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# CLOVE FARMING DEVELOPMENT STRATEGY AS AN ECOSYSTEM CONSERVATION AND RESTORATION ACTION IN THE BONGOK FOREST

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Abstract. The function of protected forests in Indonesia is very important to maintain their sustainability as a life support system and protect the water system of the surrounding area for life. The clove planting program in 2022 in an area in the Bongok forest is an example of conservation with an ecosystem conservation and restoration program. The research aims to analyze the internal and external factors that influence clove farming development strategies as conservation and ecosystem restoration actions, as well as describing alternative clove farming development strategies as ecosystem conservation and restoration actions in the Bongok Forest, Jetak Village, Montong District, Tuban Regency. The research uses survey methods with quantitative descriptive methods. The determination of respondents was carried out deliberately as many as 5 people consisting of farmer groups and the head of Jetak Village. The data analysis method uses SWOT analysis and space matrix for sustainability analysis. Alternative clove farming strategies based on SWOT matrix analysis are increasing clove productivity, increasing human resource capabilities in developing technology and information, increasing forest conservation and utilization (SO). Meanwhile, the WO strategy is to hold regular outreach from the agricultural department and submit proposals to the agricultural department to meet the capital for clove farming. The ST strategy requires mitigating and adapting to weather changes, increasing agricultural extension programs and adding skilled workers in their fields. The next alternative strategy is WT seeking information to increase knowledge in clove farming, equipping agricultural equipment and infrastructure and applying for a loan from the bank with low interest returns. Based on the results of calculating internal and external factors, the alternative strategy using the space matrix is in the first quadrant position, namely the aggressive quadrant which is limited by the X axis and Y axis, both of which have positive values, namely 0.28; 0.54.

Keywords: Internal Factors; External Factors; Space Matrix; SWOT

## **INTRODUCTION**

Protected forests in Indonesia have various important functions in maintaining ecosystems, biodiversity and environmental sustainability (Christanto, J. 2014). The Indonesian government has understood the importance of protected forests in protecting the environment and sustainability. Various policies and efforts have been implemented to protect and preserve these forests. Although challenges such as illegal deforestation and economic pressures can threaten protected forests. According to (Jazuli, A., 2015), protection and law enforcement measures continue to be improved to maintain the important functions of this protected forest. Several policies and initiatives to preserve protected forests in Indonesia include: moratorium on deforestation, REDD (Reducing Emissions from Deforestation and Forest Degradation) program, forest restoration program, sustainable forest certification, community empowerment, zoning and regional boundary determination, law enforcement, and international collaboration (Estrada, A., Garber, P. A., Mittermeier, R. A., Wich, S., Gouveia, S., Dobrovolski, R., & Setiawan, A., 2018); (Supriatna, J., 2018)

The government recognizes that protecting protected forests must be a joint effort between the central government, regional governments, communities, and the Indonesian government has taken various steps to ensure that protected forest conservation policies are implemented and implemented

effectively in the regions (Supriatna, J., 2021)(Ariyanto dkk, 2023). One of the steps taken by the Indonesian Government is to collaborate between institutions. An example is the collaboration that has been built by the government with forestry and the Jetak Village Government, Montong District, Tuban Regency.

The Indonesian Government's collaboration with the forestry service and the Jetak Village Government began with the granting of Bongok forest management rights (Protected Forest) to the Jetak Village Government covering an area of 29.7 Ha. The Jetak Village Government formed the farmer group "Sangga Buana" in 2008. Furthermore, the Jetak Village Government together with the farmer group and village officials continued to preserve the Bongok forest with the Bongok forest conservation and ecosystem restoration program. One of these programs is planting clove plants in an area in the Bongok forest in 2022. The Jetak Village Government hopes that clove plants can become shade plants that can provide economic benefits to members of the farmer group managing the Bongok protected forest.

