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Study Of The Marketing Development Of Tilapia (Oreochromis Niloticus) In Soppeng Regency

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Abstract

This research examines the policy strategy for developing tilapia marketing in Soppeng district. Marketing development is needed to achieve equal distribution of profits from the tilapia business for marketing institutions. The PPA was carried out through a meeting of coastal area management planning experts, as part of the development of tilapia marketing. PPA aims to involve stakeholders to produce identification and definition of key variables, definition of future state variables, scenario building, and formulation of strategies and anticipated actions. The FGD results obtained 6 variables with the highest scores, namely consumer understanding, digital marketing, market demand, government support, distribution and supply chain, sustainable marketing. In this context, the participants created implementation strategies and anticipatory actions, (1) Providing education to people who will become consumers about the importance of consuming fish that is rich in nutrients; (2) digitizing tilapia fish business actors; (3) Pay attention to and record the stock and demand for Tilapia fish; (4) paying more attention to business actors (fishermen and fish farmers) as a measure for regional food security; (5) Providing opportunities and supporting the Tilapia distribution and supply chain (6) Creating a fisheries system from raw materials, then processing them carefully so that no waste is left, then creating a culinary village program containing fishing spots for consumers and restaurants with a fisheries menu . The strategic implications and anticipatory actions above are stakeholder needs that can be met through intervention in various determining variables in Tilapia Marketing Development.

Keywords: ***Participatory Prospective Analysis, Stakeholders, Tilapia Fish Marketing, Soppeng Regency***

1. Introduction

Over the last three years, tilapia production has grown by 19.91 percent per year, increasing from 46,627 tons in 2015 to 97,116 tons in 2020. In 2022, tilapia production will reach 195,000 tons, and 70 percent of this

production will reach 0.0013 tons. dedicated to the local market. The remaining 30% or 60,000 tons is intended for export. The Indonesian Tilapia Development Centers which are strategically concentrated in West Sumatra, North Sumatra, Jambi, South Sumatra, Lampung, West Java, Central Java, East Java, South Kalimantan and South Sulawesi play an important role in achieving these production figures (Yuliyarabihati, 2016).

Tilapia stands out as an important fish product because it is popular among Indonesian people. This popularity is supported by several factors that show the importance of Tilapia fish products. First, tilapia is a freshwater fish that is famous for its resistance to various water qualities and environmental conditions, both brackish and fresh water. This adaptability, combined with strong growth capacity, contributes to the visibility of tilapia as an important and desirable commodity in the fishing industry (Aliyas et al., 2016).

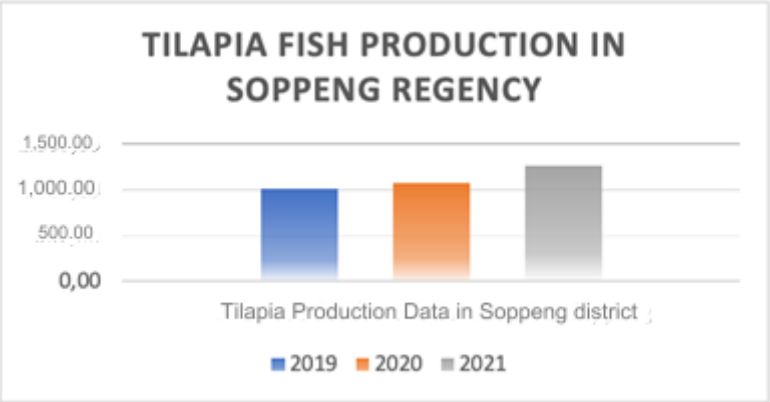

Figure 1. Tilapia Fish Production in Soppeng Regency

Tilapia fish production in Soppeng Regency grew extraordinarily rapidly in 2019, reaching 1010.87 percent. Apart from that, in 2020, production levels were still at a high level, namely 1,077.45 and this positive trend continued until 2021, where it continued to increase until it reached 1,268.44. This extraordinary growth shows the development of the tilapia industry in Soppeng Regency for three consecutive years.

