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Economic Potentials of Home Industry based on Local Food Processing (Cassava) to support Food Security in Situbondo Regency

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Abstract *— Development emphasizing the characteristics of an area can increase food security optimally. However, to improve food security, it is not only applied at the regional level but also at the household level because food security at the household level is closely related to food security at the regional level. The objectives of this study are: (1) To figure out the potential centers of cassava development in Situbondo Regency; (2) To find out the economic analysis of cassava-based processed products in Situbondo Regency; and (3) To develop strategies for developing home industry of cassava-based processed products in Situbondo Regency. The study was conducted in Situbondo Regency. The research method used was descriptive and analytical approaches using primary and secondary data collection methods. Sampling in the vertical home industry was done by using the snowball sampling method, a method that starts from several entrepreneurs who are asked to show other entrepreneurs, especially those who process cassava processed products. The data was analyzed using base sector analysis, economic analysis (income and value-added) and Force Field Analysis (FFA). The results revealed that two out of seventeen sub-districts in Situbondo had potential land area and production, namely Sumber Malang District and Arjasa District. Cassava commodity-based processed products have economic values; they are income and value-added whichvary in each home industry. The strategy of developing cassava-based processed products in Situbondo Regency was the empowerment that focused not only on exploitative goals but also was directed at empowering farmers and home industry entrepreneurs through partnerships.*

Keyword *— **Home Industry, Local Food (Cassava), Income, Value-Added, and Force Field Analysis (FFA).***

I. INTRODUCTION

The development of the agricultural industry nowadays both in terms of quantity and type is more dominated by the agricultural processing industry in the countryside. The application of the cassava-based local food processing industry system in Situbondo Regency is expected to be able to motivate farmers and entrepreneurs of the home industry particularly to be able to actively participate as a subject of development in implementing science and technology dynamically so that expeditious production and value-added products produced will extend as well as people's income and welfare.

In this regard, Situbondo Regency government began to pay attention to the problem of developing rural areas, one of which was pursued through the development of the processing industry. But in the process of developing this industry is not easy because it requires a deeper understanding of the characteristics of rural areas both spatially, the need for facilities and infrastructure, forms of rural market institutions and community participation. Spatially, rural areas are often located in areas that are difficult to reach due to limited road and transportation facilities. This condition causes the economic activities of rural communities to be inefficient and generally more subsistent.

On the other hand, the mastery of farmers and home industry entrepreneurs on knowledge and information is very low due to limited education and communication facilities. As a result, economically and politically, the bargaining position of these actors becomes very weak and in the end, their interests have less attention. Therefore, the

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objectives of this study are: (1) To figure out the potential centers of cassava development in Situbondo Regency; (2) To find out the economic analysis of cassava-based processed products in Situbondo Regency; and (3) To develop strategies for developing IRT for cassava-based processed products in Situbondo Regency.

II. METHODOLOGY

The research area is determined intentionally (purposive method), which is in Situbondo Regency. The research method used is descriptive and analytical approaches using primary and secondary data collection methods. Sampling in the home industry was done using the Snowball Sampling method, a method that starts from several entrepreneurs who are asked to show other entrepreneurs, especially those who proceed with cassava-processed products. The data analysis method uses base sector analysis, economic analysis (income and value-added) and Force Field Analysis (FFA).

III. RESULTS AND DISCUSSION

1. Potential Development Center for Cassava

The cassava center area in East Java selected in this study was Situbondo Regency. The potential of cassava plant centers in Situbondo Regency can be seen in Table 1.

Table 1. Potential of Cassava Centers in Situbondo Regency

No	District	Wide Area (Ha)	Production (Ton)
1.	Sumbermalang	5	84
2.	Arjasa	284	4.750
	Total	**289**	**4.834**

Source: Situbondo Regency in Figures 2019

Table 1 presentsin the aspects of the cassava plant area in Situbondo Regency, there are only two districts that have the potential, specificallySumbermalang District with an area of 5 Ha and Arjasa District has the largest land area of 284 Ha. The next is the production aspect. Based on the potential of cassava in Table 1,Arjasa District is the largest cassava-producing region with a production of 4,750 tons and Sumbermalang District of 84 tons. Seen from the calculation of the base sector, the data analysis is presented in Table 2.

Table 2. Location Quotient (LQ) Analysis of Cassava Plants in Situbondo Regency

No	Distric	Year					Average	Note
		2014	2015	2016	2017	2018		
1.	Sumbermalang	14,4	1,25	1,99	3,25	1,47	4,48	Basis
2.	Arjasa	7,59	8,78	8,23	7,00	8,69	8,06	Basis

Source: Secondary Data Processed in 2019

Based on Table 2, LQ calculation results were obtained within five years in Situbondo Regency for cassava crop commodities. Sumbermalang and Arjasa sub-districts are the base sectors that can meet cassava production needs in their region and also supply cassava production output out of the region with an average LQ value of 4.48 and 8.06 respectively.Graphically, the average LQ value in cassava plants in Situbondo can be figured out inFigure1.

