80%, and the feed conversion ratio used ranged from 1 to 1.25.

b. Water Quality

Aquaculture is a cultivation practice carried out in an air environment, so that water quality becomes one of the production elements that has significance in the implementation of cultivation (Yuniar et al., 2015). Water quality has an important role in influencing fish growth and the amount of phytoplankton present (Ayuniar & Hidayat, 2018). Therefore, water quality conditions need to be maintained so that productivity is optimal and sustainable (Darmansah et

al., 2016). Management of the aquatic environment is carried out not only to support fish life, but also so that fish also have maximum growth rates and efficiency, as well as minimum waste (Erlania et al., 2011).

Fish are poikilothermic organisms that regulate their body temperature according to the temperature of the surrounding water. Variations in water temperature have a significant impact on various biochemical processes in the fish body. If the water temperature rises by around 10 degrees Celsius, the fish's metabolic rate can double. Temperature also affects oxygen needs, growth, food intake, and vice versa. Rising temperatures will increase the need for oxygen and food and accelerate the growth rate of fish (KKP, 2015). If the water temperature increases, fish will experience an increase in their metabolic activity, and the need for oxygen will also increase. However, the opposite occurs when the temperature increases, where the amount of oxygen dissolved in the water will decrease. As a result, the oxygen concentration becomes low when these animals need it. (Ayuniar & Hidayat, 2018). Several aspects measured to evaluate water quality include temperature, acidity level (pH), dissolved oxygen concentration (DO), amount of ammonia, and total ammonia nitrogen (TAN). Standards that are considered optimal for water quality can be compared with the guidelines set by the Indonesian National Standards (SNI), especially in the context of catfish farming. Several main aspects that must be fulfilled in water quality include: (a) optimal temperature for development; (b) availability of adequate oxygen for breathing; (c) ability to manage waste produced; and (d) providing the necessary nutrients for fish (Tidwell & Bright, 2018). Based on the results of observations and field surveys, the water quality of cultivation ponds in the Semboro Village area, including water temperature, pH, and DO conditions, is generally by the standards determined through SNI 01-6484.3-2000, SNI 01-6484.4-2000, and SNI 01-6484.5-2002. The ideal water temperature for catfish cultivation is based on the provisions, namely 25–300 C. During the research period, the average temperature value was by the standard..

The measurement results of the average pH parameter show that it meets the standards. The range of pH values suitable for catfish cultivation is 6.5-8.5(Erlania et al., 2011). The pH parameter shows the number of hydrogen ions (H+) in the water (Erlania et al., 2011). The pH level of water can provide information about potential contamination (Ayuniar & Hidayat, 2018). Ammonia toxicity will increase by 10 x when there is an increase of 1 pH value (Yuniar et al., 2015). The dissolved oxygen (DO) concentration obtained from the results of this study is within the recommended range. Erlania et al. (2011) states that the ideal DO range is >4 mg/L. Most of the water quality variables in this study were within the tolerance range for catfish. However, quite high levels of ammonia, with an average of 0.35 mg/L, were detected in the Krajan I, Krajan 2, and Selat Hamlet areas. Ammonia is a compound that is unable to penetrate fish gills and has toxic properties for fish. Erlania et al. (2011) Suggests that the level of ammonia (NH3) in catfish farming activities should not exceed 0.02 mg/L. It is possible that the high concentration of ammonia is thought to come from agricultural sources, namely fertilizer waste around the cultivation area. According to Yuniar et al. (2015) Total ammonia (TAN) is the sum of NH3 (ammonia in non-ionic form) and NH4+ (ammonia in ionic form). Ammonia is produced from various sources, including the decomposition of food waste, fish excretions, and the decomposition of organic matter by microorganisms such as bacteria, algae, and aquatic plants. The level of ammonia toxicity is influenced by factors such as temperature, CO2 concentration, oxygen availability, pH, and water temperature. Increases in pH and water temperature have the potential to increase the severity of ammonia toxicity. This issue needs serious attention because

it can affect the implementation of cultivation activities and also has the potential to threaten human health.

c. SWOT, IFAS dan EFAS Analysis

SWOT analysis is the identification of factors for company strategy. The following definitions of strengths, opportunities, weaknesses, and threats influence the prospects of certain circumstances: (Sedarmayanti, 2014)

- Strength

  This strength makes the company superior in meeting customer needs and becomes its distinguishing characteristic..
- Opportunity

  Opportunities for companies arise from favorable situations such as changes in competition, technology, and market segments..
- Weaknesses

  Weaknesses are limitations or deficiencies in a company's resources, hindering progress and meeting customer needs.
- Threats

  Threats to a company's environment harm and hinder business success, affecting results and future prospects.

