Analysis Of Feasibility And Enhancing Competitiveness Farming Seaweed In Situbondo District

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Abstrak
This study aims to determine the feasibility of seaweed farming, identify the factors that affect the feasibility of seaweed farming, and determine the development strategy of seaweed farming. This Research took place in Situbondo used Slovin data sampling formula. The data were analysed by using RCR and SWOT. The results show that the first period of grass farming is not feasible because family labor is calculated and the second period is feasible because the variable cost of purchasing bamboo and family labor were not calculated. Seaweed farming is prospective with strategies developeded through improved markets and partnerships as well as institutions.

Keywords: *Feasibility;Enhancing Competitiveness and Seaweed.*

I. INTRODUCTION

Situbondo has a ± 168 Km long beach is one district that has the potential of marine resources and fisheries are quite large, especially commodity seaweed *Echeuma cottoni* .Therefore Situbondo have a great chance to boost local revenues through the maritime sector and this fisheries. It appears from the seriousness of the Government of Situbondo Regency in spurring marine and fishery development activities by placing this sector in the priorities of Regional Development Planning.The types of seaweed that has economic value and has been cultivated is *Echeuma sp* and *sp Graciliria* ie from red algae. There was also *Gelidium sp, Sargassum sp* and *sp Turbinaria. Echeuma sp* cultivated in coastal waters, being *Graciliria sp* already can be cultivated in ponds. Seaweed cultivators as one of the marine and fishery developers that produce export commodities need to get attention and coaching seriously and sustainability in order to produce a quality product. To be able to produce seaweed products that can compete in the market need professional business management. can be realized if seaweed business is run by qualified human resources given the commodity is vulnerable to quality and marketing.Constraints faced by farmers or seaweed farmers is the low quality of the seaweed that is generated due to inability to maintain until the age of 40-45 days caused experiencing hair loss at the age of maintenance, and pest attack the farmers' difficulties. Venture capital often forces farmers sells seaweed at the age of 30 days above mentioned conditions in with marketing problems, the situation at harvest time where the price of sea rumors has decreased drastically. The existence of uncertain price fluctuations and the price game of the collectors caused the farmers to lose, This situation is natural in farmers almost every year and farmers have no bargaining power as business actors.

The lack of competitiveness of local agricultural products is not only due to low quality of the product, but it is also because the agricultural enterprises managed by farmers are still conventional in terms of their management and technical thing. This condition needs to be improved by various accelerating efforts so as to have the competitiveness to face the current competition in the country and overseas. Improving competitiveness of Indonesian agricultural and fishery products must be accelerated in the face of global competition flows to maintain and seize the consumer markets in Indonesia and abroad. The agricultural sector should begin to be considered because it is believed to be the major driver for the Indonesian economy if managed well by involving the stakeholders in agriculture.Situbondo, as one of the centers of seaweed farming, also known for its beach resort has not formed proper institutions or groups well, so that the existingf institutions should be revitalized. With the proper institution or4 group of seaweed farmers can be used as the center of aspiration that can be used to accommodate all desires or needs, and problems faced by farmers. In addition, in the real conditions in the field of management of production activities, marketing

tends to be done individually. The activities or productive efforts are often faced with problems of capital difficulty, price instability, and limited marketing channels. Therefore it is necessary to consider the existence of business partnerships to deal with the above issues.More ironically, though Situbondo Regency is known as the center of seaweed cultivation, the number of farmers who seek seaweed is larger than the number of farmers who choose to develop it. According to earlier information and early observations in the middle part of the region, there 180 seaweed farmers, but the current condition shows that only a few of them encourage researchers to conduct studies related to the case.

Based on this background, the research problems can be formulated as follows:

a. The feasibility of seaweed farming to cultivate.
b. Identification of factors that influence the feasibility of seaweed farming in Situbondo.
c. Institutional performance of seaweed farmers that exist with the current conditions in Situbondo.

II. METHODS

The location of the study was determined purposively (method purposive method) that is Situbondo Regency with consideration of the location which was representative to do the research. Sources of data used were primary and secondary data derived from various agencies and official documents, as well as seaweed farmers who provided information by using questionnaires as instruments in data collection.
Determination of the hypothesis formulated both in the first year and the second year as follows:

a. Seaweed farming is feasible to cultivate.
b. Identification of factors that influence the feasibility of seaweed farming in Situbondo Regency.
c. Institutional performance of current seaweed farming system in Situbondo Regency is not maximal yet

To test the feasibility of seaweed farming institution (hypothesis (a) using RCR (Revenue Cost Ratio) with the formula:

RCR = Revenue Cost : Total Cost

With decision criteria:
RCR> 1 seaweed farm is feasible (economically profitable)
RCR = 1 seaweed farming experiencing BEP
RCR <1 seaweed farming institution is not feasible (economically unprofitable)

To test the hypothesis (b and c) using the SWOT analysis, the researcher take into account internal and external factors resulting in institutional models and partnerships.