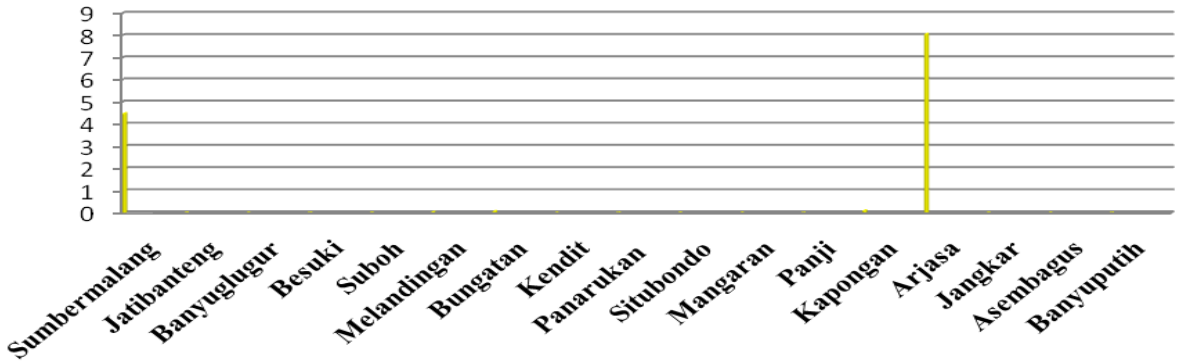

Fig.1: Average LQ Value of Cassava Commodities in Situbondo Regency in 2014-2018

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Based on various explanations regarding the area and level of cassava production, it indicates that Arjasa District is the most potential area for cassava farming activities. Arjasa District, which has an area of 284 Ha, is capable of producing 4,750 tons of cassava.

2. The Economic Analysis of Cassava-Based Processed Products

In the context of extending household food security, extracting local food potential is quite strategic when related to its role, especially as an alternative source of staple food, especially food sources of carbohydrates both as a partial substitution of rice or other food. Situbondo Regency has considerable potential in providing alternative food such as cassava. Furthermore, other types of alternative food with intensive cultivation patterns will be able to provide a very large contribution to the development of alternative food and also provide a large benefit in increasing the income of the community. While in terms of processing, there have been quite a lot of developed food technologies that can produce a variety of alternative processed products. Many of cassava-based products are processed into snacks such as *lupis*, *jemblem*, *lemet*, cassava chips and *tape* in Situbondo. The following is data on economic analysis from the results of discussions with home industry entrepreneurs of cassava-based processed products in Situbondo Regency.

Table 3. Analysis Value of Economic Calculation of Cassava-Based Processed Products

Economic Analysis	The value of cassava-based processed products				
	Lupis	Jemblem	Lemet	Chips	Tape
Total Cost (Rp)	163.294,27	28.871,97	23.703,29	1.570.571	2.247.900
Total Income (Rp)	180.000	50.000	40.000	2.400.000	2.640.000
Income (Rp)	16.705,73	21.128,03	16.296,71	829.429	392.100
Value-added (Rp)	11.287,98	14.657,01	10.848,35	1.059,43	277,5
Value-added Ratio (%)	60,2	76,64	66,97	44,14	19,3
Cost TK (Rp)	2.000	5.000	5.000	230	228,75
Ratio TK (%)	17,72	34,11	46,09	21,71	82,4
Profit (Rp)	9.287,98	9.657,01	5.848,35	829,43	48,75
Profit Ratio (%)	82,28	65,89	53,91	78,3	17,6

Source: Secondary Data Processed in 2019

Table 3 presents the results of the economic analysis of cassava-based processed products in Situbondo Regency.

a. The income of *lupis* processing wasRp. 180,000.00 per production process. The expense wasRp. 163,294.27. From the review of total costs and total revenues, the income of the entrepreneurs wasRp 16,705.73 per production process. While the value-added of *lupis* was Rp.11,287.98/Kg of raw materials. The value-added obtained by the entrepreneur was still profitable after being reduced by labor costs. The value-added ratio is 60.20%. From this value-added ratio, it is noted that the percentage of profit ratio was 82.28% and the rest was the labor cost ratio of 17.72%. The ratio of profits from value-added was greater than the ratio of labor costs which means that *lupis* entrepreneurs concerned more about the allocation of industrial management rather than the allocation of labor factor income;

b. The income of*jemblem* processing wasRp. 50,000.00 per production process. The expense wasRp. 28,871.97. From a review of the total costs and total revenues, the income gained by the entrepreneurs wasRp. 21,128.03 per production process. While the average value-added wasRp. 14,657.01/Kg of raw materials. The value-added still provides benefits after being reduced by labor costs. The value-added ratio was 76.64%. From this value-added ratio, it admits that the percentage of profit ratio was 65.89% and the rest was the labor cost ratio of 34.11%. The ratio of profit from value-added was greater than the ratio of labor costs which means that *jemblem* entrepreneurs concerned more about the