Soppeng Regency has a tilapia breeding center which is famous for producing quality tilapia seeds. According to the Soppeng Regency Livestock, Fisheries and Animal Health Service, these superior seeds have been distributed to several cities in Indonesia, including Gorontalo, Kendari, West Sulawesi, Palembang, Samarinda, Kediri and West Sulawesi. The geographical features of the region, characterized by extensive rivers and lakes, create a favorable natural environment for tilapia farming, indicating promising opportunities for the industry.

Apart from that, the active participation of the local government can also be seen through initiatives such as the distribution of protected ponds and the socialization of biofloc cultivation techniques in every village in Soppeng Regency. These measures are in line with broader government programs focused on food security. This integrated support shows the regional government's strong commitment to encouraging the development of tilapia fish products which reflects a forward attitude in improving the fish farming sector in the region.

Based on the findings obtained, the distribution of Tilapia fish seeds in Soppeng Regency is very wide. However, marketing of ready-to-consume Tilapia fish in this district has not yet reached the national market and is still local at the district level. Therefore, it is necessary to initiate the development of Tilapia Fish Marketing to increase the income of Tilapia cultivators and fishermen in Soppeng Regency.

2. Methods

Time and Location of Research

This research was conducted in Soppeng Regency in November 2023. This location was chosen deliberately (purposive sampling). The research method used is a survey method.

Data analysis method

Prospective analysis is a method or approach to study possible outcomes that may occur in the future based on the current situation. It represents an evolution of the Delphi method, which combines the views of a group of experts in the field with political decision making and strategy. The process goes through the following steps; (1) Establishing the objectives of the system being studied is the first step. These goals must be specific and universal and understood by all experts whose opinions are consulted. This ensures that

experts understand the scope of the research and share a collective understanding of the relevant systems. This research focuses on marketing promotion of tilapia fish in Soppeng Regency; (2) The next step is to identify the factors that influence the achievement of these goals, usually taking into account the needs of the stakeholders of the system being studied. In accordance with the goals that have been set, the task of experts is to know the factors that play an important role in realizing these goals. In connection with this research, it is important to know the factors that influence the progress of tilapia marketing; (3) Assessment of direct influence between factors. All identified factors were assessed for direct influence between factors. Assessment guidelines can be seen in Table 1.

Table 1. Prospective Analysis Assessment Guidelines

Score	Influence
0	No Influence
1	Little Influence
2	Medium Influence
3	Very strong influence

The combined matrix of expert opinions is processed with prospective analysis software using statistical methods to calculate global direct impact, global dependence, global power, and weighted global power. The calculation results are then presented in the form of a visual presentation using a diagram of the influence and dependency of factors, as shown in Figure 2

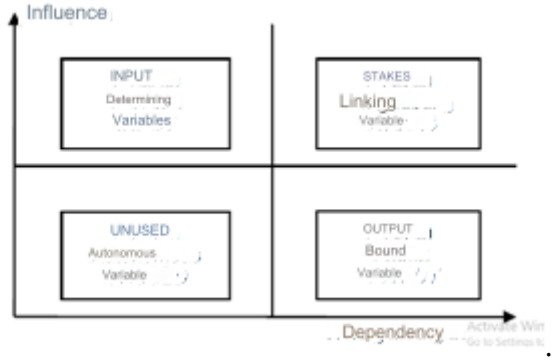

Figure 2. System Influence and Dependencies

(4) Organization of possible factor conditions: Based on the dominant factors identified in step 3, possible conditions that may arise in the future are systematically arranged. Each factor can cover several conditions, thereby ensuring that the conditions are not speculative but have a high probability of occurring in the future. This condition is a descriptive description of the situation related to each factor, not an indicator of the size or magnitude of the factor (for example large, medium, small, good or bad); (5) Building and selecting scenarios. Scenarios are prepared based on a combination of relationships between several factors that are reciprocal (mutually compatible) from the most optimistic to the most pessimistic; (6) Scenario analysis and strategy development. Based on the scenarios that have been prepared in the previous stage, strategies are discussed that need to be carried out to achieve the desired scenario, or avoid scenarios that have a negative impact on the system