Kearns developed a SWOT matrix based on the SWOT analysis strategy in good business planning, as follows:

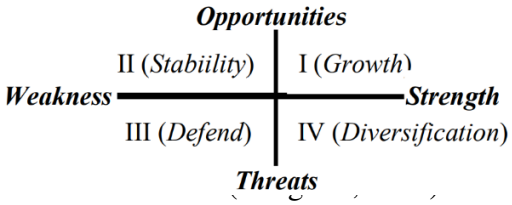
Table 1. Matriks SWOT

Ifas / Efas	***Strength*** (Kekuatan)	***Weaknees*** (Kelemahan)
Opportunities (Peluang)	(A) **Strategi SO** Keunggulan komparatif	(B) **Strategi WO** Divestasi/ Investasi
Threats (Ancaman)	(C) **Strategi ST** Mobilisasi	(C) **Strategi WT** Kendali kerusakan (damage control)

Before preparing a SWOT analysis matrix, you need to know first is the external and internal strategic factors of the company itself by preparing the EFAS and IFAS matrices. The following is a method for assessing the two factors, with the stages of determining the factors as follows:(Pitaloka & Aji, 2020)

a) Determine the factors that are strengths, weaknesses, opportunities, and threats in the first column.
b) Give weight to the strengths, weaknesses, opportunities, and threats in the second column, with values ranging from 1.0 (very important) to 0.0 (not important), with the information >0.20 = very strong, 0.11-0.20 = above average strength, 0.06-0.10 = average strength, and 0.01-0.05 = below average strength (Rangkuti, 2014).
c) After giving weight to the factors for opportunities and threats, the next step is to calculate the rating in the third column on a scale between 5 and 1.
d) Then, the final step is to multiply the weight and rating. The result is a weighting score for each factor, with values ranging from 5.0 (outstanding) to 1.0 (poor).

e) The sum of the weighting scores or total value shows how a company reacts to its external strategic factors. The next step is to create a Cartesian diagram. The purpose of using this Cartesian diagram is to find out which quadrant position the business of the company being analyzed is in. The following is an illustration of the Cartesian diagram according to the book:(Rangkuti, 2014)



To determine the right business quadrant, calculate the difference in internal and external factor values. If the difference has been found, determine the location of the point of the difference. For internal factors, a positive value means the first point on the horizontal line to the right of 0; if negative, on the left. A positive external factor means the second point on the bottom vertical line is 0; if negative, above. Connect these two points to select the business quadrant that suits the company's strategy (Pitaloka & Aji, 2020). To strengthen the results of the Cartesian diagram, create a combination calculation table from the strategy of adding the EFAS and IFAS matrices. Choose the strategy with the largest sum as the main strategy. This is in accordance with the results of the previous Cartesian diagram. If they match, the strategy selected in the table and diagram will be the same (Sedarmayanti, 2014).

Methods

The purpose of this article is to examine the possibilities and methods for developing independent entrepreneurship in catfish cultivation to solve stunting in Semboro Village, which is located in Semboro District. The potential that will be evaluated includes production and environmental aspects that are utilized to formulate a strategic plan for the growth of catfish cultivation using an internal-external factor analysis approach.. (Su'udi & Wathon, 2018). This study was carried out from July to August 2023 on 44 individuals who were active in raising catfish in Semboro Village. The participants were divided into four regional groups: Krajan 1 with a total of 17, Krajan 2 with a total of 15, Selat with a total of 8, and Klampes with a total of 4. The research locations were classified into three categories, namely Krajan 1 Hamlet, Krajan 2 Hamlet, Klampes Hamlet, and Selat Hamlet. The data collected consists of primary and secondary information. Primary data collection is carried out by filling out questionnaires using the snowball sampling method, where the sample selection process starts with a small number of sample individuals, which will later be expanded gradually. (Darmansah et al., 2016). This survey method is in accordance with what was previously carried out by Edrus (2015). Information collection is also carried out by collaborating with various related parties to enrich the data, including fisheries instructors, individuals who collect fish, and staff who work at the Fisheries Service. Secondary data is taken from various sources, such as statistical publications, research reports, scientific publications, and relevant references..

