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Potential Identification and Business Development Strategies for Freshwater Fish Cultivation in Ogan Komering Ulu District

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A B S T R A C T

Indonesia as a large population country has the potential to become one of the largest consumers of sugar in the world. Indonesia's national sugar needs amounted to 3.2 million tons per year while domestic production was around 2 million tons. In the sugar industry, the benefits of evaporator tools are to thicken clear juice whose dissolved solid number is 7 - 11 ºBrix into a thickened syrup with a dissolved solid of 55 - 60 ºBrix, this process occurs through the process of evaporation of water content contained in the material. In one sugar factory the type of evaporator used is a Semi-Kestner Evaporator with quintuple effect principle. One of the biggest challenges of evaporators is the decrease in heat value of the evaporator due to the onset of mineral crust that inhibits heat transfer. On September 7th, 2021 Q evaporator 1 is at 135874.8 Kw and on October 26th, 2021 Q evaporator 1 is at 121399.2 Kw. Based on the results of data observations on the evaporator carried out in the time span of September 2021 and October 2021, it can be concluded that the decreased heat transfer will cause the evaporator's performance in evaporating water from the sap material (clean juice), so that the material flow rate is getting bigger. Efforts that can be made to overcome this are to carry out mechanical cleaning or chemical cleaning per 28 days of the grinding process, to remove crusts on the tube calandria evaporator.

1. INTRODUCTION

1.1. Research Background

Indonesia is very rich in rivers, swamps, lakes, rice fields, ponds, and the sea. This natural wealth is a gift towards the development of fisheries, both inland fisheries, and marine fisheries. All kinds of fishery products are sources of high protein foods. Aquaculture is an effort to raise and obtain fish, both fish that are still living in nature or have been made separate places with human intervention. So, cultivation is not just keeping fish in ponds, ponds, ponds, aquariums, swags, etc. However, broadly, this cultivation includes activities for cultivating fishery commodities in lakes, rivers, reservoirs, and the sea.

Freshwater aquaculture is currently being developed due to the high demand for fish for consumption. If only relying on the harvest of marine fish depends on the season and sea waves, then consumer demand cannot be fulfilled. It is different from freshwater fish farming which is very easy to develop and the supply of production is more certain because it does not depend on the season, wind, and waves. Freshwater aquaculture is one of the businesses that has bright prospects. From an economic point of view, this business provides promising benefits. With good processing, freshwater fishery commodities become superior. Rivers, lakes, and streams are put under pressure by several human activities such as domestic, industrial, and agriculture. So there is a likelihood of a water crisis in the future if the channelization of streams and rivers is not regulated. Therefore alternative water sources such as rainwater and underground water can be " plan B" for the future of freshwater aquaculture [1].

Based on FAO data (2014) in 2012 Indonesia was ranked 2nd for capture fisheries production and 4th for aquaculture production in the world. This fact can illustrate that Indonesia's fisheries potential is very large so if it is managed properly and responsibly so that its activities can be sustainable, it can become one of the main sources of development capital in the present and the future. This enormous fishery potential can sustainably provide maximum benefits for the country and the people of Indonesia if managed properly and responsibly.

Average fish consumption in OKU County ranges from 3 tons-5 tons per day, of the total needs only about 20 percent were met by OKU County. To meet the demand for fish in OKU, it is still supplied from outside OKU such as Lampung, East OKU, and Ogan Komering Ilir. Fisheries in Ogan Komering Ulu District

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are dominated by pond fisheries with a total fishery area of 581.18 hectares, while the area of cage fisheries is only 77.78 hectares. The leading fishery commodities are carp, tilapia, catfish, and catfish.

According to statistical data OKU [2], Fisheries in Ogan Komering Ulu District are dominated by pond fisheries with a total fishery area of 581.18 hectares, while the area of cage fisheries is only 77.78 hectares. The leading fishery commodities are carp, tilapia, and catfish. Carp cultivation is widely available in the Districts of Ulu Ogan, Pengandonan, and Muara Jaya. Tilapia in almost all sub-districts of OKU district and catfish in Lubuk Batang, Sosoh Buay Termite, and East Baturaja sub-districts.