The clove planting program as an ecosystem conservation and restoration action is the first such program in Tuban Regency. Considering that this program is still the first time, it is necessary to study clove farming development strategies to ensure the sustainability of the program. Development strategy studies are carried out by inventorying internal factors (strengths and weaknesses) and external factors (opportunities and threats). It is hoped that this study will produce strategic alternatives that can ensure program sustainability. Clove farming is managed by farmer groups located around the Bongok forest, namely Keroan Hamlet and the Village Government.

### **METHOD**

The research was carried out for 10 months starting from September 2022 to July 2023 in the Bongok Forest located in Keroan Hamlet, Jetak Village, Montong District, Tuban Regency. The research uses a survey method by adopting quantitative descriptive research. The survey was addressed to 5 people as a sample (village head, chairman of the Sangga Buana pokdarwis, and 3 members of the pokdarwis). The sample was selected using purposive sampling (deliberate sampling). Purposive sampling is a technique for determining research samples with certain considerations with the aim of making the data obtained later more representative (Lenaini, 2021). The data used in this research comes from primary data and secondary data. Primary data collection was carried out by direct observation using direct respondent interview techniques using a previously prepared questionnaire. Secondary data was obtained from related agencies such as BPS data from Tuban Regency and BPS data from East Java Province as well as from various literature relevant to the research. Data processing was carried out using SWOT analysis to determine the position of clove plants in the Bongok Forest and to formulate clove farming strategies. IFAS (Internal Strategic Factor Analysis Summary), namely internal strategic factors in the form of strengths and weaknesses in the clove plant production process (Sulaeman, S., 2013); (Amiluddin, A., Manggabarani, I., & Siadina, S, 2023). EFAS (External Strategic Factor Analysis Summary), namely external strategic factors in the form of threats and opportunities faced by clove farming. The Strategic Position and Action Evaluation (SPACE) matrix consists of a four-quadrant framework that indicates whether an aggressive, conservative, defensive, or competitive strategy is most suitable for the organization. The SPACE matrix axis which describes two internal dimensions is financial strength and competitive advantage, while the external dimensions are environmental stability and industrial strength. (Octasylva, A., 2017).

#### **RESULTS AND DISCUSSION**

#### 4.1 Identification of Internal and External Factors in Clove Farming

Internal factors are factors contained in clove farming in the Bongok Forest in the form of strengths and weaknesses. Internal factors which are strengths in clove farming are: the condition of the bongok soil is relatively fertile, the use of superior seeds in clove farming, the level of pest and disease attacks is low, clove farming as an action for forest conservation and ecosystem restoration makes clove farming sustainable, clove plants are unique. The results of respondents' assessments of strength as an internal factor are presented in Table 1.

Strength Factors							
Namehan		1 2 STS TS		3	4	5 SS	Number of
Number	Statement			CS	S		statements
1	Soil fertility in the Bongok forest is suitable for clove cultivation	0	0	2	2	1	5
	TOTAL	0	0	6	8	5	19
2	The clove seeds planted are superior seeds	0	0	4	1	0	5
	TOTAL	0	0	12	4	0	16
3	The level of pest and disease attacks is low	0	0	2	2	1	5
	TOTAL	0	0	6	8	5	19
4	Utilizing clove plants as an action for conservation and ecosystem restoration	0	0	2	1	2	5
	TOTAL	0	0	6	4	10	20
5	The unique thing about the clove plant is that apart from being able to collect its flowers, it can also beautify tourist forests	0	0	3	1	1	5
	TOTAL	0	0	9	4	5	18

Table 1. Respondents' assessment of internal factors that are strengths in clove farming

Source: Processed Primary Data (2023)

Table 1 depicts respondents' responses regarding the strength factors of clove farming in the Bongok Forest, showing that for indicator statement 1, the average response is dominated by quite agree (cs) and agree (s) with a score of 19, then statement 2 is dominated by quite agree (cs). ) with a score of 16. Statement 3 is dominated by quite agree (cs) and agree (s) with a score of 19. Statement 4 is dominated by responses of quite agree (cs) and strongly agree (ss) with a score of 20. Statement 5 is dominated by responses of quite agree (cs) with a score of 18. It can be concluded that statement 4 owned by clove farming is in a quite strong position compared to the other statements. This means that clove plants cultivated in the Bongok Forest are very important as a forest conservation and ecosystem restoration action so that forest function remains sustainable.