Strategy formulation is carried out through a SWOT analysis approach which includes the identification of various strengths, weaknesses, opportunities, and threats in a structured manner. The SWOT method is used to design strategies in this way (Afrianto et al., 2019). The designed plan aims to reduce vulnerabilities and potential dangers by optimizing existing potential and

opportunities (Dumairy, 2006). The selection of respondent samples for collecting data for SWOT analysis was carried out using a purposive sampling approach. Evaluation of external and internal factors is provided by experts from the Fisheries Service. Rating assessments are carried out through interviews and surveys involving cultivators (Priandana & Sunarsi, 2021). The strategy formulation obtained from the SWOT analysis is then implemented in a series of service activities.

Results And Discussion

Development Strategy

Strategy is a means to achieve certain goals. There are three types of strategies, namely: (a) strategies in the business sector such as corporate strategy, operational or production strategy, marketing strategy, distribution strategy, and finance-related strategies; (b) investment strategies such as asset disposal strategies or the formation of new divisions, survival strategies, and market penetration; and (c) management strategies that focus on developing macro approaches by management, such as acquisition strategies, pricing, and others. (David, 2016). Based on these three types of approaches, what will be discussed here is the macromanagement strategy. Strategic decisions relate to the process of developing goals, missions, strategies, and development policies carried out by the government. Internal and external factors in planning the growth of catfish cultivation need to be given attention because of their significant impact on the continuity of business operations. Factors that influence catfish farming include the availability of infrastructure, human resources, water supply, seeds, land, institutions, capital, and markets. These factors have important, principal, urgent, medium- or long-term relevance and will determine the achievement of production targets and increase the welfare of cultivators in the future.

Matriks Internal-Eksternal (IE) Analysis

Table 2. Matriks IFAS

External Factors	Level Sig	Weight	Ratings	Score
Strength (S)				
Infrastructure	2	0,125	4	0,5
Availability Of Human Resources	3	0,1875	5	0,9375
water availability	3	0,1875	5	0,9375
Cultivator Organization	1	0,0625	3	0,1875
Weakness (W)				
Capital Limitations	2	0,125	2,5	0,3125
Limited Land	1	0,0625	1	0,0625
Small Business Scale	2	0,125	2,7	0,3375
Capital Access	2	0,125	2	0,25
Total	**16**	**1**		**3,525**

Data regarding weights, assessments, and internal factor values are presented in the form of an IFAS matrix (Table 1). The total value of the IFAS matrix is 3.525, which results from the sum of the strength factors (2.5625) and weakness factors (0.9625). In terms of strength, it can be seen that the highest value is achieved by the availability of human resources (HR) and water availability. The success of the population depends on the quality of human resources, which is an important asset for the development of agricultural activities in Semboro Village. Adequate infrastructure conditions have a significant impact on smooth operations and marketing access.

Meanwhile, in terms of limited capital and land, the weakness factor has the highest value. Limited capital is an obstacle to developing agricultural activities.

Table 3. Matriks EFAS

External Factors	Level Sig	Weight	Ratings	Score
Opportunity (O)				
1. High demand for fish	3	0,214286	4	0,857143
2. Good market potential	3	0,214286	4	0,857143
3. Advances in internet technology and ease of accessing information	3	0,214286	4	0,857143
Threats (T)				
1. Feed prices are increasing.	2	0,142857	2	0,285714
2. Changing the purpose of land into industrial and residential areas.	1	0,071429	1,2	0,085714
3. Pollution from the industrial and household sectors.	1	0,071429	1,2	0,085714
4. Limited seed supply	1	0,071429	1,2	0,085714
Total	**14**	**1**		**3,11429**

The EFAS matrix contains information about the weight, assessment, and value of external factors (Table 2). The total value in the EFAS matrix is 3.11429, which is the result of the addition of the opportunity factor score (2.571429) and the threat factor score (0.542857). In terms of opportunity factors, it appears that demand for fish is high and opportunities to access markets are good. These factors are influenced by the strategic position of Semboro Village, which is close to the city centre, and the existence of efficient market distribution channels. In the score section, it can be seen that increasing feed prices are the top threat in this aspect. Other threats to the development of catfish cultivation in this region include changes in land use to industrial or residential areas, environmental pollution, and limited seed supply.