Ogan Komering Ulu District has the potential to cultivate freshwater aquaculture, seeing that aquaculture production has increased production and has the potential for development in the freshwater aquaculture sector. Cultivators still face obstacles, including the gap in the aquaculture sub-system from upstream to downstream, for example, the lack of availability of fish seeds that have not been able to meet the needs of farmers. One of the reasons for this is the limited facilities and infrastructure for hatcheries. In addition, the ability of business actors who are still doing business traditionally. Lack of government role in supporting aquaculture to the community. Another problem related to marketing the policy of limiting marketing quotas to outside the region is suspected to be an obstacle to the development of aquaculture.

Freshwater aquaculture has the potential to be developed more widely so that it can increase income for the community by opening or developing a freshwater aquaculture business. Aquaculture Production by District and Year in OKU District 2017-2021 can be seen in Table 1.

1.2. Literature Review

1.2.1. Freshwater Aquaculture Fishery Concept

Aquaculture means maintenance and freshwater are abiotic (aquatic animal or plant) and abiotic aquatic resources in a freshwater environment. Freshwater aquaculture in the context of the field of a fishery means the activities of maintaining aquatic biota resources in a controlled freshwater environment carried out by humans. Aquaculture activities are also a productive economic business activity for welfare purposes [3].

Freshwater fish farming is easier to do than seawater fish. Places for freshwater fish cultivation can be reservoirs, rivers, and ponds. Various kinds of freshwater fish can be developed such as tilapia, gourami, carp, koi fish, and also catfish. Technically, freshwater fish farming is profitable because fish have a high economic value. Besides that, fish is also very supportive of fulfilling community nutrition [4].

1.2.2. Types of Freshwater Aquaculture

a. Fish Cultivation Techniques in Floating Net Cages

Cultivation of fish in floating net cages (KJA) is raising fish in containers (usually in the form of cubes or blocks) that are floated (floated) in water, all sides are covered with material that serves to hold/confine the fish in it, by allowing water exchange freely and allow the seepage (escape) of waste (metabolic waste or feed residue) into the waters [5]. According to Asmawi [6], Traditional marine cage technology by the community which is now used in reservoirs is usually 98 m3 or more in size and has a low stocking density of 40 fish/m3, giving low yields ranging from 20-25 kg/m3. The stocking density of fish in traditional KJA is generally 40 fish/m3, which will produce a harvest of around 20-25 kg/m^3 [7].

According to Ref. [8], the impacts that must be taken into account in the development of floating nets in reservoir or lake waters are:

1) Increased nutrients in the waters as a result of leftover feed and fish waste that escapes into the waters, resulting in eutrophication (nutrient enrichment) in the waters.
2) If the handling of fish in the KJA is not good, there will be a high risk of the fish getting disease, and has the potential to spread to other fish outside the KJA.
3) The increasing demand for fish meal for fish food ingredients, so the price of the fish meal becomes expensive and difficult to obtain in the market.
4) Increasing the business of catching small fish for fish meal ingredients so that fishery resources will be under pressure from aquaculture.
5) If the fish that are kept are released into the waters, it will harm native fish in the waters.
6) The area of the waters will be partially disturbed by the presence of KJA, if the arrangement is If the space is not good, it will result in obstructing transportation, disturbing the hydropower turbine, and disturbing water attractions.

b. Fish Cultivation in Fast Water Pond

A rush water pool is a pool that has a large enough water discharge so that in a matter of minutes the entire volume of water can be replaced. A swift water pond is a place for fish rearing whose water flows continuously. The technology for making this swift water system pond was adopted from Japan. The first time this swift water system pool technology was introduced in Indonesia was in the early 80s. The location of the swift water pond must have a constant water source, large discharge, and flow throughout the year. The water level for swift water ponds used for fishing should be less than 800 meters above sea level. If the altitude exceeds this limit, the air temperature will be cooler so which affects the growth of aquaculture [9].