Internal factors that are weaknesses in clove farming are: lack of irrigation, limited capital by farmer groups, relatively long fruiting period for cloves, lack of knowledge by farmer groups about clove cultivation, lack of attention to clove plants. these findings support the findings Welker, M. (2024). The results of respondents' responses to internal factors are presented in Table 2.

Respondents' responses regarding internal factors that are weaknesses in clove farming in the Bongok Forest (table 2) show that for indicator statement 1 the average is dominated by quite agree (cs) responses with a score of 17, then statement 2 is dominated by agree statements (s) with a score of 18, then statement 3 is dominated by agree (s) with a score of 20. Then statement 4 is dominated by quite agree (cs) responses with a score of 17 then followed by statement 5 dominated by quite agree (cs) responses with a score of 14. This can be It was concluded that statement 5 owned by clove farming was in the lowest position compared to the other statements. This means that the clove farmer group's insufficient capital can influence the productivity process of clove plants in the Bongok Forest.

#### 4.2 External Factor Analysis

External factors are variables originating from outside the control that influence the productivity of clove farming in the Bongok Forest, either directly or indirectly. The factors that create opportunities in clove farming are: Market opportunities that are still wide open, support from local communities and the village government, close marketing channels, opening up new job opportunities, developments in technology and information, easy access to roads. (Efani, I. A., Sambah, E. A. B., Manzilati, A., Riza, M. F., & Sos, S, 2023).

Weaknes Factors							
Number	<b>6</b>	1	2	3	4	5	Number of
Number	Statement	STS	TS	CS	S	SS	statements
1	There is no water channel irrigation to maintain the fertility of clove plants	0	0	3	2	0	5
	TOTAL	0	0	9	8	0	17
2	Farmers lack capital in clove farming	0	0	2	3	0	5
	TOTAL	0	0	6	12	0	18
3	Cultivating cloves until they bear fruit is quite long	0	0	1	3	1	5
	TOTAL	0	0	3	12	5	20
4	The farmer group's knowledge about clove cultivation is lacking	0	0	3	2	0	5
	TOTAL	0	0	9	8	0	17
5	Farming groups pay little attention to the growth of clove plants	0	1	4	0	0	5
	TOTAL	0	2	12	0	0	14

Table 2. Respondents' assessment of internal factors that are Weakness in clove farming

Source: Processed Primary Data (2023)

Respondents' responses to the opportunity variables are presented in table 3. Respondents' responses regarding the factors of clove farming opportunities in the Bongok Forest show that for indicators statement 1 (P1) and statement 4 (P4) on average it is dominated by agree response(s) with a score of 18, then statements 2 (P2), 3 (P3), and 6 (P6) are dominated by agree statements (s) with a score of 22. Then followed by statement 5 (P5) dominated by quite agree (cs) responses with a score of 17. It can be concluded that statements 2, 3 and 6 are owned by clove farming is in a stronger position compared to other statements. This means that community and village government support for clove farming, close marketing channels and easy access to roads are the main opportunities for clove farming in the Bongok Forest.

Threats are external factors that hinder the smooth process of developing clove cultivation farming in the Bongok Forest. External factors as threats to clove farming are: the emergence of new competitors, unpredictable weather changes, extension programs are still minimal, production of clove plants from other districts, the use of agricultural equipment is still simple. Respondents' responses regarding external factors in the form of threats are presented in Table 4.

Respondents' responses regarding external variables that pose a threat to clove farming in the Bongok Forest show that for indicators statements 1, 4 and 5 on average are dominated by agree responses (s) with a score of 20, then statement 2 is dominated by agree statements (s) with a score of 18, then statement 3 is dominated by sufficient agreement (cs) with a score of 17. This shows that statement 3 owned by clove farming is in the lowest position compared to the other statements. This means that weather changes in the Bongok Forest are quite difficult to overcome so that their impact on the clove cultivation process in the Bongok Forest is not optimal.