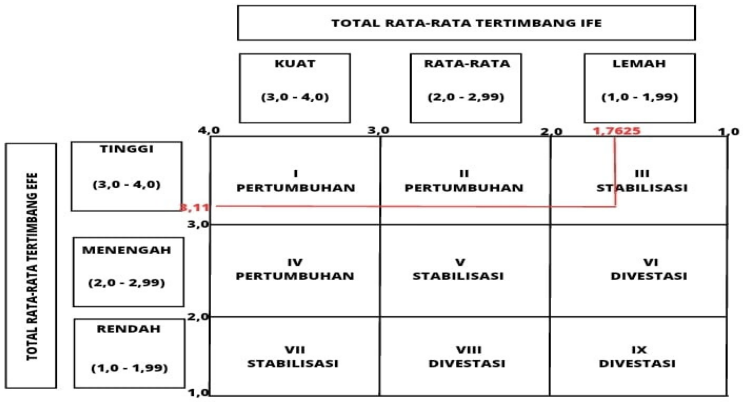


Figure 1. Matriks Internal-Eksternal

Based on IFAS and EFAS matrix analysis, it was found that the total internal factor score was 1.7623, while the external factor score was 3.11. This figure reflects that the situation of catfish cultivation development in Semboro Village is in the unfavorable category. If the score values for internal and external factors are identified using the internal-external matrix (see Figure 1), then the position of catfish cultivation development in Semboro Village is in cell 3. In other words, the recommended strategies are a growth strategy and a stability strategy. David (2016) states that a growth plan is designed to achieve growth in various aspects, such as increasing sales, profits, assets, or a combination of these. This can be achieved through improving quality, reducing prices, increasing product variety, and expanding the market. Based on this growth

strategy, steps to increase profits include product development and reducing production costs. Meanwhile, the stability strategy can be implemented without changing the previously determined strategic direction.

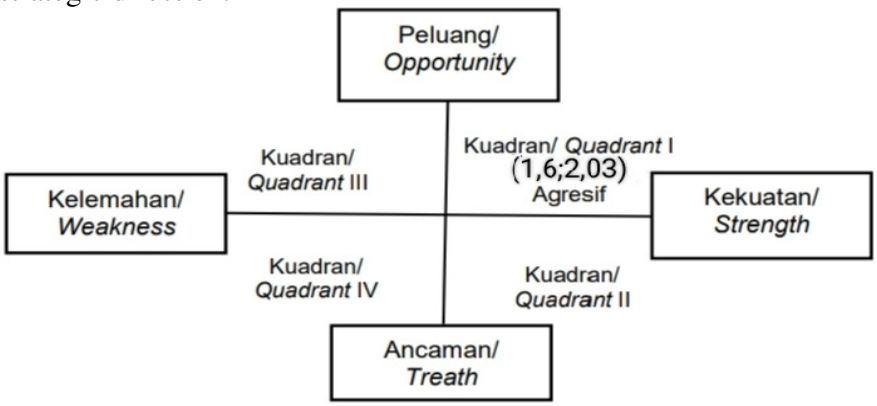


Figure 2. Matrik Space Analysis

Matriks Space Analysis

The Space Matrix is used to strengthen the location analysis and orientation of the development of catfish cultivation businesses in Semboro Village. Determining the direction of development can be achieved by identifying the coordinates of the x and y values in the space matrix. (Yuniar et al., 2015). The x value is the difference between the strength and weakness scores, while the y value is the difference between the opportunity and threat scores. Data processing from IFAS and EFAS produces an x value of 1.6 and a y value of 2.03 so the position of catfish cultivation development is located in quadrant I (Figure 2). Based on the opinion expressed by David in 2016, quadrant I describes a profitable situation, and this can be strengthened by implementing an aggressive strategy. This thinking is also in line with the views expressed by Widagdo and Pattymahu in 2022, where quadrant I indicates that the area is in a favorable position. Therefore, a strategic recommendation that can be considered is to adopt an aggressive growth policy by optimizing potential opportunities and existing strengths to increase profitability. According to David in 2016, a company's performance can be grouped into the following four situations: (a) in quadrant I, there is a favorable situation that supports an aggressive strategy; (b) in quadrant II, the company faces threats but still has internal potential, so a strategic diversification approach is needed; (c) in quadrant III, despite broad market opportunities, the company has internal weaknesses and needs to implement a turnaround strategy; and (d) in quadrant IV, the company faces various weaknesses and threats, thus requiring a defensive strategy approach.