The weakness in the swift water pond cultivation system is that it requires a large amount of feed so there is a need for management of feeding in rush water ponds to pay attention to the density or amount of feed given because of the risk of losing feed due to very high water currents, one of which is by using feed containers. a pendulum system (a feed container that is stored above the water surface) so that the feed given is following the needs [10].

1.2.3. Previous Research

As an illustration of the research that has been used and the findings resulting from research with the same theme, a review of previous research is carried out (Table 2)

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Table 1. Aquaculture Production by District and Year in OKU District 2017-2021

Subdistrict		Total Production of Fish Farming (Tons)				
		2017	2018	2019	2020	2021
(1)		(2)	(3)	(4)	(5)	(6)
1	Lengkiti	12.000	6.862	6.877	7.022	13.045
2	Sosoh Buay Rayap	32.500	26.053	29.760	34.390	40.110
3	Pengandonan	35.000	37.067	37.586	38.198	40.026
4	Semidang Aji	22.500	40.527	41.869	43.408	51.850
5	Ulu Ogan	11.500	24.270	25.610	25.743	26.304
6	Muara Jaya	11.000	8.111	8.785	9.024	7.105
7	Peninjauan	21.500	42.974	43.080	43.301	39.401
8	Lubuk Batang	23.000	57.971	64.635	65.446	63.360
9	Sinar Peninjauan	13.000	27.818	27.841	27.552	21.965
10	Kedaton Peninjauan Raya	9.000	2.609	-	-	2.119
11	Baturaja Timur	52.000	67.237	71.215	72.782	80.257
12	Lubuk Raja	33.000	17.764	22.289	22.642	29.116
13	Baturaja Barat	27.500	56.938	56.943	57.214	49.925
Total		**303.500**	**416.201**	**436.490**	**446.711**	**464.583**

Table 2. A review of previous research that has been carried out

Researcher	**Research Title**	**Analysis Tool**	**Results**
Shafitri and Soejarwo [11].	Potential and Opportunities for Aquaculture Development in the Anambas Archipelago District	SWOT analysis	The actual condition of the aquaculture business in KKA, obtained the results of internal factor analysis (AFI) in terms of strengths and weaknesses 3,828. In the strength component, the most influential attribute in supporting aquaculture business is aquaculture business actors (HR) who have a score of 0.825, and the quality of aquatic resources with a score of 0.795. Weakness components, the most influential attribute in supporting aquaculture business are pest and disease constraints with a score of 0.171 and the absence of Fish Seed Center with a value of 0.133. Policy Implications The recommendation of the best alternative strategy from the results of the SWOT analysis is in quadrant 1 of the SO strategy, namely maximizing the strengths and opportunities components of the aquaculture business.
Ichtifa, Wiryati and Anas [12].	Potential and Problems of Aquaculture in Caringin District, Sukabumi District, West Java Province	SWOT analysis	Based on the calculation results, the highest value is W–O, namely Weaknesses are weaknesses and Opportunities are opportunities, so using SWOT analysis, the W–O approach with a value of 3.40 is how to take advantage of opportunities to reduce existing weaknesses.
Rumimpunu, Andaki and Manopo [13].	Potential Development of Catfish (Pangasius sp) Cultivation Business in Tatelu Village, North Minahasa District	SWOT analysis	Fish fry is easy to obtain, have a strong immune system and has a lot of interest from sellers, and only requires low cost with the percentage of the strength of 36.36% of 11 respondents. Opportunity for a low maintenance period has a fairly competitive price of 45%, but the highest threat which in marketing lacks interest from consumers is also 72.72%. Alternative grouping is carried out in the strategy of developing a catfish farming business in Tatelu village.

1.3. Research Objective

This study aims to (a) Identify and analyze the potential for developing freshwater aquaculture in Ogan Komering Ulu District; (b) find strategies to develop the potential for developing freshwater aquaculture businesses in Ogan Komering Ulu District. The results of this study are expected to provide additional insight in responding to possible problems, as well as in making decisions in the freshwater aquaculture business for fishery groups; an additional input in completing the material for consideration in formulating fisheries sector development policies, especially freshwater aquaculture for for related agencies, and for researchers, this research is a first step in the application of science and as an experience that can be used as a reference.