3. Results and Discussion

Determination of Key Variables

In an expert meeting attended by four stakeholder representatives, important variables were revealed which were considered to have the most influence on the development of tilapia marketing in Soppeng Regency. Combining the independent opinions of each stakeholder representative resulted in the identification of 24 variables that were considered the most determining, as outlined in Table 2

Table 2. Identification of Key Variables

NO	Variable	NO	Variable
1	Regional government policy	13	Distribution and Supply Chain
2	Labor Availability	14	Price
3	Quality of HR	15	Market demand
4	Availability of facilities and infrastructure	16	Sustainable Marketing Approach
5	Community Openness	17	brand
6	Region Access	18	Understanding Risk
7	Consumer Understanding	19	Information Access and Telecommunications
8	Competitive Analysis	20	Government support
9	Certification and Labeling	21	Labor availability
10	Innovation	22	Social and Cultural Factors
11	Digital Marketing	23	Collaboration between business actors
12	Product quality	24	Food safety

After identifying key variables, stakeholder representatives collaborate to establish consensus definitions for them. This collaborative process reveals instances of repetition or similarity between variables. Therefore, in ongoing refinement, similar variables are combined into one variable that is considered important. In addition, the application of three direct rules involving analysis of the content of stakeholder representative variables' opinions and their relevance will result in the identification of several variables that can then be combined or excluded from the list.

Through discussions between stakeholder representatives, consensus emerged to combine and eliminate certain variables. Ultimately, this iterative process resulted in 19 variables that could be determined with certainty by consensus, as outlined in Table 3.

Table 3. Variables that have the most influence on the development of tilapia marketing

No	Fixed Variable	Definition
1	Government support	The level of local government support in the form of policies, including ease of licensing, mentoring and providing assistance
2	Quality of HR	Human resources in the sense of competent and skilled business actors
3	Distribution and Supply Chain	Examining distribution variables, including how tilapia is transported and distributed, and engaging stakeholders to improve supply chain efficiency
4	Digital Marketing	Digital marketing opportunities for Tilapia such as Social Media e-commerce platforms and other online marketing strategies
5	Certification and labeling	Consider certification and labeling variables to improve product image and access markets that prioritize sustainability and social justice
6	Sustainable marketing	How to integrate sustainability principles in tilapia marketing strategies
7	brand	Tilapia brand development and brand marketing strategy to differentiate products in the market.
8	Consumer Understanding	Consumer preferences for Tilapia include taste, product handling and packaging
9	Price	Tilapia fish prices and pricing strategies that can be implemented to ensure sustainability and market competitiveness
10	Market demand	Involve stakeholders in a tilapia market demand analysis to evaluate trends, consumer preferences and future market potential
11	Quality	Evaluate and improve the quality of tilapia fish to meet market standards and increase customer satisfaction
12	Collaboration between business actors	Plan and facilitate collaboration between business actors in order to increase market access, reduce costs and increase efficiency

The variables presented in Table 3 are the results of discussions and consensus reached by stakeholder representatives. Until now, the exact determination of the variables that have the most influence on the development of tilapia marketing in Soppeng Regency is still unclear. In addition, the relationship and

influence between variables cannot yet be explained, so that all variables are considered to have the same importance and power in the system.
However, for effective planning and management purposes, it is important to ensure varying degrees of influence of each variable on the system under study. This understanding allows identification of specific variables requiring intervention, serving as a strategic entry point for planning and management efforts

Analysis of the Influence Between Key Variables
Utilizing the 12 variables outlined in Table 3, stakeholder representatives engaged in further discussion and, through consensus, assigned scores to indicate cross-effects between variables. This information is then analyzed through a matrix using Excel software. The process involves structural analysis and collaborative efforts within the group to evaluate the direct influence or dependency (I/D) of each variable on other variables. A consensual assessment approach was used to gain meaningful understanding from this analysis (Bourgeois & Jesus, 2004).
Structural analysis, which is rooted in direct influence analysis, serves as a method for categorizing variables. In practice, direct influence analysis involves assessing the direct impact of each variable on other variables, using a scale ranging from 0 (no influence) to 3 (very strong influence). Values determined through discussion and consensus among stakeholder representatives are immediately incorporated into the influence/dependence (I/D) matrix. The cross influence score values resulting from unanimous agreement are documented in Table 4. The results of the analysis of the influence between variables are presented visually in graphs and tables, as depicted in Figure 3 and Table 4