### 4.3 Internal Factor Analysis Summary (IFAS) Analysis

Internal Factor Analysis Summary (IFAS) are internal factors in the form of strengths and weaknesses owned by clove farmer groups. After determining the strengths and weaknesses of clove farming, the next step is to give a weight to each of these internal factors (Hariance, R., Febriamansyah, R., & Tanjung, F., 2016); (Muhammad, M., & Neka, A. M., 2019); (Morizon, M., Nurrochmat, D. R., Maharijaya, A., & Putra, P. K., 2023). The IFAS matrix is presented in Table 5.

<b>Opportunity Factors</b>							
Number		1	2	3	4	5	Number of
	Statement	STS	TS	CS	S	SS	statements
1	The clove market opportunity is promising	0	0	2	3	0	5
	TOTAL	0	0	6	12	0	18
2	Clove farming is supported by the village government and the local community	0	0	0	3	2	5
	TOTAL	0	0	0	12	10	22
3	Clove farming marketing channels are close	0	0	0	3	2	5
	TOTAL	0	0	0	12	10	22
4	The existence of clove farming is an opportunity to open new jobs	0	0	2	3	0	5
	TOTAL	0	0	6	12	0	18
5	The development of technology and information is an opportunity for clove farming	0	0	3	2	0	5
	TOTAL	0	0	9	8	0	17
6	Road access to the Bongok forest location is easy to reach	0	0	0	3	2	5
	TOTAL	0	0	0	12	10	22

Table 3. Respondents' assessment of External factors that are Opprtunity in clove farming

Source: Processed Primary Data (2023)

Tabel 4. Respondents' Assessment of External factor	ors that are Threath in clove farming
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Threat Factors							
NT I		1 2		3	4	5	Number of
Number	Statement	STS	TS	CS	S	SS	statements
1	The emergence of new competitors when clove cultivation seems successful	0	0	1	3	1	5
	TOTAL	0	0	3	12	5	20
2	There is competition for clove cultivation from other districts	0	0	2	3	0	5
	TOTAL	0	0	6	12	0	18
3	The weather in Bongok Forest tends to change	0	0	3	2	0	0
	TOTAL	0	0	9	8	0	17
4	The clove cultivation extension program in the Bongok Forest is still minimal	0	0	1	3	1	5
5	TOTAL	0	0	3	12	5	20
	The use of agricultural tools in clove farming is still simple	0	0	1	3	1	5
	TOTAL	0	0	3	12	5	20

Source: Processed Primary Data (2023)

Table 5 shows that the score for assessing farmers' responses to internal factors (strengths and weaknesses) can be measured using a Likert scale. Respondents in this study, a total of 5 people, were asked to fill out a questionnaire containing statements to assess the responses of clove farmers, so the

total answer to the strength and weakness statements was 3.60. This means that the clove farming business developed in the Bongok Forest is able to overcome its existing weaknesses by utilizing its strengths. The total strength score is 1.91 and the total weakness score is 1.68. Clove farming in the Bongok Forest gave a high response to the conservation and ecosystem restoration concept factor using clove plants with a score of 0.45, followed by soil fertility and low pest and disease attacks, both of which had the same score of 0.41, as well as the uniqueness of the plants. cloves with a score of 0.36. It can be concluded that these four factors are the main forces that are very important in clove farming in the Bongok Forest. Meanwhile, the main weakness of clove farming that is difficult to solve is the farmer group's lack of knowledge about clove cultivation with a score of 0.32, followed by the lack of attention to clove plants with a score of 0.22.

