

Sustainability of Small and Medium Enterprises of Banana Processed Products Based on Economic, Social and Environmental Impacts

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Abstract. This study aimed to study the sustainability of SMEs of banana processing products based on economic, social, and environmental impacts using the Triple Bottom Line concept. This study used a case study approach; the number of respondents was 160 from Mekarsari SMEs. The results show that all processed banana products are feasible because the R/C ratio value is more than 1. The added value produced by the four products is high because the added value ratio of the four products is above 40%. Business sustainability is assessed from the Triple Bottom Line aspect. The economic aspect has shown the sustainability of its business economically, as seen from the increase in sales. The social aspect of Mekarsari SMEs can create new jobs by empowering the community. The environmental aspect shows that Mekarsari SMEs can produce innovations by managing their product waste. The banana processing products in the Mekarsari SMEs are sustainable based on economic, social, and environmental aspects.

1. Introduction

Industrialization, modernization, and coordinated development support economic growth in big cities and metropolitan areas in upper-middle income country like Indonesia [1]. These industrialization activities encourage increased productivity in Micro, small and medium enterprises (SMEs) and become a driving force for regional and national economic growth [2]. Entrepreneurship and entrepreneurs from SMEs are essential drivers of a country's economic growth because they contribute to the emergence of innovations and create jobs for the community, thereby reducing the unemployment rate among individuals of productive age [3]. As an upper-middle country, the number of SMEs in Indonesia continues to increase. Based on data from the Ministry of Cooperatives and SMEs Republic of Indonesia (2021), the number of SMEs currently reaches 64.2 million with a contribution to GDP of 61.07% or worth 8,573.89 trillion rupiahs. The contribution of SMEs to the Indonesian economy includes the ability to absorb 97% of the total workforce and collect up to 60.4% of the total investment.



Semarang City is the capital city of Central Java Province and the center of economic and government activities that play an essential role in encouraging economic growth at both the city and provincial levels. Through the Cooperatives and UMKM Service, the Semarang City Government is obliged to guide business actors in the city of Semarang. To become fostered SMEs, the SMEs must have a micro and small business license (IUMK). Based on data from the Semarang Cooperatives office, 28,326 SMEs have been facilitated by the Semarang City Government because they have been included in the Semarang City Cooperatives and Micro Business Office database. The development of small and medium enterprises (SMEs) in Semarang City was influenced by the election of Semarang City as a tourism icon in Central Java, especially for processed food products. Food tourism in Semarang city is a factor that stimulates the growth of SMEs, so it has an impact on opening up job opportunities and increasing community welfare [4]. According to the Central Statistics Agency for the City of Semarang, in 2021, the number of SMEs in Semarang City was 17,603 businesses. One of the SMEs is Mekarsari, which was focused on the processing business of banana chips, banana cake, fried bananas, and floss banana blossoms.

The potential of bananas in Semarang is relatively high; Indonesia is a center for banana production in the world because it has 200 types of bananas; bananas production in 2020 amounted to 8,182,756 tons, an increase of 12.4% from the previous year, Central Java is one of the provinces that has the highest average banana production make it most accessible to get the raw materials for bananas processing business [5]. SMEs such as Mekarsari that focus on processing agricultural products need to be studied further related to the sustainability of their business. Products based on agricultural products are vulnerable to obtaining the raw materials that caused the failure of agriculture sectors to cause climate change [6]. The current situation for entrepreneurs in the business's sustainability is focused on profitability and managing economic, social, and environmental impacts [7]. Information about the sustainability business of SMEs based on agricultural products still needs to be made available. Therefore, this research aimed to study the sustainability of SMEs based on economic, social, and environmental impacts using the Triple bottom-line concept

2. Materials and Methods

This research uses quantitative research methods with a case study approach. The quantitative method is a scientific method that is concrete, objective, rational, and systematic. Furthermore, it produces data in numbers, which are then analyzed statistically. Meanwhile, case studies are analyzed on contemporary events to answer various "how" and "why" questions and researchers have no control over these events. Respondents were determined by using the census method. Respondents in this study are banana processing business actors who are members of the Mekarsari SMEs Group, Rowosari Village, Tembalang District, Semarang City, totalling 160 people made from processed bananas. Data collection techniques used are interviews with the help of questionnaires, observation, and documentation. The data obtained is then processed using descriptive data analysis and business feasibility analysis, which includes calculations:

1. R/C Ratio
2. Total Production Cost with the formula:

$$TC = TFC + TVC \quad (1)$$

Definition :