Strategy Formulation using SWOT Analysis

Based on the analysis carried out, it was found that the opportunity factor had the highest score, with a value of 2.471429 based on Table 3. This indicates that the main factors considered in formulating the strategy were opportunities originating from high market demand and easy access to marketing due to the strategic position of Semboro Village. close to the capital.

Table 4. SWOT Factor Score Value

Strengths (S)	Value	Weaknesses (W)	Value	Opportunity (O)	Value	Threats (T)	Value
S1	0,5	W1	0,3125	O1	0,857143	T1	0,285714
S2	0,9375	W2	0,0625	O2	0,857143	T2	0,085714
S3	0,9375	W3	0,3375	O3	0,857143	T3	0,085714

S4	0,1875	W4	0,25			T4	0,085714
Total	**2,5625**		**0,9625**	**2,571429**			**0,542857**

The decision making stage is the final phase in strategy formulation (David, 2016). Decision making uses the SWOT matrix which refers to the results of the IFAS and EFAS analysis (Yuniar et al., 2015). The results of the internal and external matrix evaluations show that the development of catfish cultivation in Semboro Village is in cell position 3. In addition, in the SPACE matrix analysis, this location is located in quadrant I. Based on the information in Table 4, the main strategy to be implemented based on The SWOT matrix is an SO (strength-opportunity) strategy. This strategy will focus on utilizing strength factors in developing catfish cultivation in Semboro Village so that it can take advantage of existing opportunities. The preparation of strategic plans is carried out through the evaluation and analysis of various strengths and opportunity factors. The aim is to effectively utilize existing resources and potential to reduce existing vulnerabilities and face potential external threats.

The alternative strategy described above (Figure 4) refers to the results of the analysis of internal and external matrices, as well as the SPACE matrix. The main priority in developing catfish cultivation activities in Semboro Village is implementing the SO strategy (located in quadrant I). Therefore, it is necessary to implement technical guidance regarding environmentally friendly intensification technology, especially for beginner-level catfish farmers who do not have training experience. This aims to increase catfish production. Efforts to equalize opportunities among cultivation groups that were previously not accessible to government programs are expected to reduce the gap in cultivation capabilities throughout the Semboro Village area. Improving skills and applying technology will contribute to efficiency, productivity, and business sustainability, which will ultimately improve community welfare. The availability of seeds will significantly influence the continuity of cultivation businesses. The seeds needed are superior-quality seeds that come from high-quality parents. Management is carried out by experts from hatchery institutions that have trusted accreditation and expertise. Efforts to increase the efficiency of the function of the Fish Seed Centre (BBI) in the fisheries service are very necessary. This aims to ensure that CPIB-certified seeds can be disseminated to cultivators in Semboro Village. Thus, it is hoped that catfish production and community income in Semboro Village can continue to increase from year to year. The government is expected to be able to meet the need for seeds both in terms of quality and quantity. In recent years, advances in information technology have developed rapidly. Widespread access to the Internet has provided significant benefits in various sectors, including the fishing industry. With a large population, potential market opportunities open up. However, this opportunity is still not fully exploited. To optimize this situation, preparation is needed in terms of human resources and supporting facilities. This will enable business actors in Semboro Village to take advantage of existing information technology developments.

Table 5. Prioritization of Strategic Alternatives

No	Strategic Alternatives	Score	Total Score	Rank
1	SO	2,5625 + 2,571429	5,133929	1
2	ST	2,5625 + 0,542857	3,105357	3
3	WO	0,9625 + 2,571429	3,533929	2
4	WT	0,9625 + 0,542857	1,505357	4

