JOURNAL LA LIFESCI

VOL. 06, ISSUE 01 (051-067), 2025
DOI: 10.37899/journallalifesci.v6i1.1974

Strategy to Improve Food Security in Anticipation of Food Crisis in North Sumatera

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Article Info

Article history:
Received 25 January 2025
Received in revised from 13 February 2025
Accepted 27 February 2025

Keywords:
Food Security
SWOT
Food Crisis Anticipation
QSPM

Abstract

The purpose of this study is to analyze the food security strategy implemented by the North Sumatra Provincial Government in anticipation of the food crisis. This study will use a descriptive qualitative approach method through literature studies and interviews with the Food Security and Horticulture Service of North Sumatra Province. The sampling technique was carried out using Purposive Sampling. Data that has been collected from key informants and related institutions, then processed and analyzed through three steps, namely external factor evaluation, internal factor evaluation, and QSPM matrix. The results of the study show: Analysis of internal and external factors in the SWOT matrix, is positioned in Quadrant I by implementing the S-O strategy where strengths are used to take advantage of opportunities. The strategy is in the form of counseling to farmers so that they can improve their abilities and skills by collaborating between the agricultural service and the extension agency and collaborating with farmers to sell their harvest to Buloq Sub Drive North Sumatra with the aim of not importing food needs from outside so that the opportunity to become an independent region can be realized. Based on the SWOT analysis, eight alternative strategies were formulated to improve food security, with the main priority being to reduce the intensity of agricultural land conversion, increase collaboration between government agencies, and manage agricultural resources optimally. Other strategies include increasing access to agricultural product marketing, providing assistance for facilities and infrastructure by the government, and intensive assistance to farmers through counseling in each village.

Introduction

Indonesia is a tropical country located on the equator and has fertile and extensive green open land, this is utilized by its population for farming, especially in the agricultural sector (Jaya, 2022). Agricultural land has a strategic role and function as a basic resource in agricultural businesses (Janti et al., 2016). The agricultural sector is an important sector in a country because basic needs can be met by utilizing raw materials from the agricultural sector (Mulyo et al., 2021). Law Number 18 of 2012 concerning Food defines the concept of food security, namely the fulfillment of food for the state to individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, evenly distributed and affordable and does not conflict with religion, beliefs and culture of the community to be able to live healthy, active, and productive in a sustainable manner (Pertiwi et al., 2024; Hariram et al., 2023; Suryawati & Suratno, 2019; Nailufar et al., 2021).

Current technological advances have a major impact on the surrounding environment. In today's world, friends are very dependent on technology. However, it is undeniable that human survival is also very important depending on the environment. Green Technology is the most

ISSN 2721-1304 (Print), ISSN 2721-1207 (online)

expected technology to overcome global warming that is currently rampant on this beloved earth (Victor, 2011). Green Technology is environmentally friendly technology, so it does not have a negative impact on the environment. The use of Environmentally Friendly Technology should continue to be improved and the community must be socialized so that technology can be accepted and taken into account. In this study, several observations were made on conditions in the field. Higher education makes a major contribution to improving the quality of a country's human resources (Kapur & Crowley, 2008). Therefore, universities have an important responsibility to provide knowledge about green technology for their students. Especially in Indonesia, it is necessary to include Green Technology material in the curriculum of each study program so that students can understand how to use and innovate sustainable technology to preserve the environment. Thus, it is hoped that there will be development cadres who are able to preserve the environment sustainably (Nasution & Febrina, 2018; Adams, 2008) Food security has become a central issue in the framework of agricultural development and national development. Increasing food security is a top priority in development because food is the most basic need for humans so that food plays a very important role in national economic growth (Kakisina, 2020). Fulfilling food needs at the individual level is the key to achieving national food security. Each individual's food access must be guaranteed in order to meet the food needs of the community, households, and individuals in a sustainable manner (Meo et al., 2023; Simatupang, 2007). Each individual's food access is highly dependent on food availability and the ability to access and reach food fulfillment (Atasa & Nugroho, 2021).

According to data from the Central Statistics Agency (2023), the Farmer Exchange Rate (NTP) which looks at the comparison of the price index received by farmers (It) to the price index paid by farmers (Ib). NTP in June 2023, North Sumatra Province was recorded at 122.19 or down 1.07 percent compared to the NTP in May 2023, which was 123.51. This means that the problem of food has a complexity that requires a joint commitment so that the NTP value continues to increase and encourages food security. The results of research conducted by Lumbanraja & Fahreza (2023) in their research entitled "Efforts to Build Food Security Policies in North Sumatra" state that food policy requires institutional cooperation between regions in increasing superior agricultural commodities in ensuring food availability. This policy is important to provide quality, safety and food security at the local level that is oriented towards community empowerment.