III. RESULT AND DISCUSSION

Based on research at three locations in the village of Gelung, Agel, and Mandaran, at the beginning of the first cycle of the income of farmers planting sea grass there is a minus, with a value of RCR = 0, 88 (Table 1). This shows us seaweed institution is not feasible, impropriety can feed variable costs such as labor itself and labor in the family are counted as well as the variable production and price fluctuations. The projected results of the second period income earned by seaweed farmers through the same thing there are some farmers who experiences losts. The value of RCR = 1.19 indicates that the farming of seaweed is viable. the feasibility of this is caused by the fact that there are some variable costs that are no longer taken into account in the assessment of such a purchase of bamboo and rope. They think bamboos and ropes do not need to be purchased because they can be used many times. in the proses of cropping up bamboos some bamboos might be broken, so that theyt can not be used because they decayed. Besides, it is due to the feasibility of its own personnel and family labor that is not counted in the farming and feasibility assessment

Table 1. Seaweed Farming Analysis

No Respondents	Total Cost (TC)	Production (Q)	Price (P)	Reception (TR)	Revenue (π)	Feasibility (RCR)
1	3,250,000	1,500	1,100	1,650,000	-1,600,000	0.5076923
2	2,554,500	2,300	1,100	2,530,000	-24,500	0.9904091
3	1,742,000	1,200	1,100	1,320,000	-422,000	0.7577497

4	4,215,000	4,000	1,150	4,600,000	385,000	1.0913405
5	2,648,000	1,500	1,000	1,500,000	-1,148,000	0.5664653
6	5,275,000	3,300	1,150	3,795,000	-1,480,000	0.7194313
7	3,280,000	2,180	1,100	2,398,000	-882,000	0.7310976
8	1,631,000	1,000	1,200	1,200,000	-431,000	0.7357449
9	2,553,000	1,450	1,150	1,667,500	-885,500	0.6531532
10	4,365,000	3,000	1,150	3,450,000	-915,000	0.790378
11	3,300,000	2,000	1,200	2,400,000	-900,000	0.7272727
12	6,172,000	4,028	1,150	4,632,200	-1,539,800	0.7505185
13	3,280,000	2,400	1,100	2,640,000	-640,000	0.804878
14	1,338,500	900	1,100	990,000	-348,500	0.7396339
15	2,568,000	1.650	1,000	1,650,000	-918,000	0.6425234
16	1,601,000	960	1,100	1056000	-545,000	0.6595878
17	1,626,000	1.050	1,100	1155000	-471,000	0.7103321
18	3,330,000	2,150	1.050	2257500	-1,072,500	0.6779279
19	2,500,500	1,800	1,200	2160000	-340,500	0.8638272
20	2,538,000	1,850	1,200	2220000	-318,000	0.8747045
21	5,250,000	3,700	1,150	4255000	-995,000	0.8104762
22	4,177,500	2,550	1,200	3060000	-1,117,500	0.7324955
23	3,350,000	2,400	1,100	2640000	-710,000	0.7880597
24	3,360,000	2,128	1,150	2447200	-912,800	0.7283333
25	3,210,000	2,500	1,100	2750000	-460,000	0.8566978
26	6,042,000	4,200	1,150	4830000	-1,212,000	0.7994042
27	6,978,000	4,850	1,100	5335000	-1,643,000	0.7645457
28	3,050,000	2,250	1,100	2475000	-575,000	0.8114754
29	3,330,000	2,100	1,100	2310000	-1,020,000	0.6936937
30	1,466,000	1.095	1,100	1204500	-261,500	0.8216235
31	4,215,000	2,650	1,100	2915000	-1,300,000	0.6915777
32	1,585,000	1,700	1,000	1700000	115,000	1.0725552
33	3,360,000	2,570	1,200	3084000	-276,000	0.9178571
34	805,500	550	1,150	632500	-173,000	0.7852266
35	3,180,000	2,600	1,100	2860000	-320,000	0.8993711
36	1,616,000	1,200	1,100	1320000	-296,000	0.8168317
37	2,940,000	3,500	1,000	3500000	560,000	1.1904762
38	2,538,000	1,700	1,000	1700000	-838,000	0.6698188
39	5,280,000	4,300	1,100	4730000	-550,000	0.8958333
40	1,591,000	1,400	1,000	1400000	-191,000	0.8799497
41	1,211,000	1,350	1,100	1485000	274,000	1.2262593
42	6,958,000	5,650	1,150	6497500	-460,500	0.9338172
43	8,045,000	7,460	1,150	8579000	534,000	1.0663766
44	3,740,000	5,250	1,150	6037500	2,297,500	1.6143048
45	3,000,000	2,800	1,100	3080000	80,000	1.0266667
46	5,290,000	5,100	1,100	5610000	320,000	1.0604915
47	3,295,000	2,850	1,100	3135000	-160,000	0.9514416
48	1,641,000	1,230	1.050	1291500	-349,500	0.7870201
49	2,403,000	1.590	1.050	1669500	-733,500	0.6947566
50	4,340,000	3,400	1.050	3570000	-770,000	0.8225806
51	3,330,000	2,800	1,000	2800000	-530,000	0.8408408
52	1,341,000	1,250	1,100	1375000	34,000	1.0253542
Total	171,685,500	130,891	57,500	145,549,400	-26,136,100	**44**
Average	3,301,644	2,517	1,106	2,799,027	-502,617	0.8846154