2. MATERIALS AND METHODS

2.1. Preparation of sample

This research was conducted in Ogan Komering Ulu District. The research was carried out from December 2021 until it was completed. The method in this study used the survey method [14]. The sampling method used in this study is the saturated sample method. In this study, 71 respondents were selected with the following details:

Respondents from the State Civil Apparatus (ASN) of the Government of Ogan Komering Ulu District consisting of 1 Head of the Fisheries and Livestock Service, 2 people from the Fisheries Division within the scope of the Fisheries and Livestock Service Office of Ogan Komering Ulu District, 5 Field Fisheries Extension Officers, 2 fish feed traders and 3 consumers. Respondents from freshwater fish farming farmers in East Baturaja District were 58 farmers as samples.

The data used in this study is secondary data in the form of time series, namely GRDP (Gross Regional Domestic Product) of Ogan Komering Ulu District in 2017-2021. This GRDP data will be processed to determine the potential of freshwater fish farming by performing calculations using LQ (Location Quotient (LQ)) and Shift Share analysis tools. Furthermore, the researchers conducted observations using secondary data regarding the barriers and opportunities for freshwater fish farming in Ogan Komering Ulu District and then determined what strategies were appropriate to be used in overcoming the obstacles to develop these opportunities.

2.1.1. ***Data Processing and Analysis Method***

The data collection method is a qualitative data collection method that is exploratory and is primarily concerned with gaining insight and understanding of the underlying reasons and motivations. Qualitative data collection methods emerged after it was discovered that traditional quantitative data collection methods cannot express human feelings and emotions.

The data processing method is a procedure of the data presentation process which includes various things such as data collection, data organization, data summarization, to data presentation. This study performs data processing using descriptive statistics. Descriptive statistics is a data processing method that provides an overview of the data. To answer the first objective, analysis is used *location Quotient* (LQ) and *Shift-Share* analysis

2.1.2. Analysis Location Quotient (LQ)

Location quote (location quotient) or abbreviated as LQ is a comparison of the magnitude of the role of a sector/industry in an area to the magnitude of the role of that sector/industry nationally. Many variables can be compared, but the common ones are value added (income level) and several jobs. The following is used is the added value income level [15].

If LQ > 1, it means that the role of the sector in the region is more prominent than the role of the sector nationally. On the other hand, if LQ < 1, the role of the sector in the region is smaller than the role of the sector nationally. LQ > 1 indicates that the role of sector i is quite prominent in the area and is often an indication that the region has a surplus of sector i products and exports them to other regions. These regions may only export products to other regions or abroad because they can produce these products cheaper or more efficiently. On that basis, LQ > 1 indirectly indicates that the region has a comparative advantage over the sector i in question [15].

The formula is as follows.

$$LQ = \frac{\frac{xi}{GDP}}{\frac{Xi}{GNP}}$$

where:

xi = added value of sector i in an area
GRDP= Gross regional domestic product of the area
Xi = Value added of sector i nationally
GNP = Gross national product or GNP

2.1.3. Analysis Shift-Share

Analysis *shift-share* comparing the differences in the growth rates of various sectors (industry) in the regions with the national regions with a sharper method and detailing the causes of changes in several variables. This analysis uses the method of isolating various factors that cause changes in the industrial structure of a region in its growth from one period to the next. This includes the breakdown of the factors causing the growth of various sectors in a region in relation to the national economy [15].

The relationship between these components can be stated as follows:

1) Dij= Nij+ Mij+ Cij or Dij = Eij* - Eij
2) Nij = Eij x rn
3) Mij = Eij (rin– rn)
4) Cij == Eij (rij –rin)Where:

Eij :Job opportunities in the sector i area
Ein :Job opportunities in national sector i
rij :The growth rate of sector i in area j
rin :National sector i growth rate
rn: National economic growth rate

Component *Differential Shift* (Dij), measures the magnitude of the net shift caused by certain sectors that grow faster/slower in districts compared to South Sumatra Province. Locally the business sector is not profitable if the Differential Shift value is negative (Dij<0) and vice versa locally the business sector is profitable if the Differential Shift value is positive (Dij>0).