Table 4. Influence between variables

	1	2	3	4	5	6	7	8	9	10	11	12
Government support		3	3	2	2	3	2	-	1	-	-	3
Quality of HR	2		2	3	3	3	2	2	-	-	-	3
Distribution and Supply Chain	1	3		1	-	1	-	-	3	1	2	1
Digital Marketing	2	3	3		3	2	3	2	2	2	-	2
Certification and labeling	-	-	-	3		2	3	3	2	2	-	2
Sustainable marketing	1	2	2	3	2		2	1	2	2	-	2
brand	-	-	2	3	3	2		-	3	3	-	1
Consumer Understanding	-	3	3	1	2	1	3		2	3	3	3
Price	1	-	3	2	1	-	2	3		3	1	1
Market demand	3	1	3	-	2	1	1	3	3		1	3
Fish quality	1	-	4	-	-	2	2	2	3	3		1
Collaboration between business actors	3	3	-	1	2	-	-	-	-	1	3	

The graph depicting direct and indirect influences between variables (Figure 3) visually represents the arrangement of variables in a four-quadrant space defined by two axes. This representation is constructed using weighted Influence/Dependence (I/D) values assigned to each variable, obtained from influence and dependency tables. Interpretation of results involves considering the position of the variables in the graph, the distribution patterns of the variables, and understanding the direct and indirect implications of the findings. This analysis helps in understanding the overall interrelationships and dynamics among the variables in the system under study

In the context of a graph, each quadrant conveys different characteristics associated with a variable. Quadrant I is identified as the driving variable area, which shows variables that have a large influence and dependence. Quadrant II is recognized as the area of control variables (leverage), which is characterized by a balance of influence and dependence; Some variables in this quadrant may also be classified as strong variables. Quadrant III represents the output variable domain, which shows variables that are highly dependent but have limited influence. Quadrant IV shows the area of marginal variables, indicating variables in this group that may be immediately excluded from further analysis. This quadrant-based classification provides insight into the role and significance of each variable in the system.

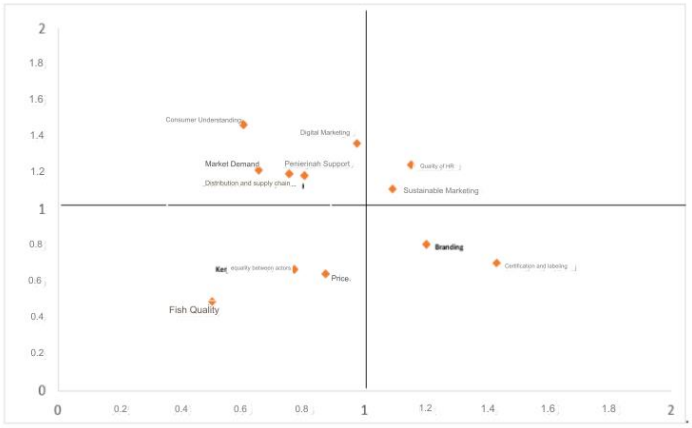

Figure 3. Direct and indirect impacts

Based on the results of the direct and indirect (total) influence analysis depicted in Figure 3, the focus is placed on the variables located in Quadrants I and II. The variables in this quadrant have a significant influence on the system, making it a strategic entry point for effective planning and management. As a result, six variables were selected as having the most influence on the system. These key variables are Consumer Understanding, Digital Marketing, Market Demand, Government Support, Distribution and Supply Chain, and Sustainable Marketing. Their prominence underlines their important role in shaping and influencing the dynamics of the system under consideration.

Table 5. Weighted global power

Weighted Global Power	
Consumer Understanding	1.47
Digital Marketing	1.37
Market demand	1.20
Government support	1.19
Distribution and Supply Chain	1.05
Sustainable marketing	1.02
Quality of HR	0.98
Certification and labeling	0.91
brand	0.87
Price	0.81
Collaboration between business actors	0.65
Fish quality	0.49

Determining the Condition (State) of Key Variables in the Future

Among the six selected variables, stakeholder representatives engaged in a consensus exploration to see what conditions these variables might experience in the next 20 years, in line with the temporal dimension of the analysis. Exploring the conditions of these variables is critical to building expected scenarios that align with the desired outcomes. This allows for a comprehensive understanding of the potential developments and challenges associated with each variable, assisting in the formulation of strategic plans and actions for the expected future (Brown et al., 2001).