Meanwhile, in the research of Taufik et al. (2021) in his research entitled "Government Strategy in Increasing Food Security During the Pandemic in Majane Regency" stated that increasing food security is an arena to improve the community's economy, so that a stable food industry is created that involves the community in managing and developing food security. However, based on the results of the study, realizing that food availability is still inadequate, community empowerment activities are carried out by the local government/department and providing counseling on food security efforts that can be carried out at home during this pandemic. One of them is by utilizing the yard for farming. The government's policy in maintaining food is a tool to build the welfare of the population which is one of the responsibilities of the government and the community to achieve the fulfillment of the right to food (Sari, 2020; Wibowo, 2020; Ramadhan, 2020). As one of the very important needs for every human being, good cooperation is needed between farmers and the government to be able to develop production in food producing areas, in sufficient quantities and diversity, safe and affordable for its residents. To realize this condition, a strategy is needed to increase food security (Abay et al., 2023). The steps of the North Sumatra Government in implementing the policy of increasing food self-sufficiency by increasing cooperation in encouraging innovation cannot be separated from the strategic plan to make North Sumatra a food production base (okezone.com, 2023).

ISSN 2721-1304 (Print), ISSN 2721-1207 (online)

SWOT analysis is an analytical tool that compiles the identification of internal aspects (positive and negative aspects) and external (opportunities and challenges) of an institution, as a basis for formulating strategies and work plans. These four aspects are important descriptions in strategic management, where the productivity of an organization is assessed based on its quality and skills in consistently providing valuable services (Ginter et al., 2018). SWOT analysis is also used as a simple tool to identify key factors that influence government performance from an internal and external perspective. This helps governments understand their market position and formulate strategies by maximizing internal potential and external opportunities, while resolving internal weaknesses and responding to external challenges. However, this tool can be influenced by subjective perceptions, leading to biased assessments. In addition, SWOT analysis does not provide concrete steps for follow-up, only provides a general overview of the company's condition and tends to focus on the current situation without anticipating future changes (Herjito & Setiawan, 2021).

Based on these phenomena, the author is interested in seeing the conditions that occur in the field to study more deeply about the government's strategy in food affairs to find and find solutions to improve food security and formulate the right strategy to be implemented by the North Sumatra government, so the author compiled this research entitled "Strategy to Increase Food Security as Anticipation of the North Sumatra Food Crisis"

Literature Review

Strategy

Etymologically, strategy is something that comes from the Greek word, stratego. Strategos is a translation that can be interpreted as "military commander" which comes from the era of Athenian democracy. In general, the term strategy is used to win a war in military world problems as a way to utilize military power. While the terminology of strategy, many experts have put forward different points of view about strategy, but basically it has the same meaning or meaning, namely achieving goals effectively and efficiently (Ilman & Syahbudi, 2023)

According to Hutapea (2022) Strategy is a continuous or adaptive response to external opportunities and threats as well as internal strengths and weaknesses that have an impact on the development of an organization. In contrast to the opinion of Siagian (2006) who states that strategy is a series of fundamental decisions or actions made by top management and implemented by the ranks so that an organization can achieve the goals of the organization.

The strategy stage is the resolution of problems being faced in decision making that is made to determine the right steps for the problem. In this case, in order to achieve the desired goal, the strategy created can be implemented in solving the problems that occur, so that the benchmark of the strategy can be measured from its implementation.

Goverment

The government is a group of people who have an important role in the country who have the power to carry out their duties which in the sense of carrying out legitimate responsibilities and authorities in protecting and improving the standard of living of the community through actions and implementation of various decisions. The government is not created to use its power to serve itself, but its existence is to serve the community. As in the Law of the Republic of Indonesia Number 30 of 2014 concerning Government Administration Article 1 (number 2) that the function of government is a function in carrying out government administration which is regulation, service, development, empowerment and protection.

ISSN 2721-1304 (Print), ISSN 2721-1207 (online)

The strategy implemented in the government sector can be seen as an effort by the government in making strategies in order to achieve goals in the future by analyzing the situation and conditions in the present and the future. In its implementation, the government makes a difference in management with the private sector. This difference is mainly due to differences in characteristics

Many Indonesian people live in coastal areas in countries that have vast oceans. But unfortunately the vastness of this sea does not cause Indonesia to experience this to become a salt exporting country. North Sumatra still cannot produce optimal salt as an area with a fairly large salt producing potential. This study aims to analyze the policy strategies that need to be implemented to optimize the economy of salt farmers in North Sumatra and Aceh. This study will use a qualitative approach. The data used in this study come from various interviews and literature studies. This study found the potential for salt production in North Sumatra and Aceh. Unfortunately, this potential has not been optimized due to various factors. The government then provided training and assistance for salt farmers in North Sumatra and Aceh to increase the optimization of salt production in the two provinces (Lubis & Arif, 2022).