Meanwhile, to answer the second objective, namely the strategy used in the development of freshwater aquaculture, a SWOT analysis is used. Ref. [16] states that SWOT stands for the Internal Strength and Weakness environment as well as the external Opportunities and Threats environment faced by the business world. SWOT analysis compares external opportunities and threats with internal strengths and weaknesses.

A SWOT analysis according to Ref. [17] is defined as an evaluation of the overall strengths, weaknesses, opportunities, and threats. SWOT analysis is one of the widely known instruments for analyzing the company's internal and external environment. This analysis is based on the assumption that an effective strategy will minimize weaknesses and threats. When applied accurately, this simple assumption has a profound impact on the design of a successful strategy. SWOT analysis is used in analyzing an activity that produces four sets of strategies (SO,

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WO, ST, and WT) that can be utilized or used in socio-economic and business analysis. According to Ref. [18], the visualization of the SWOT analysis or SWOT Analysis can be shown in Figure 2.

The arrow in Figure 2 illustrates that the four factors in SWOT can influence each other and even change places. Threats can become opportunities and vice versa, even internal factors such as weaknesses in certain situations can become opportunities.

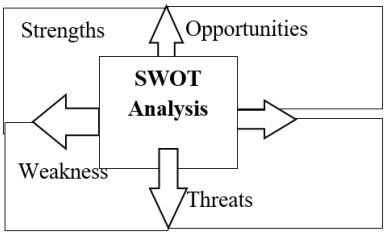

Figure 2. SWOT analysis [18]

3. RESULT AND DISCUSSION

3.1. Potential Development of Freshwater Aquaculture

3.1.1. Analysis Location Quotient (LQ)

Base and non-base sector analysis using analytical techniques *Location Quotient* (LQ) to determine whether the freshwater aquaculture business is a basic or non-base sector in Ogan Komering Ulu District. This technique compares the magnitude of the role of a sector in an area (district) against the magnitude of the role of that sector in the provincial sector. If the index LQ>1 then the sector is the base sector, while LQ=1 then the sector is only able to meet the demand for the region, while LQ<1 then the sector is a non-basic sector. After processing the GRDP data per sector, the index value is obtained *Location Quotient* which can be seen in Table 3.

The calculation results *Location Question*(LQ) of Ogan Komering Ulu District from the period 2017-2021 shows that freshwater aquaculture business in Ogan Komering Ulu District shows results that fishery and forestry businesses are included in this case freshwater aquaculture with an LQ value of 1.09 where the LQ value is > 1 This means that this business sector can meet the needs in the Ogan Komering Ulu District area and even meet the needs in other regions so that this sector is basic and has the potential to be developed as a driver of economic growth in Ogan Komering Ulu District. The results obtained are following the results of studies by Ref. (2022) [19], and Ref. [20], which show that freshwater fisheries in Ogan Komering Ulu District are the basis and are superior products.

3.1.2. Analysis Shift-Share

Analysis *shift-share* comparing the differences in the growth rates of various sectors (industry) in the regions with the national regions with a sharper method and detailing the causes of changes in several variables. The results of the calculation of the Shift Share analysis are described in Table 4.

Based on Table 4, it can be seen that the components of *Differential Shift* (Dij) are 59909657,14 or Dij>0 then locally, the freshwater aquaculture business sector is profitable. This study is in line with the research of Ref. [19] where freshwater fisheries in Ogan Komering Ulu District have positive growth and have contributed to the Gross Domestic Product (GDP) income of Ogan Komering Ulu District.

Table 3 Calculation Results of *Location Quotient* Index

Business field	Year					Average	Information
	2017	2018	2019	2020	2021		
Agriculture Fisheries and Forestry	1.011531	0.996186	0.972858	1.232388	1.24072	1.09	Basis

Table 4 *Shift Share* Analysis Results

Business field	Nij	Mij	Cij	Dij	Information
Freshwater Fishery	36598685.41	-11931355.36	35242327.09	59909657.14	Profitable

3.1.3. SWOT Analysis

In conducting a SWOT analysis, the main thing that must be done is to carry out an IFAS (Internal Factory Analysis Summary) and EFAS (External Factory Analysis Summary) analysis which is used with a weight and rating assessment approach so that the scoring values are obtained as Table 5 and Table 6.