Source: data processed, 2022

Identification of Feasibility factors of Farm and Institutional Performance of Seaweed Farming

Based on the results of the above study on the feasibility of seaweed farming, it is necessary to follow up with the identification of feasibility factors, the factors referred to in this study is to determine internal and external factors in seaweed farming for further development. The discussion focused on the issues - the problems facing seaweed farmers in Situbondo to obtain better conditions. To increase the

required standart, the seaweed farming development strategy to improve competitiveness by comparing the internal and external factors for the long-term prospects. The development strategy is done by SWOT analysis. After the stage of determining the internal factors and external factors, then the next stage is the stage of elaboration scoring with IFAS and EFAS.

Table 2. Scoring Internal and External Factors

IFAS				
No	**Power**	**Weight**	Rating	**Value**
1	Easy cultivation technique	0.08	4	0.32
2	Have good quality	0.05	4	0.2
3	High Production	0.08	4	0.32
4	Low cost	0.04	3	0.12
5	Utilization of the safe process	0.03	4	0.12
6	added value	0.05	4	0.2
7	It has no waste	0.05	3	0.15
8	Broad and open marketing	0.04	3	0.12
9	Extensive land	0.08	4	0.32
	Total strength	0.5	33	1.87
No	**Weakness**	**Weight**	Rating	**Value**
1	Government assistance is lacking	0.15	2	0.3
2	Low bargaining position of farmers	0.1	1	0.1
3	Farmers' dependence on collectors	0.1	2	0.2
4	No partnership	0.05	1	0.05
5	Group of farmers road	0.1	2	0.2
	Total weakness	0.5	8	0.85
	Total internal factor	1	41	2.72
EFAS				
No	Opportunities	**Weight**	Rating	**Value**
1	Government support	0.1	4	0.4
2	CUstomer trust	0.1	4	0.4
3	Products are liked by all circles	0.1	4	0.4
4	Technological sophistication	0.1	3	0.3
5	Broad market share	0.1	4	0.4
	Total opportunities	0.5	19	1.9
No	**Threat**	**Weight**	Rating	**Value**
1	Climate factor	0.15	2	0.3
2	Market competition	0.15	2	0.3
3	The length of the chain of commerce	0.1	1	0.1
4	Technological sophistication	0.1	2	0.2
	Total threats	0.5	7	0.9
	Total external factors	1	26	2.8

Matrix Analysis Relative Competitive Position

From the calculation of internal factors, it obtained value by 2.72 IFAS and the calculation result of external factors EFAS obtained value of 2.8. that means seaweed farming in Situbondo has prospective opportunities and the competence to continue the business through the increasing sale growth and improved competitiveness, and institutional use to increase profits by improving the quality and access to a wider market.

Analysis Matrix *Grand Strategy*

The next stage of analysis is to determine the strategy based on the results of the weighting and rating calculations on the SWOT analysis in the hope of utilizing a strong position and overcoming the obstacles encountered. The calculation results can be compiled in Grand Strategy matrix image as shown below

As for each quadrant is:

Quadrant 1 : It is a very favorable situation. the business has the opportunity and power so that it can take advantage of the opportunities that exist. The strategy that should be applied in these circumstances is to support aggressive growth discretion *(Growth Oriented Strategy).*

Quadrant 2 : Despite facing various threats, this business still has internal strength. The strategy to be implemented is to use the power to exploit long-term opportunities by means of a diversified strategy (product / market).

Quadrant 3 : This business faces enormous market opportunities, but on the other hand, it faces some internal constraints or weaknesses. The focus of the company's strategy is to minimize the company's internal problems so as to create better market opportunities.

Quadrant 4 : This is a very unfavorable situation. the company is facing various threats and internal weaknesses..

From the picture it can be seen that the largest area is in position 1, it means supporting the aggressive strategy. So the strategy that can be done is to support the growth of aggressive seaweed farming by utilizing the strengths and opportunities that exist with the aim of maximizing seaweed products ranging from the process of farming to product marketing.