Food security

According to Law No. 18 of 2012, Food security is a condition where the fulfillment of pagan nutrition is guaranteed for a country and individuals. This is reflected in the availability of safe, diverse, nutritious, evenly distributed, affordable, and adequate food both in quantity and quality, so as to ensure that people can live healthy, active, and productive lives living a good life in a sustainable way (Republic of Indonesia, 2012).

Meanwhile, based on the Life Science Research Organization (LSRO), food security is a condition of available food access where all people can receive enough food to carry out active and healthy life activities and can at least meet (Yustika et al., 2020): a) availability of safe and nutritionally adequate food; b) guaranteed access to receive adequate and socially acceptable food.

Meanwhile, according to the Food Security Agency of the Ministry of Agriculture, there are three aspects that can affect the level of food security, namely (BKP, 2020): a) Food availability is the condition of the availability of food from domestic production, as well as the entry of food if the main source cannot meet the needs. Availability can be calculated from the national, regional, district/city to community levels; b) Access to food affordability is the ability of the community to obtain sufficient and nutritious food, through one of the various sources such as: own production and supplies, purchases, barter, gifts, loans, and food assistance. Food availability in an area must exist, but it cannot be accessed by certain communities if they are not physically able such as economically, infrastructurally, socially, access to diversity and sufficient food quantities; c) Food utilization is the ability of the community to control food and the ability of individuals to absorb and obtain sufficient nutrients from the food obtained.

Food security can certainly be realized if the general aspects above have been met. Based on this understanding, one of the main priorities in developing food security is to empower communities, so that they are able to overcome food problems independently, and realize sustainable household food security.

Food Crisis

Based on Presidential Regulation No. 125 of 2022, a food crisis is a situation where food shortages are experienced by most people in an area caused by several things, including

ISSN 2721-1304 (Print), ISSN 2721-1207 (online)

difficulties in food distribution, the impact of climate change, natural and environmental disasters, and social conflicts, including due to war (Indonesia, 2022).

A food crisis can be defined as a situation where food availability is insufficient to meet the consumption needs of the community in a particular area. A food crisis can be caused by various factors, such as natural disasters, climate change, economic turmoil, dependence on food imports, social conflicts, and high population growth.

Methods

The qualitative descriptive method of this research study suits its goal to understand complex food security planning efforts in their natural field settings through complete descriptions. The qualitative descriptive approach serves effectively to create systematic factual descriptions of situations and events according to Sugiyono (2017). The research adopts this method for depicting how North Sumatra Provincial Government handles food security problems as part of their preparations for a possible food emergency.

Two important research techniques consisted of literature review and in-depth interviews which formed the basis of data collection. Research used a literature review methodology to collect secondary data from academic journals alongside books along with government policy documents and statistical reports and planning documents including Renstra 2024–2026. Multiple documents containing fundamental information about North Sumatra's existing food security policies together with regional agricultural difficulties and institutional structures were provided. The gathered documents enabled researchers to both detect areas of strategic underdevelopment and review previous research outcomes which shaped the study inquiries.

The study conducted semi-structured interviews with important stakeholders who work in food security fields to obtain primary data. The study employed purposive sampling which strategically chose participants holding essential knowledge related to the topic of research. The research utilized senior officials with roles at the North Sumatra Province Food Security and Horticulture Service as informants. The informants provided essential information to grasp both the practical execution of food security measures alongside institutional barriers alongside the true consequences of policy choices.

A structured three-stage approach served to deliver extensive interpretation while performing strategic evaluation of the data. The first analytical step entailed creating an Internal Factor Evaluation matrix for identifying and evaluating vital internal aspects focusing on reviewing the current food security system in North Sumatra. The items received their ratings according to their importance and effectiveness which enabled the calculation of intermediate weighted scores.

The assessment of external dynamics took place in the second stage using an External Factor Evaluation (EFE) matrix. The diagram provided essential data regarding external elements which might impact policy success. The analysis took into account market forces, climate-related risks together with institutional cooperation and federal food policy congruence. The external strategic environmental analysis used a similar approach as the IFE to rate and assign weights to each factor until it created a numerical summary of the external situation.

The study applied the Quantitative Strategic Planning Matrix (QSPM) in the last phase to convert SWOT analysis results into practical strategic choices. Total attractiveness scores (TAS) determine strategy evaluation because the QSPM calculates them by assessing proposed strategic responses to both internal and external elements. Strategy formulation acquires

ISSN 2721-1304 (Print), ISSN 2721-1207 (online)

ground truth from qualitative insights while receiving support through the Rangkuti (1998) structured decision-making tool during this stage.