Based on the table6 it was found that the sub-total for the weight of the internal strength factor value was 0.62 with a score of 2.27. The sub-total internal weakness factor is 0.38 with a score of 0.40. From the results of the combined internal factors of strengths and weaknesses, a total score of 1.00 and a total score of 2.67 was obtained.

Based on Table 6, it is found that the sub-total for the weighted value of the external opportunity factor is 0.72 and a score of 2.74 is obtained. The sub-total external threat factor is 0.28 and a score of 0.40 is obtained. From the combined results of external opportunities and threats, a total value of 1.00 is obtained with a total score of 3.14. Then the score difference between the external factors of opportunity and threat is 1.14.

From Table 5, it is obtained that the score for the strength factor is 2.27 and the score for the weakness factor is 0.40. Meanwhile, Table 4.5 shows that the score for the opportunity factor is 2.74 and the score for the threat factor is 0.40. The strength score was above the weakness score with a difference of (+) 1.67, while the opportunity score was below the threat score with a difference of (+) 2.34.

Table 5. Matriks Internal Factor Analysis Summary (IFAS)

Internal Factors:	Weight	Rating	Score
Strength:	0.13	4	0.52
Abundant water resources			
Land resources available	0.11	4	0.44
Labor available	0.12	3	0.36
Strategic place between several districts and traversed by the causeway	0.09	3	0.27
Quality freshwater fish farming products	0.10	4	0.40
There is transportation for freshwater farmers to transport their produce	0.07	4	0.28
Sub-Total	**0.62**		**2.27**
Weakness:	0.08	1	0.08
There is no partnership cooperation between freshwater fish farmers and business partners			
Freshwater fish farming farmers only rely on seeds purchased from investors	0.04	2	0.08
Freshwater fish farming farmers do not use technical assistance in the maintenance process	0.07	1	0.07
Some freshwater fish farming farmers make this a side job	0.06	1	0.06
Farmer's skill is still low	0.08	2	0.16
It takes a lot of capital to build a new pond/cage	0.05	1	0.05
Sub-Total	**0.38**		**0.40**
Total	**1.00**		**2.67**

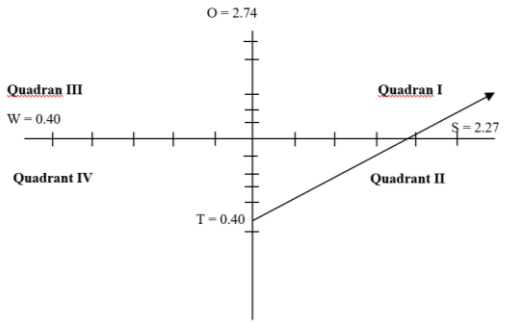

Figure 3. SWOT Grand Strategy Diagram

Information:
Quadrant I: *Opportunities*/ chance = 2.74
Quadrant II: *Strength*/ strength = 2.27
Quadrant III: *Weakness*/ weakness = 0.40
Quadrant IV: *Threat*/ threat = 0.40

In Figure 3, it can be seen that the values of S and O in quadrant I are very large compared to the values of W and T, so it can be said that the freshwater aquaculture business in Ogan Komering Ulu District can be developed using strength by using opportunities. which exists. Thus, this is a very favorable situation where Ogan Komering Ulu District has a freshwater aquaculture business in Ogan Komering Ulu District which can be carried out by taking advantage of existing opportunities. The following, as described in the form of a SWOT diagram.