TC : Total cost of banana processed business (Rp)

TFC : Total fixed cost of banana processed business (Rp)

TVC : Total variable cost of banana processed business (Rp)

3. Depreciation with the following calculations:

$$(\text{Acquisition cost} - \text{residual value}) / \text{Economics age} \quad (2)$$

4. Labor Cost
5. Raw Material
6. Cost of Complementary Materials
7. Value-Added Analysis

Table 1. Calculation of Value-Added Analysis

Variable	Value
Output, Input and Price	
1. Output (Kg/process)	A
2. Input (Kg/process)	B
3. Labour (hour/process)	C
4. Conversion Factor	$D = A / B$
5. Coefficient of Labor	$E = C / B$
6. Price of Output (IDR/Kg)	F
7. Labour Wages (IDR/Man-day)	G
Revenue and Profits	
8. Raw Material Prices (IDR/Kg)	H
9. Other Input (IDR/Kg)	I
10. Value of output (IDR/Kg)	$J = D \times F$
11. a. Added Value (IDR/Kg)	$K = J - H - I$
b. Ratio of Added Value	$L\% = K / J \times 100\%$
12. a. Income Labour (IDR/Kg)	$M = E \times G$
b. Share of Labour (%)	$N\% = M / K \times 100\%$
13. a. Profit(IDR/Kg)	$O = KM$
b. Rate of Profit (%)	$P\% = O / J \times 100\%$
14. Margin (IDR/kg)	$Q = J - H$
a. Income of Labour (%)	$R\% = M / Q \times 100\%$
b. Other Input (%)	$S\% = I / Q \times 100\%$
c. Profit of Process (%)	$T\% = O / Q \times 100\%$

3. Results and Discussion

3.1 Mekarsari SMEs Sustainability Aspect

Business actors interpret business sustainability as a business that continues to move and develop in the long term. Business sustainability will be created if business actors focus on social and environmental aspects, not just economic ones. So, in business sustainability, conducting a triple-bottom-line analysis that considers the economic, social, and environmental factors is necessary. The detailed results of the triple-bottom-line analysis carried out by Mekarsari SMEs can be seen in Figure 1.

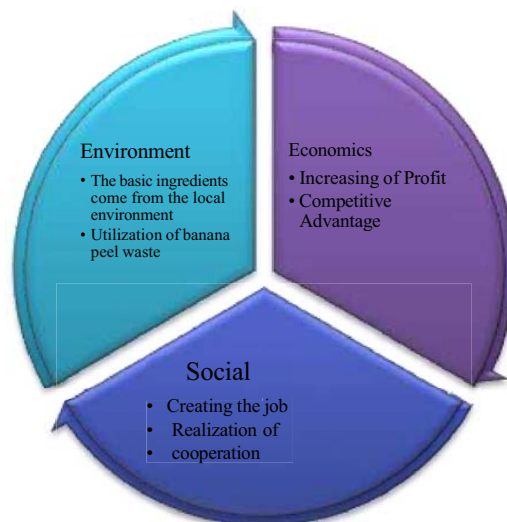


Figure 1. Triple Bottom Line in Mekarsari SMEs

3.2 Economic Aspect

The business analysis used in this study includes an analysis of total costs, total revenues or total revenues, and the R/C Ratio or comparison between revenues and total costs. Calculations that have been processed are as follows:

Table 2. Calculation of Business Feasibility per Production Process

No.	Type of Cost	Chips	Banana Fritters	Banana Cake	Floss Banana Blossoms
1.	Fix Cost (FC)				
	Depreciation (IDR)	4,049	699	1,231	2,383
	Labour (IDR)	24,000	15,000	20,000	24,000
	Total FC (IDR)	28,049	15,699	21,231	26,383
2.	Variable Cost (VC)				
	Raw Material (IDR)	137,000	53,957	63,550	114,000
	Complement (IDR)	78,000	3,000	19,000	58,400
	Total VC (IDR)	215,000	56,957	82,550	172,400
3.	Total Cost (TC)	243.049	72,656	103,781	198,783
4.	Total Revenue (TR)				
	Total Selling Price (IDR)	50 pcs 15,000	80 pcs 1,500	120 pcs 1,500	38 pcs 10,000
	Total (IDR)	750,000	120,000	180,000	360,000
5.	R/C Ratio	3.08	1.65	1.73	1.81