QSPM evaluation of alternative strategies revealed their total attractiveness scores through qualitative interview data analysis which included transcription and thematic coding. The thematic analysis process revealed who conducted the study through analysis of key stakeholders' real experiences. The findings obtained better reliability and validity through the combination of data collected from both primary and secondary sources.

Results and Discussion

The strategy in fulfilling food security that has been carried out by the government is very important to see the strengths, weaknesses, opportunities and threats of a program or activity itself. From the policies implemented by the government, there are still many things that need to be considered regarding obstacles or difficulties in meeting the food needs of farmers in North Sumatra which has a population that is predominantly farmers so that the government in this case the agricultural extension agency improves farmers' skills by assisting farmers in managing their farming businesses which aims for farming communities to have skills that are able to compete in increasing their food needs. The assistance provided by the government to farmers is still limited due to the government's budget which is still minimal. Preparation or planning can be started by choosing and determining the desired strategy and targets, this can be done with a SWOT analysis. The following are the results of an interview with the Supervisor of the North Sumatra Agricultural Extension Agency, which discussed the strengths and opportunities:

> *"If the strengths and opportunities are all positive, it means that if the strengths and opportunities can be carried out together, both those that become strengths and those that become opportunities, for example, there is assistance from the government so that the opportunities that we must take advantage of are by using the assistance as well as possible so that the goals of the success of farmers and the government can be achieved (interview with Mr. Yusfahri Perangin-Angin, S.P, M.P)"*

In an informant interview as an extension agency that discussed the issue of strengths and opportunities or strengths and opportunities where extension members want strengths to be a resource that can be relied on to increase farmers' food security. So that farmers who work with extension workers can take advantage of assistance from the local government in improving their welfare and the opportunities that exist can strengthen the existing strengths so that all negative external influences such as the rise and fall of food prices can be overcome with a combination of strengths and opportunities so that extension workers are considered successful in assisting farmers in increasing food security in North Sumatra. The following are the results of an interview with the North Sumatra Food Security Service discussing weaknesses and opportunities:

> *"How to overcome these weaknesses, it requires integration between weaknesses and opportunities, how do we overcome these weaknesses by utilizing existing opportunities, for example limited funds, or facilities and infrastructure are still lacking, these weaknesses can be overcome. (interview with informant Mrs. Lusiana, S.T.P.)".*

Based on the interview with the informant as the Food Security Service discussing weaknesses and opportunities or weaknesses and opportunities where the weaknesses are worried about by farmer groups in carrying out their farming efforts which make farmers' agricultural products

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less than optimal. How do we overcome these weaknesses well, then we must utilize the existing opportunities so that these weaknesses can be overcome properly.

The following are the results of the analysis of internal and external factors in the SWOT analysis obtained based on the results of interviews by the Food Security, Food Crops and Horticulture Service of North Sumatra which coincided with Jl. General A.H. Nasution No.6 Pangkalan Masyhur, Medan Johor District, Medan City, North Sumatra, represented by Mr. Yusfahri Perangin-Angin, S.P, M.P. as the Head of Sub-Section (Kasubag) and Mrs. Lusiana, S.T.P. as the secretary of the Head of Sub-Section (Kasubag). In addition, the results of this interview are supported by data from archive data and strategic plan data (renstra) for 2024-2026 owned by the Food Security, Food Crops and Horticulture Service of North Sumatra.

Table 1. Internal Factor Analysis Summary (IFAS) Matrix of Food Security in North Sumatra

No	Internal Strategy Factors	Weight (0.0-1.0)	Rating (1-5)	Score BxR
I	**Strengths**	**Value**		
1	Adequate energy availability for agricultural development in North Sumatra	0.134228188	4	0,365913
2	Infrastructure support from the central government	0,140939597	4	0,563758
3	Presence of SKPD in the field of Food Security	0,143176734	4	0,572707
4	Local government budget capability (APBD)	0,138702461	4	0,55481
5	Having Adequate Human Resources	0,140939597	4	0,56375
Total Power(a)				**2,620946**
II	Weaknesses	**Value**		
6	The absence of Regional Government Food Reserves	0,06935123	2	0,138702
7	Program and budget allocations are not optimal	0,060402685	2	0,120805
8	The role of the Food Security Council is not optimal	0,060402685	2	0,120805
9	The commitment of the Regional Government is not yet strong for food security	0,049217002	1	0,049217
10	The quality and quantity of human resources (HR) of the apparatus are not yet ideal	0,062639821	2	0,12528
Number of Weaknesses (b)				**0,554809**
X = ratio (a-b)				**2,066137**
Total Score				**3,346756**

Source: Data processed by the author, 2024

Based on the IFAS Matrix, the internal factors of food security in North Sumatra show more dominant strengths than weaknesses, with a comparison of the total strength score (2.620946) much higher than the total weakness score (0.554809). The difference produces a positive value of 2.066137, which indicates strong potential in the management and development of food security in this region.