Internal Factor	Weight	Rating	Score
Strenght	U	<u> </u>	
1. Good soil fertility/nutrients quality seeds	0.11	3.8	0.41
2. Low pest and disease attacks	0.09	3.2	0.29
3. Clove farming as an action for forest conservation and	0.11	3.8	0.41
ecosystem restoration	0.11	4.0	0.45
4. The uniqueness of the clove plant	0.10	3.6	0.36
Sub total			1.91
Weakness			
1. There is no irrigation	0.10	3.4	0.32
2. Farmer group capital is limited	0.10	3.6	0.36
3. The process of cultivating cloves until they bear fruit is quite long	0.11	4.0	0.45
4. Lack of knowledge of farmer groups regarding clove cultivation	0.10	3.4 2.8	0.32
5. Lack of attention to clove plants	0.08		0.22
Sub total			1.68
Total	1.00		3.60

Tabel 5. Matriks IFAS (Internal Factor Analysis Summary)

Source: Processed Primary Data (2023)

### 4.4 External Factor Analysis Summary (EFAS)

External Factor Analysis Summary (EFAS) is external factors in the form of opportunities and threats owned by clove farming groups in Hutan Bongok Village, Jetak Village, Montong District. The EFAS matrix can be seen in table 6.

Table 6. Matriks EFAS	(Eksternal Factor Analy	vsis Summary)

External Factor	X	weight	Rating	Score
Opportunity				
1. Promising marke	et opportunities	0.08	3.6	0.30
2. Community and	village government support for clove farming	0.10	4.4	0.45
3. Close marketing	channels	0.10	4.4	0.45
4. Opens new job o	pportunities	0.08	3.6	0.30
5. Development of	technology and information	0.08	3.4	0.27
6. Road access is ea	asy to reach	0.10	4.4	0.45
Sub total				2.23
Threath				
1. The emergence of	of new competitors	0.09	4.0	0.37
2. Clove production	n from other districts	0.08	3.6	0.30
3. Weather changes		0.08	3.4	0.27
4. The extension pr	ogram is still very minimal	0.09	4.0	0.37
5. The use of agricu	ultural tools is still simple	0.09	4.0	0.37
Sub total				1.69
Total		1.00		3.93

Source: Processed Primary Data (2023)

Table 6 shows that the score for assessing farmers' responses to external factors (opportunities and threats) can be measured using a Likert scale (Hadid, A., Jumiyati, S., Toknok, B., Dua, P., & Haeruddin, H., 2023); (Siregar, M., 2020). Respondents in this study, a total of 5 people, were asked to fill out a questionnaire containing statements to assess the response of clove farmers, so the total answer to the statements of opportunities and threats was 3.93. This means that clove farming has relatively high external factors to respond to existing opportunities and is able to reduce the threats that must be faced. This shows that the total EFAS score is in a high position (<3.0). The value of the opportunities for clove farming in the Bongok Forest, namely community and village government support for clove farming, close marketing channels and easy-to-reach road access, have the same highest score of 0.45. This is followed by the factor of promising market opportunities and opening up new jobs with an average score of 0.30. It can be concluded that these five factors have very good opportunities for developing clove farming in the Bongok Forest. Meanwhile, the external factors that are the main threat are weather changes with a score of 0.27. This was followed by clove production factors from other districts with a score of 0.30.

### 4.5 SWOT Analysis

The next stage is the formulation of a clove farming development strategy based on the SWOT matrix based on data obtained from interviews, observations and field documentation. Analysis of clove farming development strategies based on the SWOT matrix has four alternative strategies that are applied and obtained from analysis of internal and external factors. The SWOT matrix can be seen in table 7.

Alternative strategies based on the SWOT analysis matrix (Table 7) are described as follows:

# 1. SO Strategy

This strategy is to rely on strength to get opportunities. The SO strategies include:

a. Increasing the productivity of clove cultivation

Utilizing the power of soil fertility, easy-to-reach road access and superior seeds with the support of the local community and the Village Government for clove farming in the Bongok Forest will increase the productivity of clove cultivation. To achieve this, farmer groups need to maintain clove plants with incentives so that clove plants can grow optimally so that in the future clove farming will have a high selling value to take advantage of promising market opportunities.