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allocation of industrial management rather than the allocation of labor factor income;

c. The income of *lemet* processing wasRp. 40,000.00 per production process. The expense wasRp. 23,703.29. From the review of the total cost and total revenue, the income attained by the entrepreneurs wasRp. 16,296.71 per production process. Meanwhile, the average value-added wasRp. 10,848.35/Kg of raw materials. The value-added turns out to still provide benefits after being reduced by labor costs. The value-added ratio was 66.97%. From this value-added ratio, it indicates that the percentage of profit ratio was 53.91% and the rest was the labor cost ratio of 46.09%. The ratio of profit from value-added was greater than the ratio of labor costs which means that the *lemet* entrepreneur concerned more about the allocation of industrial management rather than the allocation of labor factor income;

d. The income of processing chips wasRp. 2,400,000.00 per production process. The production cost wasRp. 1,570,571.00. From a review of total costs and total revenues, the income achieved by entrepreneurs wasRp. 829,429.00 per production process. At the same time, the average value added of chips wasRp. 1059.43/Kg of raw materials. The value-added still provides benefits after being reduced by labor costs. The value-added ratio was 44.14%. From this value-added ratio, it infers that the percentage of profit ratio was 78.30% and the rest was the labor cost ratio of 21.71%. The ratio of profit from value-added was greater than the ratio of labor costs which means that the chips entrepreneursconcerned moreabout the allocation of industrial management rather than the allocation of labor factor income; and

e. The income of *tape* processing wasRp. 2,640,000.00 per production process. The expense wasRp. 2,247,900.00. From the review of total costs and total revenues, the revenue obtained from the *tape*entrepreneurs wasRp. 392,100 per production process. While the average value-added of *tape* was Rp. 277.50/Kg of raw materials. The value-added turns out to still provide benefits after being reduced by labor costs. The value-added ratio was 19.30%. From this value-added ratio, it indicates that the percentage of profit ratio was 17.60% and the rest was the labor cost ratio of 82.40%. The ratio of profit from value-added was smaller than the ratio of labor costs, which means that *tape* entrepreneurs concerned more about the allocation of labor factor income rather than the allocation of industrial management.

3. The Strategy of Developing Cassava-Based Home Industry Products

The development of a local food-based home industry made from cassava in Situbondo Regency is emphasized on the driving and inhibiting factors. To find out the strategy that will be applied, the FFA (Force Field Analysis) was used. The results of the FFA Analysis (Force Field Analysis) for local food-based home industries made from cassava in Situbondo Regency will produce values that can be used in formulating strategies.

Table 4. Evaluation of the Driving Factors for the Development of Cassava-Based Local Food Home Industry

No	Driving Factors	BF	ND	NRK	NBD	NBK	TNB	FKK
D1	Availability of raw materials	0,17	4	3,56	0,70	0,62	1,31	*1
D2	Opportunities of community to explore of the potential of capital in their region	0,13	3	3,67	0,39	0,48	0,87	
D3	Hereditary experiences in processing product	0,17	3	3,11	0,52	0,54	1,06	
D4	Value-added and profit of cassava processed business	0,17	3	3,33	0,52	0,58	1,10	
D5	Technology and processing methods are relatively simple	0,17	3	3,67	0,52	0,64	1,16	
D6	Availability of a local market for cassava-processed products	0,17	3	3,33	0,52	0,58	1,10	

Source: Secondary Data Processed in 2019

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Table 5. Evaluation of the Driving Factors for the Development of Cassava-Based Local Food Home Industry

No	Driving Factors	BF	ND	NRK	NBD	NBK	TNB	FKK
H1	Weak business and institutional management	0,21	3	3,89	0,64	0,83	1,48	
H2	Limited development of quality and standardization	0,21	4	3,78	0,86	0,81	1,67	
H3	Weak involvement of farmers as suppliers of raw materials	0,29	3	2,89	0,86	0,83	1,68	*1
H4	Non-optimal guidance and assistance from stakeholders	0,14	4	3,78	0,57	0,54	1,11	
H5	Limited access to market development	0,14	3	3,33	0,43	0,48	0,90	

Source: Secondary Data Processed in 2019

Notes:

BF : Weight of Factor

ND : Value of Support

NRK : Value of Average Relation

NBD : Weight of Support

NBK : Value of Linkage Weight

TNB : Total Amount of Weight

FKK : Key Success Factors

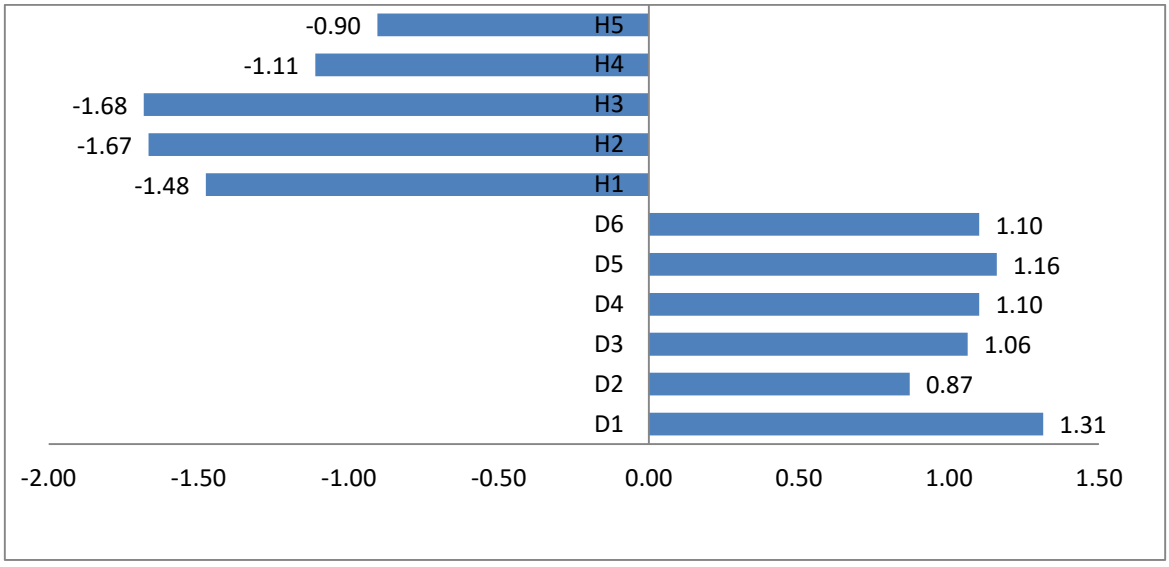

Fig.2: Field of Strength Development of Cassava-Based Local Food Home Industry in Situbondo Regency

Figure 2 describes the direction and value of each driving factors as well as the inhibiting factors for the development ofcassava-based local food home industryin Situbondo. The length of the arrow indicates the magnitude of TNB from each factor. Meanwhile, the direction of the arrow is the tug between the inhibiting factor and the driving factor. The total value of the driving TNB was 6.61 while the total value of the inhibiting TNB was 6.84. Driving TNB is smaller than inhibitingTNB. Based on the strength field values, it infers that the activities of developing cassava-based local food home industryfaced with several obstacles that must have a solution.

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The strategy focusing the results of the FFA analysis indicates that the key strengths or selected driving have been focused on the stated goals, namely for the development of a home industry of cassava-based local food. The driving force chosen was the availability of raw materials. The focus of development is to increase the productivity and quality of raw materials that maintain the continuity of raw material availability. However, attention to the availability of raw materials must be balanced by price guarantees that benefit farmers. Whereas for FKK, the obstacle is the weak involvement of farmers as suppliers of raw materials, so it needs to be directed at the pattern of cooperation between entrepreneurs (Home Industries) with farmers producing raw materials.

The formulation of this strategy must concern the compatibility of the optimization of the driving key to the improvement of the inhibiting key. This means that if the driving key and inhibiting key are chosen more than one, then the preparation of the strategy must concern about the compatibility of the combination of each factor to achieve the objectives to be achieved. Based on the selected driving FKK and inhibiting FKK, the strategies can be developed for the enlargement of a cassava-based local food home industry in Situbondo, specifically "Empowerment Directed to Empower Each Other between Farmers and Entrepreneurs (Home Industry) Through Partnerships".

IV. CONCLUSIONS

1. Based on the area of cassava plants in Situbondo, Arjasasub-district has the largest area of 332Ha with the production of 37,271 Kw which is then followed by Sumbermalang District with an area of 31 Ha with a production of 3,957 Kw. From the LQ calculation, the average LQ value of each sub-district was 8.06 and 4.48.
2. Local food-based processed products made from cassava have value-added and vary in profitability. This variation is strongly influenced by factors of ability, production capacity in one production process, use of costs and pricing.
3. The strategy for the development of cassava-based local food home industries in Situbondo Regency is "Empowerment Directed to Empower Each Other between Farmers and Entrepreneurs (Home Industry) Through Partnerships".

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