The results of the internal factor analysis show that the 2 most important strength factors in increasing food security are the adequacy of energy availability and regional budget capacity. Meanwhile, the 2 most important weakness factors are the absence of regional government food reserves and the quality and quantity of human resources (HR) of the apparatus are not

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yet ideal. Overall, North Sumatra Province obtained a total internal factor score of 3.34 (scale 1 to 4). The total score shows that the strength factor is quite good because it exceeds the average score of 2.5. However, there is still room for North Sumatra to improve programs, strategies, policies or action plans for food security in North Sumatra.

The Main Strength in the IFAS matrix is the existence of SKPD in the Food Security Sector (Score: 0.572707) This factor gets the highest score in the IFAS matrix. SKPD (Regional Work Unit) in the Food Security sector shows a significant role in ensuring the sustainability of food security programs and policies in North Sumatra. This institution functions as the main driver in implementing strategies that support increased productivity and food management. After that, the Regional Government Budget Capacity (Score: 0.55481) The availability of sufficient budget at the APBD level is an important supporting factor. This allows the implementation of strategic programs that support food security, from infrastructure to HR training. And finally, Support for Central Government Infrastructure and Adequate HR (Scores: 0.563758 and 0.56375 respectively) The combination of infrastructure supported by the central government with quality HR creates a solid foundation for the development of the food sector in North Sumatra. Major Weaknesses Lack of Local Government Food Reserves (Score: 0.138702)

This weakness highlights the need for additional strategies to build local food reserves that can serve as buffers in emergency situations, such as disasters or price fluctuations. Local Government Commitment is Not Yet Strong (Score: 0.049217) This low commitment is a major obstacle in the implementation of food security policies. Improved synergy and cross-sector coordination are needed to overcome this weakness. Strengthening Strategy Based on the highest scores in the strengths and weaknesses category, the following strategies can be proposed through Optimizing the Role of SKPD Utilizing the role of SKPD as a catalyst in the implementation of food security programs, including strengthening cross-sector coordination and synergy with the central government. Increasing Local Government Commitment Through firm policies, increasing management capacity, and more optimal budget allocation, local governments can play a more active role in supporting food security. Food Reserve Development Focus on providing local food reserves to anticipate the risk of price fluctuations and food crises in the future.

Table 2. External Factor Analysis Summary (EFAS) Matrix of Food Security in North Sumatra

No	External Strategy Factors	Bobot (0,0-1,0)	Rating (1-5)	Score BxR
I	**Opportunities**	**Value**		
1	The existence of a food security program from the center	0,141148325	4	0,564593
2	Market opportunities for the food sector in North Sumatra	0,129186603	3	0,38756
3	Private sector support and national policies for the development of the food downstream industry	0,148325359	4	0,593301
4	Horizontal and vertical coordination between SKPD/Agencies and local governments	0,122009569	3	0,366029
5	Strategic geographical location as an international shipping route for the Strait of Malacca	0,148325359	4	0,593301
Number of opportunities(c)				**2,504784**
II	Challenge	**Value**		
6	Land conversion to the plantation sector	0,053658537	1	0,052632

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7	Food security threats, especially those originating from outside the region	0,046341463	1	0,045455
8	Regional legal products that support food security	0,051219512	1	0,050239
9	Food price fluctuations	0,07804878	2	0,186603
10	Climate Change	0,068292683	2	0,138756
Total Challenges (d)				**0,473684**
Y=Difference (c-d)				**2,0311**
Total				**2,978469**