b. Improving HR capabilities in technology and information development

The development of technology and information requires adequate human resources so that they can take advantage of promising market opportunities. This will make it easier for farmer groups to find out various information regarding the marketing process for clove commodities to take advantage of close marketing channels and the uniqueness of clove plants in the Bongok Forest. Encourage farmer groups in their daily use of technology, such as implementing more efficient software or sophisticated information management systems.

c. Increasing conservation, forest utilization and reforestation

The benefits of reforestation play a role in increasing the income of farmer groups. Forest resources not only provide results that can be utilized, but forests also have a role in encouraging the availability of employment opportunities (Adams, C., Rodrigues, S. T., Calmon, M., & Kumar, C., 2016); (McElwee, 2021). Therefore, forests need to be preserved so that they continue to have a positive impact on farmer groups and various types of animals and plants. This requires good cooperation between the Village Government and the surrounding community in preserving forests so that their sustainability is maintained by replanting.

### 2. ST Strategy

This strategy uses force to deal with threats. The ST strategies include:

a. There is a need for weather mitigation and adaptation

This strategy aims to harness the power of forest conservation and ecosystem restoration using clove plants in the face of current weather changes. Measures to reduce the negative impact of weather changes and adapt to new weather conditions. For example, the use of more sophisticated technology in agriculture to monitor the weather, select plant varieties that are resistant to weather changes, and develop efficient irrigation systems.

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	Т	Table 7. SWOT analysis matrix		
INTERNAL		<ol> <li>Strenght (S)</li> <li>Soil fertility in the Bongok forest is suitable for clove cultivation</li> <li>The clove seeds planted are superior seeds</li> <li>The level of pest and disease attacks is low</li> <li>Utilizing clove plants as an action for conservation and ecosystem restoration</li> <li>The unique thing about the clove plant is that apart from being able to collect its flowers, it can also beautify tourist forests</li> </ol>	<ol> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> </ol>	Weaknes (W) There is no water channel irrigation to maintain the fertility of clove plants Farmers lack capital in clove farming Cultivating cloves until they bear fruit is quite long The farmer group's knowledge about clove cultivation is lacking Farming groups pay little attention to the growth of clove plants
<ul> <li>Opportunity (O)</li> <li>1. The clove opportunity is pr</li> <li>2. Clove farming is by the village g and the local com</li> <li>3. Clove farming channels are close</li> <li>4. The existence farming is an oppopen new jobs</li> <li>5. The developm technology and i is an opportunity farming</li> <li>6. Road access to the forest location reach</li> </ul>	market omising s supported government nmunity marketing se of clove portunity to ment of nformation y for clove the Bongok is easy to	<ol> <li>Strategi SO</li> <li>Increase clove productivity to capture existing marketing opportunities (S1, S2, S3, O2, O5, O6)</li> <li>Improve HR capabilities in technology and information development (S5, O1, O3)</li> <li>Increasing clove farming as an action to preserve and utilize forests by utilizing existing marketing channels (S4, O2, O4)</li> </ol>	Str 1. 2.	ategi WO Hold regular outreach from the agricultural department (W3, W4, W5, O1, O2, O3) Submitting a proposal to the agricultural service to fulfill the capital for clove farming (W1,W2,O2,O4,O5,O6)
<ol> <li>Threath (T)</li> <li>The emergence competitors wh cultivation seems</li> <li>There is comp clove cultivation districts</li> <li>The weather is Forest tends to cl</li> <li>The clove extension progr Bongok Forest minimal</li> <li>The use of agricu in clove farmi simple</li> </ol>	e of new hen clove s successful betition for from other in Bongok hange cultivation am in the t is still ultural tools ng is still	<ol> <li>Strategi (ST)</li> <li>There is a need to mitigate and adapt to weather changes (S4, T3)</li> <li>Improve agricultural extension programs (S1 S2, S5, T4, T5)</li> <li>Add workers who are experts in their fields (S5, T1, T2)</li> </ol>	Stra 1. 2. 3.	ategi (WT) Looking for information to increase knowledge in developing clove farming (W3, W4, W5, T1, T2, T3) Complete facilities and infrastructure (W1, T5) Apply for a loan from the bank with low interest returns (W2, T4)