The results of determining variable conditions and their combination to build planning scenarios for tilapia marketing development in Soppeng Regency are presented in Table 6

Table 6. Condition variables (state) determined based on consensus

Variable	**Code Variable**	**Mention conditions that may occur in the next 20 years**			
		1	**2**	**3**	**4**
Consumer Understanding	A	**Good**	**Still**		
Digital Marketing	**B**	**Increase**	**Still**		
Market demand	**C**	**Increase**	**Still**	**Reduce**	**Fluctuates**
Government support	**D**	**Increase**	**Still**		
Distribution and Supply	**E**	**Good**	**Still**		**Fluctuates**

Chain					
Sustainable marketing	**F**	**Increase**	**Still**	**Reduce**	

In Table 6, each variable is given a letter code (A to F), and the variable anticipation conditions are represented by a number code (1 to 4). This combination is denoted briefly as B2 which indicates that the conditions of the Marketing Development variable are projected to remain the same for the next 20 years. Determination of the future state of the variables comes from morphological analysis and group discussions, where stakeholder representatives collectively estimate the likely evolution of each variable. This process allows a concise but comprehensive representation of the conditions of the main variables expected in the future scenario. .

The estimation results provided by stakeholder representatives in Table 6 show variability between variables. Based on their assessment, some variables are estimated to have only two potential states (Consumer Understanding, Government Support, Digital Marketing), while other variables may have three states (Distribution and Supply Chain, Sustainable Marketing), and the Market Demand variable is estimated to have two potential states. has four potential conditions. Each of these states represents an opinion and reflects diverse stakeholder interests and perspectives regarding the potential future state of those variables. This diversity of estimates underscores the complex and diverse nature of anticipating future conditions in the systems under study (Brown et al., 2001).

Scenario Building

From determining the variable conditions in Table.., a combination of variable conditions can be determined that is impossible to occur. Improbable combinations of variable conditions are then discarded from the scenario preparation. Impossible variable condition combinations, are as follows: A1-C3, A1-F3, , A2-D1, A2-F3, B1-C3, B1-F3, and C1-F3.

Scenario development is a collaborative process carried out through brainstorming and structured group discussions. In this forum, stakeholder representatives are asked to provide estimates regarding the future conditions of each determining variable. These estimates are essentially subjective opinions and reflect stakeholders' interests and perspectives regarding the expected future. By synthesizing estimates relating to the future conditions of these variables, scenarios can be carefully constructed to anticipate potential developments in the field of Tilapia Marketing. The scenario creation process allows for a holistic exploration of plausible future outcomes, taking into account the diverse perspectives and interests of the stakeholders involved (Durance & Godet, 2010).

Scenarios are a combination of variables with different conditions. Stakeholder representatives are tasked with producing a series of scenarios by compiling a combination of variables and their respective conditions. Through the results of brainstorming, an agreement was reached to develop a scenario describing the potential for developing tilapia marketing in Soppeng Regency. These scenarios, shaped by diverse perspectives and insights, aim to capture a range of possible futures for the region's tilapia marketing landscape :

Optimistic	:	A1-B1-C1-D1-E1-F1 namely Consumer Understanding (Good), Digital Marketing (improving), Market Demand (increasing), Government Support (increasing), Distribution and Supply Chain (good), Sustainable Marketing (increasing)
Currently	:	A1-B2-C2-D2-E1-F1 namely Consumer Understanding (Good), Digital Marketing (Stable), Market Demand (increasing), Government Support (Stable), Distribution and Supply Chain (good), Sustainable Marketing (increasing)
Pessimistic	:	A2-B2-C2-D2-E2-F2 namely Consumer Understanding (Stay), Digital Marketing (Stay), Market Demand (Stay), Government Support (Stay), Distribution and Supply Chain (Stay), Sustainable Marketing (Stay)
Very pessimistic	:	A2-B2-C3-D3-E2-F3 namely Consumer Understanding (Stable), Digital marketing (Steady), Market Demand (Decreasing), Government Support (Steady), Distribution and supply chain (Steady), Sustainable Marketing (Decreasing)