Source: Data processed by the author, 2024

The EFAS matrix describes external opportunities and challenges that affect food security in North Sumatra. With a total opportunity score of 2.504784 which is much greater than the challenge of 0.473684, there is great potential to take advantage of external conditions to strengthen food security. The difference in value of 2.0311 shows the dominance of opportunities over existing challenges. The results of the external factor analysis show that the 2 most important opportunity factors in increasing food security are market opportunities for the food sector and the strategic geographical location as an international shipping route for the Strait of Malacca. Meanwhile, the 2 most important threat factors are limited agricultural land and dependence on food supplies from other regions. Overall, North Sumatra obtained a total external factor score of 2.97 (scale 1 to 4). The total score shows that North Sumatra has been able to take advantage of opportunity factors and avoid threats quite well because it exceeds the average score of 2.5. However, there is still room for the province of North Sumatra to develop to take advantage of opportunities and avoid threats. Key Opportunities in the EFAS matrix results are Private Sector Support and National Policies for Downstream Food Industry (Score: 0.593301) This factor recorded the highest score in the EFAS Matrix, indicating that collaboration between the government and the private sector through national policies can be a major driver in developing a locally-based food industry. This also opens up opportunities for diversification of food products with high added value. Strategic Geographical Location as an International Shipping Route for the Strait of Malacca (Score: 0.593301) North Sumatra's strategic geographical position as an international shipping route for the Strait of Malacca is a great opportunity to increase market access and efficient food distribution to the Strait of Malacca. This allows this region to become a regional food trade center. The existence of a Food Security Program from the Center (Score: 0.564593) Support for food security programs from the central government provides a great opportunity to strengthen the management of food resources at the local level, including subsidies and training for farmers. Key Challenges Food Price Fluctuations (Score: 0.186603). This factor is the biggest challenge that can disrupt the stability of food security, especially for low-income communities. Policies are needed that can maintain price stability through food reserves and market supervision. Climate Change (Score: 0.138756) The impact of climate change on food production, such as decreased harvest yields and increased frequency of natural disasters, is a major challenge. Adaptation through environmentally friendly agricultural technology needs to be improved. Strategy for Utilizing Opportunities and Mitigating Challenges Based on the highest scores in the opportunity and challenge categories, the following strategies can be proposed: Strengthening Food Industry Downstreaming Encouraging collaboration between the private sector and government in building downstream industries to utilize geographical advantages and increase the added value of local food products. Stabilizing Food Prices Local governments need to strengthen the food reserve system to anticipate price fluctuations while maintaining food affordability for the community. Adaptation to Climate Change Integrating climate change mitigation programs into agricultural policies, such as the use of superior varieties that are resistant to extreme

ISSN 2721-1304 (Print), ISSN 2721-1207 (online)

conditions and farmer training related to sustainable agricultural techniques. Optimizing the National Food Security Program Maximizing the implementation of food security programs from the center with adaptation to local needs, such as distribution of seeds, fertilizers, and other supporting infrastructure.

North Sumatra is in Quadrant I, which means that internal and external conditions strongly support growth strategies for food security.

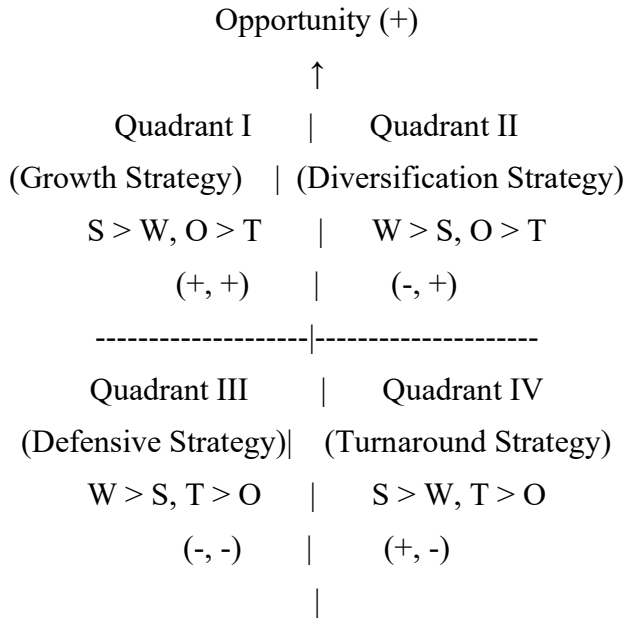

Figure 2. Quadrant Matriks

Table 3. Analysis Strenght Weaknesess Oportunities Thread (SWOT)

Description	High	Currently	Low
Weight Value	(4,1-5,0)	(3,1-4,0	(1,0-3,0)
IFAS	-	3,346756	-
EFAS	-	-	2, 978469

Source: Data processed by the author 2024

It is explained that the number of strengths and weaknesses of food security in North Sumatra is around 3.34. This shows that the strength of food security in North Sumatra is at a moderate level. Therefore, it is necessary to improve the quality of food in North Sumatra in order to achieve this food security, so that food security can increase significantly. Based on the results of the EFAS matrix, it can be concluded that the total score for opportunities and challenges to food security in North Sumatra is around 2.97, indicating that these opportunities are at a low level. Therefore, collaboration between local governments is needed in implementing food policies in North Sumatra. Based on data from the IFAS and EFAS matrices in the SWOT analysis that has been carried out, it is known that the potential and challenges of internal factors (strengths and weaknesses) are at the middle level, while external aspects (opportunities and challenges) are at the lowest level (Rambe, 2023).