Source: Processed Primary Data (2023)

b. Improve agricultural extension programs

Improving agricultural extension programs is an effort to harness the power of providing knowledge and skills to farmer groups (Agunga, R., & Manda, L. Z., 2014); (Baig, 2013). This helps them optimize their farming practices, increase crop yields and improve their well-being. The program may include training in crop management, proper fertilizer use, pest control, and understanding the market.

c. Adding workers who are experts in their fields

This strategy involves recruiting and developing a workforce that is skilled and skilled in relevant fields (Ustundag, A., Cevikcan, E., & Karacay, G., 2018). A skilled workforce will help increase productivity, efficiency and quality in operations. This can include training and development of farmer groups, external recruitment, or partnerships with educational institutions to create quality human resources.

### 3. WO Strategy

This strategy is a strategy that minimizes weaknesses to take advantage of opportunities. The WO strategies include:

a. Hold regular outreach from the agricultural department

Regular outreach can increase farmer groups' awareness of current agricultural practices, regulations and available support programs. This can help them increase the productivity and quality of their clove farming products. Through regular interaction with farmer groups, the agricultural department can build strong partnerships. This can support better coordination in problem solving and the development of more effective agricultural programs.

b. Submitting a proposal to the agricultural department to fulfill capital for clove farming

If the proposal is approved, the farmer group will get access to the capital needed for clove farming. This can increase their productivity and income (Nguyen, A. T., Dzator, J., & Nadolny, A., 2015). Therefore it requires support from the Department of Agriculture. The agriculture department can provide the technical guidance and supervision needed to ensure the success of clove farming. This can improve the ability of farmer groups to manage their businesses. In both strategies, it is important to identify and overcome emerging weaknesses, while taking advantage of existing opportunities. Good coordination with the agricultural department and careful planning will be the key to success in implementing both strategies (Qureshi, A. S., McCornick, P. G., Sarwar, A., & Sharma, B. R., 2010).

#### 4.6 Formulation of Alternative Clove Farming Strategies

The space matrix (strategic positioning and action evaluation) at the stage of determining strategic alternatives is used to determine the strategic position in the development of clove farming by reducing the value of strengths and weaknesses on the (X) axis and reducing the value of opportunities with threats on the (Y) axis. X-axis=strengths-weaknesses (1.91-1.63)=0.28, Y-axis= opportunities-threats (2.23-1.69)=0.54. So the values of both axes have positive values and are in quadrant I. Alternative strategies can be seen in the picture below:



Figure 1 space matrix diagram shows that clove farming is in a very good position. This can be seen from the value of the two axes which are positive, meaning that the alternative strategy owned by clove farming can use internal strengths to take advantage of external opportunities so that they can overcome internal weaknesses and avoid external threats.

### **CONCLUSION**

The results of research on clove farming development strategies in the Bongok Forest can be concluded as follows:

- 1. Internal factors that are the main strength in clove farming are forest conservation and ecosystem restoration using clove plants. Meanwhile, the main weakness is the lack of attention to clove plants. The external factors that are the main opportunities are community and village government support for clove farming, close marketing channels and easy access to roads. Meanwhile, the main threat factor is weather changes.
- 2. Alternative strategies that can be implemented by farmer groups based on SWOT matrix analysis are increasing clove productivity, increasing human resource capabilities in developing technology and information, increasing forest conservation and utilization (strength opportunities). Meanwhile, the WO (weaknesses opportunities) strategy is to hold regular outreach from the agricultural department and submit proposals to the agricultural department to meet the capital for clove farming. The ST (strength threats) strategy requires mitigating and adapting to weather changes, increasing agricultural extension programs and adding skilled workers in their fields. The next alternative strategy is WT (weaknesses threats) seeking information to increase knowledge in clove farming, equipping agricultural equipment and infrastructure and applying for a loan from the bank with low interest returns. An alternative clove farming strategy using a space matrix is located in quadrant 1, namely the aggressive quadrant which has a positive value, namely 0.28; 0.54.

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