Table 6. Matriks SWOT

	Strength (S) 1. Supporting facilities 2. Existing human resources 3. Availability of water supply 4. Farmer group structure	**Weaknesses (W)** 1. Limitations in financial resources 2. Limited land area available 3. Small scale business size 4. Ability to obtain capital loans
Opportunity (O) 1. High demand for fish 2. Good market potential 3. Advances in internet technology and ease of accessing information	**Strategy SO:** Activity: 1. The Mavericks team held outreach regarding the correct catfish cultivation strategy so that there was an increase in catfish production and the use of information technology as a promotional tool. This event was attended by representatives from the fisheries service as speakers. This event was attended by all catfish farmers and cadres at the village hall. Suggestion: 1. The government provides support for the implementation of training and technical guidance, encourages the use of environmentally friendly intensification technology, and provides quality seeds through the BBI Fisheries Service to increase catfish production.	**Strategi WO:** Activity: 1. The Mavericks team held an outreach regarding tips and tricks for collaborating with business partners. Suggestion: The government provides guidance and support to cultivators in applying for business capital loans sourced from social institutions or cooperatives. It is hoped that this assistance will contribute to the development of their business. Socialization and education about urban aquaculture and cultivation intensification technology.
Threats (T) 1. Feed prices are increasing. 2. Changing the purpose of land into industrial and residential areas. 3. Pollution from the industrial and household sectors. 4. Limited seed supply.	**Strategy ST:** Activity: 1. The Mavericks team holds training regarding processed catfish products, namely nuggets, so that they can support farmers' income when there is an increase in feed prices or a shortage of seeds. Suggestion: 1. Improve the welfare of the cultivating community through programs that support independent feed producers, provide high quality broodstock for quality seed production, and monitor feed quality as part of the sustainability of aquaculture operations. 2. Development of an Integrated Horticulture Center to meet various needs related to	**Strategy WT:** Activities: 1. The Mavericks Team organizes outreach on the application of science and technology and feed management in order to reduce production costs and maximize the quality and quantity of production so that profits increase. Suggestion: 1. Recommendations for formulating a RTRW that accommodates the needs of fish cultivation land, as well as coordinating between related agencies to protect cultivation land from land conversion by considering the potential of the region and the physical environment.

	development, monitoring, testing, management and development of plant technology. 3. Optimizing the role of cultural institutions, especially related to the accuracy of group data so that government assistance programs can be more targeted and effective.	

Evaluation and Development Strategy for Catfish Cultivation in Semboro Village

Catfish cultivation is one subsector that contributes to food and employment. The growth of this subsector requires a strategy supported by reliable and complete information. Strategy formulation is needed so that fisheries development can have a significant impact on people's welfare. Talking about SWOT analysis referring to the results of the internal – external matrix analysis and spatial matrix, the strategic priority is in quadrant I (SO strategy). In this regard, several alternative strategies must be implemented, including: (1) The government needs to facilitate the BBI Fisheries Service to carry out technical training/consultation activities, apply environmentally friendly intensive cultivation technology and provide quality seeds to increase the production of smooth skin fish, especially in the northern region; (2) Utilization of information technology to expand market distribution and business development, as well as strengthen cooperation between business actors in the spirit of mutual benefit.

Conclusion

Catfish is one of the staple foods in freshwater fish cultivation in Semboro village. The last few years show that catfish production is the highest and continues to increase. However, this subsector currently faces a number of challenges, namely, catfish production in Semboro Village has decreased in recent years. With the issuance of Jember Regency Government Regulation Number 40 of 2018 concerning Position, Organisational Structure, Duties and Functions, and Work Procedures of the Jember Regency Fisheries Service, the main task of the Fisheries Protection Service is to assist the Management Service in formulating policies, coordinating, coaching, and controlling government affairs in the fisheries sector, which is the authority and assistance task of the regional government. Alignment of strategic direction and policies outlined in business plans can help improve government performance. Each activity is targeted to bring results for the beneficiaries as well as benefits for the farming community (benefits). The activities that have been carried out by the Mavericks Team are based on the results of the SWOT analysis strategy, namely carrying out socialization regarding effective and efficient catfish cultivation production strategies, using information technology as a means of promotion, tips, and tricks for collaborating with partners, as well as conducting training regarding processed products from catfish, namely nuggets. From the results of the SWOT analysis, it is recommended that the government develop a policy to optimize the strengths and opportunities for developing catfish cultivation in Semboro Village as a step in creating independent entrepreneurs as well as fulfilling nutrition to solve stunting. The proposed policy priorities focus on increasing output and expanding market distribution. The procurement of high-quality CPIB-certified seeds and the implementation of environmentally friendly crop intensification technology training are very necessary in order to increase yields, efficiency, and close capacity gaps, as well as the application of agricultural technology on all Semboro village land.

optimizing the function of the Fish Breeding Centre (BBI), the output of which is the provision of quality seeds from superior broodstock managed by recognized and knowledgeable hatchery experts. The importance of expanding the field of marketing and business development by using information technology and increasing cooperation between growers Information technology can speed up the communication process as a source of information to facilitate the purchase of plant needs and the marketing of harvests.

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