The SWOT matrix is quite interesting, so to make a SWOT matrix, researchers can start by filling in all the SWOT boxes with a series of factors that researchers consider to be strengths, weaknesses, opportunities and threats. Researchers simply write down what they see as key

ISSN 2721-1304 (Print), ISSN 2721-1207 (online)

factors. After that, researchers match, match, and adjust one strategic factor with another, starting with the SO strategy, followed by the WO strategy, then the ST strategy, and finally the WT strategy. Researchers combine two strategic factors, namely strengths and opportunities. Researchers will get the results in the form of an SO strategy. Next, opportunities combined with weaknesses will produce WO, strengths combined with threats will produce an ST strategy. In the last strategy, the WT strategy is obtained as a result of the combination of threats and weaknesses in the organization.

Table 4. SWOT Matrix External and Internal Analysis

	OPPORTUNITIES	**THREATS**
EXTERNAL FACTORS **INTERNAL FACTORS**	1. The existence of a food security program from the center, 2. Market opportunities for the food sector in North Sumatra. 3. Support from the private sector and national policies for development of downstream food industry. 1. Horizontal and vertical coordination between SKPD/Agencies and local governments. 2. Strategic geographical location as an international shipping route for the Strait of Malacca.	1. The conversion of land to the plantation sector. 2. Food security threats, especially those originating from outside the region. 3. Regional legal products that support food security. 4. Food price fluctuations 5. Climate change
STRENGTH	**STRATEGI SO**	**STRATEGI ST**
1. Adequate energy availability for agricultural development in North Sumatra. 2. Infrastructure support from the central government. 3. The existence of SKPD in the field of Food Security. 4. Regional Government Budget Capacity (APBD). 5. Having adequate human resources.	1. With the extension carried out, opportunities are created so that the community's ability and skills in farming can increase food security in their area. 2. With the existence of government programs and government policies, there must be cooperation between the agriculture and food service and the extension agency in implementing these programs and policies.	1. The existence of government assistance so that the threat can be overcome properly, for example, with assistance from the government, the fluctuating selling prices of agricultural products can be overcome by the government.
WEAKNESSES	**STRATEGI WO**	**STRATEGI WT**
1. There is no Regional Government Food Reserve	1. Farmers' awareness and activeness in participating in extension, mastery of	1. Existing facilities and infrastructure must be utilized optimally to support

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2. Allocation of programs and budgets is not yet optimal 3. The role of the Food Security Council is not yet optimal. 4. The Regional Government's commitment to food security is not yet strong. 5. The quality and quantity of human resources (HR) of the apparatus are not yet ideal.	information and mastery of modern technology are still low and 2. Human resources are also still low; this can be overcome by extension agencies to assist farmers.	increasing farmer food security. 2. Improve public awareness and farmer activity in managing food needs and foster farmers who still have a strong traditional understanding

In the diagram above, the SWOT Matrix is about SO strategy where strengths are used to take advantage of opportunities (strengths and opportunities), where a SWOT Matrix model strategy will emerge, several models that are quite comprehensive and in detail complete all the models above the SWOT analysis so that the opportunities we plan can run well by utilizing the strengths we have, for example the government has the strength of the extension that is carried out or assistance, so opportunities are created so that the ability and skills of farmers in running their farming businesses increase and are able to improve their welfare. If there is financial support or facilities and infrastructure from the North Sumatra government, with continuous extension that is utilized for the success of farmers so that existing opportunities can also be utilized such as cooperation between the agricultural service and the agricultural extension agency in the field, so that the utilization of strengths and opportunities can run well (Rambe, 2023)

Based on the SO (Strengths-Opportunities) strategy, the Government has used its internal strengths by working with farmers to sell their crops to Buloq Sub Drive North Sumatra with the aim that North Sumatra can stop importing food needs from outside so that opportunities to become an independent region can be realized.

Based on the WO (Weaknesses-Opportunities) strategy, how does the government improve weaknesses in preparing limited facilities and infrastructure with the high population of farmers in North Sumatra, so that the government can provide assistance in stages so that all farmers get the assistance. By working with extension agencies, the government has the opportunity to find out the needs of farmers in improving their farming businesses that have not been touched by assistance.

Based on the ST (Strengths-Threats) strategy, the government with the power to design Regional Regulation Number 4 of 2017 with the aim of protecting agricultural land from being continuously converted. With this power, it can prevent foreign investors from using land that is still in production to be converted to build housing or shophouses in North Sumatra, so that the strategy to help anticipate the threat of lack of food crop production and loss of farmers' livelihoods can be avoided.