The scenarios created by stakeholder representatives highlight significant differences that have implications for the efforts required in developing Tilapia Marketing in Soppeng Regency. In an optimistic scenario, it is

clear that extensive improvement efforts are needed across all variables to steer the system in a better direction. Implicitly, this optimistic scenario reflects the collective interest of stakeholders in achieving ideal marketing development conditions in the future. In contrast, a very pessimistic scenario suggests that if current conditions continue, no improvement efforts will be needed, and the system will deteriorate beyond current conditions. This scenario serves as a valuable tool for understanding the various potential outcomes and associated strategic efforts required to shape the future of Tilapia Marketing in Soppeng District .

Recognizing the extreme conditions posed by optimistic and very pessimistic scenarios, stakeholder representatives have also formulated moderate and pessimistic scenarios as a compromise. These intermediate scenarios reflect stakeholder interests by considering possible improvements in various determining variables. In developing these compromise scenarios, stakeholder representatives consider the practical ability to improve the identified variables .

The formulation of these scenarios not only helps in understanding potential outcomes but also forms the basis for strategic implications and anticipatory actions. Stakeholder representatives can propose logical efforts and actions that are aligned with each scenario, allowing for different approaches to planning and management in the development of Tilapia Marketing in Soppeng Regency

Strategic Implications and Anticipatory Actions

Based on a combination of various conditions and potential scenarios occurring in the next 20 years, stakeholder representatives engage in structured discussions to develop strategic implications and anticipatory actions. The resulting action plan empowers stakeholders to proactively prepare for future situations. By exploring future conditions, decision makers and stakeholders can equip themselves to face the future with resilience and foresight

This proactive attitude allows for the preparation of anticipatory actions, ensuring that stakeholders are ready to navigate and take advantage of existing opportunities. At the same time, exploration of future conditions will aid the formulation of reactive actions, thereby enabling stakeholders to respond effectively to unforeseen challenges.

Through the identification and comparison of scenarios, decision makers and stakeholders gain valuable insights that contribute to a more precise and strategic planning process for the region's future development. This approach fosters adaptability, resilience and a proactive mindset in responding to the dynamic landscape of Tilapia Marketing in Soppeng Regency (Brown et al., 2001).

In the end, as a consensus conclusion, strategic implications and anticipatory actions can be formulated that must be accommodated in the Tilapia Marketing Development plan in Soppeng Regency, namely as follows (1) Providing education to people who will become consumers about the importance of tilapia. consume nutrient-rich fish; (2) digitizing tilapia fish business actors; (3) Pay attention to and record the stock and demand for Tilapia fish; (4) paying more attention to business actors (fishermen and farmers) as a measure for regional food security; (5) Providing opportunities and supporting the distribution and supply chain of Tilapia. (6) Create a fisheries system from raw materials, then process them carefully so that there is no waste left, then create a culinary village program containing fishing spots for consumers and restaurants with a fisheries menu.

The strategic implications and anticipatory actions above are *stakeholder needs* that can be met through intervention in various determining variables in Tilapia Marketing Development.

4. Conclusion

Development of Tilapia marketing can be done in the following ways (1) Providing education to people who will become consumers about the importance of consuming fish that is rich in nutrients; (2) digitizing tilapia fish business actors; (3) Pay attention to and record the stock and demand for Tilapia fish; (4) paying more attention to business actors (fishermen and farmers) as a measure for regional food security; (5) Providing opportunities and supporting the distribution and supply chain of Tilapia. (6) Create a fisheries system from raw materials, then process them carefully so that there is no waste left, then create a culinary village program containing fishing spots for consumers and restaurants with a fisheries menu.

Suggestion

It is recommended that stakeholder representatives be provided with sufficient information regarding the object and objectives of the research before an expert meeting is held.

Planning preparations which are a follow-up to the participatory prospective analysis must be communicated again to obtain input from representatives of the stakeholders involved.

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