Table 6. Matrix of External Factor Analysis Summary (EFAS)

External Factors:	Weight	Rating	Score
Opportunity :			
The population is increasing every year	0.12	4	0.48
The existence of customer trust and loyalty to freshwater fish farmers	0.14	3	0.42
Public awareness of animal protein from freshwater fish as demand increases	0.14	4	0.56
The desire of farmers to promote freshwater fish farming continues to increase	0.13	4	0.52
The demand for freshwater fish is quite high in the market	0.11	4	0.44
Government policies that support the existence of farmer groups	0.08	4	0.32
Sub-Total	**0.72**		**2.74**
Threat :			
Very high feed prices	0.08	1	0.08
There is a farmer price oligopoly	0.03	2	0.06
Climatic factors and pollution	0.04	1	0.04
Decrease in freshwater fish production	0.06	1	0.06
Lack of safety factor	0.03	2	0.06
Pests and diseases that attack freshwater fish farming	0.05	2	0.10
Sub-Total	**0.28**		**0.40**
Total	**1.00**		**3.14**

4. CONCLUSION

Based on the analysis of the results of research that has been done, it can be concluded that the freshwater aquaculture business in Ogan Komering ulu District is a basic/superior business so it is very good to be developed because it has potential and contributes. Strategies that can be used in the development of Freshwater Fish Cultivation in OKU District are: (1) SO Strategy (Growth): Optimization of land by using the Ogan river as a cage/fish pond; Increasing the government's role in supporting the marketing of freshwater fish products in OKU; Increased production to meet market demand; (2) WO Strategy (Stability): Involving other parties/partners in helping with marketing and capital, Increased government participation in the procurement of freshwater fish seeds, Technical training and counseling for freshwater fish farming farmers; (3) ST strategy (Diversification), Doing cultivation with different types of fish, Increase the production of freshwater fish, Increase cooperation with stakeholders to increase the continuity of seeds and production; (3) WT Strategy (Defend): Improving the quality of seed resources technically to maximize production and the competitiveness, the government provides counseling and adoption of hatchery technology, cooperate with business partners in terms of promotion and marketing. So that freshwater aquaculture farmers can optimize land use in the area along the Ogan River in the development of freshwater aquaculture fisheries. For relevant agencies in the effort to develop freshwater fish aquaculture to be able to provide counseling and technical training to farmers.

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Table 7. Matrix of SWOT Analysis Development of Freshwater Aquaculture in the District Ogan Komering Ulu

Internal Factor	**Strength**	**Weakness**
	1. Abundant water resources 2. Land resources available 3. Labor available 4. Strategic place between several districts and traversed by the causeway 5. Quality freshwater fish farming products **6.** There is transportation for freshwater farmers to transport their produce	1. There is no partnership cooperation between freshwater fish farmers and business partners 2. Freshwater fish farming farmers only rely on seeds purchased from investors 3. Freshwater fish farming farmers do not use technical assistance in the maintenance process 4. Some freshwater fish farming farmers make this a side job 5. Farmer's skill is still low 6. It takes a lot of capital to build a new pond/cage
External Factor	**SO Strategy (Growth)**	**WO Strategy (Stability)**
Opportunities 1. Access to credit 2. Availability of seeds and Fertilizers 3. Availability of assistance with means of production 4. Government support in the construction/rehabilitation of irrigation channel	1. Optimization of land by using the Ogan river as a cage/fish pond 2. Increasing the government's role in supporting the marketing of freshwater fish products in OKU 3. Increased production to meet market demand	1. Involving other parties/partners in helping with marketing and capital 2. Increased government participation in the procurement of freshwater fish seeds 3. Technical training and counseling for freshwater fish farming farmers
	ST Strategy (Diversification)	**WT Strategy (Defend)**
Threats 1. Very high feed prices 2. There is a farmer price oligopoly 3. Climatic factors and pollution 4. Decrease in freshwater fish production 5. Fish theft often occurs 6. Pests and diseases that attack freshwater fish farming	1. Doing cultivation with different types of fish 2. Doing cultivation with different types of fish 3. Increase cooperation with stakeholders to increase the continuity of seeds and production	1. Improving the quality of seed resources technically to maximize production and the competitiveness 2. The government provides counseling and adoption of hatchery technology 3. Cooperate with business partners in terms of promotion and marketing

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