Matrix SWOT

Based on the SWOT analysis matrix position it can be arranged four main strategies SO, WO, ST and WT as listed in Figure 2 of the above as follows:

IFAS	***Strength* (Strength)**	***Weakness* (Weakness)**
	Easy cultivation technique	Government assistance is not quite right
	Have good quality	Low bargaining position of farmers
	High Production	Farmers' dependence on collectors
	Low cost	Just rely on personal selling
	Utilization of the save process	Farmer groups are weak
	Has added value	
	It has no waste	
	Broad and open marketing	
	Extensive land	

EFAS		
***Opportunities* (Opportunities)**	SO Strategy	WO Strategy
Government support	Maintaining product quality to keep customers' trust high	Strengthening of bargaining position on seaweed price
CUstomer trust	Market expansion	Improve performance to institutional (farmer groups)
Products are liked by all circles		Increase promotion
Technological sophistication		
Broad market share		
Threats ***(Threat)***	Strategy ST	WT Strategy
Climate factor	Development of seaweed cultivation technique innovation	Fulfilling market desires
Market competition	Market development	Evaluation and revamping of marketing methods
The length of the chain of commerce	Utilization of IT technology	
Technological sophistication		

Source: primary data, processed 2022

Fig 2. SWOT Matrix

a.Strategy SO

Seaweed farming development strategy use all the strengths and opportunities that exist, namely:

1.Maintaining product quality to keep customers' trust high

This form of strategy can be done by farmers who committed to maintaining or even improving the quality ranging from cultivation, maintenance to harvesting.

2. Market development

This form of strategy can be done by utilizing the development of technological sophistication such as internet, so that farmers can expand market share and not fixated on one marketing institution or dependence on the collectors. By utilizing the internet, the farmers can obtain market information in the form of seaweed prices in the market, and new customers to expand marketing.

b.Strategy WO

Seaweed farming development strategy by taking advantage of opportunities can minimize existing weaknesses by:

1.strenghtening bargaining position on the price of seaweed

The shape of this strategy in the form of innovation in the marketing process seaweed, that is by giving packaging in dried seaweed and innovation in products to be marketed in order to obtain the added value at the price. It is also expected that farmers' groups should be more active in supporting activities such as better seaweed price determination and are in a more favorable bargaining position.

2. Improving institutional performance (farmer groups)

The form of this strategy is to maximize institutional performance (farmer groups), farmer groups to be more active in supporting the activities of seaweed farming.

3. Increasing Promotions

So far, farmers rely on *personal selling* in order to promote seaweed products. Therefore they need the development of promotional models such as sales promotion and publicity. This can be done by disseminating the news about the product with the aim that people become more familiar and interested to buy it.

c.Strategy ST

This development strategy use all the power to overcome the existing threats, which include:

1.The development of seaweed cultivation technique

During this cultivation method, what seaweed farmers do is racking models of course. this model has weaknesses. Bamboos are needed to put the ropes which tied seeds, wind and big waves are often carried by and even disappear. Preferably in anyway, we tried other models such as the *long line*. This model is more economical considering farmers do not need to buy bamboos.

2. Market development

Seaweed farmers who only sell their products to collectors should look for other marketing alternatives such as partnership pattern. with partnership there will be price guarantee, cooperation and business sustainability so that farmers can enjoy more profit.

3.The utilization of technology

The use of technology in the process of production and processed technology aims to increase the benefits of farmers, including the use of information technology in the current era which is inevitable, to maximize marketing.

d. Strategy WT

Seaweed development strategy is done by minimizing weaknesses and avoiding existing threats, namely:

1. Fulfilling market desires

Farmers should better adjust the market's desire than just providing the product. This form of strategy takes the advantage of seaweed added value with various preparations. So that the use of added value is expected to help farmers in the development of business.

2. Evaluation and revamping of marketing methods

This can be done by evaluating the marketing thing then do improvements to all marketing parameters seaweed farming starting from the marketing environment, marketing activities and marketing management.

Strategy Formulation

Based on analysis of internal factors and external compiled in matrix position located in the *white area* (strong chance), then *the Matrix Grand Strategy* produce an aggressive strategy. it is necessary to develop a formulation of a strategic plan that is right for farming seaweed in Situbondo Regency with a short term strategy plan and long term strategic plan. For example, a short-term strategic plan concerning quality and marketing and a long-term strategic plan on cultivation technique innovation and technology information utilization.Thus, the identification of both internal and external factors is very useful for the development of seaweed farming in Situbondo Regency and from the results of this study , the institutional factors, partnership has not run optimally, but the results of the SWOT analysis as a whole shows seaweed farming has a chance future prospective to be developed.

IV. CONCLUSION

This reasearch found that:

- The first period is not feasible
- And the second period is worth it

And based on SWOT analysis seaweed farming has prospects for development through the improvement and partnerships and institutional markets.

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