Based on the WT (Weaknesses-Threats) strategy, the government in overcoming weaknesses in developing agricultural businesses with the lack of assistance prepared by the local government in meeting food needs, prepares existing facilities and infrastructure accompanied

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by agricultural extension agencies so that the threat of agricultural failure in production can be avoided.

Based on alternative strategies produced using SWOT analysis, each alternative strategy is then evaluated to achieve strategic priorities. Identification of priority strategies is achieved through QSPM analysis (Setyorini, Effendi, & Santoso, 2016).

Table 5. Total Attractiveness Score (TAS) value given

No	Alternative Strategy	TAS Value	Priority
1	Improving the management and utilization of agricultural resources	8,2196	3
2	Improving the Downstream Industry of Agricultural Business	7,1988	8
3	Improving access to agricultural product marketing	8,0909	4
4	Reducing the intensity of factors that can encourage land conversion, by prioritizing agricultural products that generate profits for farmers.	8,5929	1
5	Providing assistance for facilities and infrastructure as a strength of the government	7,8635	6
6	Improving the welfare of farmers to prepare healthy, quality human resources (HR), and have high competitive skills	7,9128	5
7	The presence of extension workers in each village in assisting farmers	7,2289	7
8	Increasing collaboration between government agencies.	8,2291	2

From the Total Attractiveness Score (TAS) value given, the priority of alternative strategies is sorted from the highest to the lowest value. The strategy with the highest value has a greater urgency to be implemented in order to improve food security. Reducing the Intensity of Factors That Can Drive Land Conversion is a form of fulfilling the need for food for the people of North Sumatra which can threaten the capacity of food provision and even in the long term can cause social losses. Therefore, it is necessary to realize a strategy in controlling agricultural land that relies on the community which aims to identify the motives for converting agricultural land and is able to issue laws and regulations on land conversion as regulated in (Regional Regulation) Number 4 of 2017. With this policy, it can reduce factors that can drive the conversion of existing land because land intensity is very important to be maintained together considering that land is a place of production, food income and food reserves to fulfill food security in North Sumatra.

The second strategy implemented by the Department of Agriculture and Food in improving food security is by overcoming the degradation of agricultural land. In realizing this, the local government has prepared assistance in the form of pesticides and subsidized fertilizers aimed at improving farmers' welfare with the success of farmers in managing their food products. Not only that, the government has created a national food self-sufficiency program by collaborating with agricultural extension workers and Babinsa (Village Development Agency) in overseeing farmers from planting to harvest which aims to increase farmers' harvest yields. The Agriculture and Food Service Program in Cross-sectoral Coordination related to the fulfillment of food and nutrition is part of the activity of utilizing yard land (household food security) to meet diverse and balanced nutritional needs with a strategy of improving the diversity of food needs that have the potential to improve the welfare of the community in North Sumatra. This has been proven by the government by providing training to farmer groups in caring for or

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maintaining their farming businesses in winning the competition, especially preparing healthy, quality human resources (HR) in North Sumatra who are skilled and highly competitive (Lubis et al., 2023).

The strategy in fulfilling food security that has been carried out by the government is very important to see the strengths, weaknesses, opportunities and threats of a program or activity itself. From the policies implemented by the government, there are still many things that need to be considered regarding obstacles or difficulties in meeting the food needs of farmers in North Sumatra, which has a population that is predominantly farmers, so that the government, in this case the agricultural extension agency, improves farmers' skills by assisting farmers in managing their farming businesses, which aims for farming communities to have skills that are able to compete in increasing their food needs (Nabila & Harahap, 2023).

Conclusion

Based on the results of the study conducted by the government's strategy in fulfilling North Sumatra's food security using SWOT (Strength, Weakness, Opportunity, and Treat) analysis indicators. The author concludes that the analysis of internal and external factors in the SWOT matrix is positioned in Quadrant I by implementing the S-O strategy where strengths are used to take advantage of opportunities. The form of the strategy is in the form of counseling to farmers so that their abilities and skills can be improved by collaborating between the agricultural service and the extension agency and collaborating with farmers to sell their crops to Buloq Sub Drive North Sumatra with the aim of not importing food needs from outside so that opportunities to become an independent region can be realized. Based on the SWOT analysis, eight alternative strategies were formulated to improve food security, with the main priority being to reduce the intensity of agricultural land conversion, increase collaboration between government agencies, and manage agricultural resources optimally. Other strategies include increasing access to agricultural product marketing, providing assistance for facilities and infrastructure by the government, and intensive assistance to farmers through counseling in each village. This study concludes that the implementation of strategies oriented towards local resource management and strengthening synergy between agencies can significantly improve food security in North Sumatra.

Suggestion

The formulation of the city-level Food Security Index needs to be developed in further research by considering the characteristics of urban areas and by measuring all pillars of food security.

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