Table 2 shows that the highest total product cost is banana chips, while the lowest price is banana fritters. This is because banana chips require more raw materials for one production, about 10 kg of kepok bananas. The bananas will be processed into banana chips and produce 5 kg or 50 packs of banana chips packaging with various flavours such as balado, barbeque, chocolate, and coffee. Table 2 shows that the total acceptance and the value of the R/C Ratio showed that banana chips had the highest value and fried bananas had the lowest value. The analysis of the R/C Ratio or revenue cost ratio compares the total amount of revenue with the total amount of costs used. There are several provisions of the R/C Ratio; namely, if $R/C > 1$, the business is feasible to run. If $R/C < 1$, the business is not feasible to run, and if $R/C = 1$, then the business is neither profitable nor unprofitable. Loss means how much the business is at the break-even point, commonly called BEP. From the results of the four processed banana products in the Mekarsari SMEs, the R/C ratio value is above 1, so it can be concluded that these four products are feasible to be developed or run, according Sundari it means that each expense of IDR. 1 can generate revenue of IDR. 3.08 for Chips, IDR. 1.5 for Banana Fritters, IDR. 1.73 for Banana Cake and IDR. 1.81 for Floss Banana Blossom, the R / C value indicates that Mekarsari SMEs are feasible to develop [8].

3.3 Value-Added Analysis

Bananas are one of the community's most popular and consumed fruits, especially for the people in Tembalang District. The consumption level of bananas in Tembalang District reached 2,141 tons/per year [5]. The high level of consumption of bananas is due to their mineral-rich nature and is beneficial for the body, but bananas do not have long endurance. So, there needs to be a process to maintain its excellent content. To advance agricultural modernization and industrialization development, it is necessary to expand the benefits of capitalization of rural households through agricultural products that have added value [9].

The SMEs Mekarsari has developed several processed banana products, including banana chips, fried bananas, banana cake, and floss banana blossoms. Banana chips and fried bananas using banana kepok. Kepok bananas are a type of banana that cannot be consumed when they are fresh because of a slightly tart taste, and their small size makes them more practical to serve as snacks. Bananas are divided into two groups: bananas that can be consumed when fresh and bananas that can only be consumed after being processed first [10]. One example is the kepok banana. Therefore, banana kepok is suitable for making banana chips and fried bananas.

Banana sponge production uses Ambon banana, although Ambon banana is a type of banana that can be consumed directly; its soft and sweet texture makes it suitable to be combined with sponge dough. Its large size and affordable price are IDR. 10,000 makes it more economical to process. In addition to the fruit, the banana heart can be used or processed into food with high added value, which can be

processed into shredded or flossed bananas. Although the price is relatively low, the taste of the floss banana blossom is not inferior to the usual shredded meat. Because the price of raw materials is much lower when compared to beef, it is very popular with the public.

The production process of banana chips at the Mekarsari SMEs starts from peeling, slicing, frying, and giving flavour variants and packaging. The production of banana chips at the Mekarsari SMEs is carried out on average four times in one month, with one production requiring 10 kg of kepok bananas, which will produce 5 kg of banana chips. Packaging is done by inserting banana chips that have been given a flavour variant into a 100-gram package so that in one production, you will get 45- 50 packs of banana chips and market them for IDR. 15,000. The entrepreneur himself works 8 hours a day, or the same as 32 hours for one month.

Meanwhile, the production process for fried bananas at the Mekarsari SMEs starts with peeling, slicing, mixing dough, frying, and packaging. The production of fried bananas at the Mekarsari SMES is carried out on average every day for one month, with one production requiring six kepok banana combs, which have a total weight of approximately 3.6 kg. One raw kapok banana will produce one fried banana, so 80 fried bananas will be obtained in one production. The packaging is done by putting fried bananas into a container that is large enough and will be marketed for IDR. 1,500. On average, the output of fried bananas only has one worker, namely the entrepreneur himself, with 5 hours every day for one month. According to the International Labour Organization, hours worked is the aggregate of time spent on the performance of the job directly and the time spent on productive activity [11], so the length of working hours is calculated from the start of the production process until all products are sold in one day.

Furthermore, the production process of the Mekarsari UMKM banana cake starts with peeling, slicing, mixing dough, baking, and packaging. The production of banana cake at the Mekarsari SMEs is carried out on average 12 times a month, with one production requiring 1.5 kg of Ambon bananas and will produce three dough pans. One dough pan will be cut into 40 pieces so that 120 pieces of banana cake will be made in one production. Packaging is done by inserting pieces of banana cake into plastic, which will be marketed for IDR. 1,500. The output of this banana cake, on average, only has one worker, namely the entrepreneur himself, with five hours a day or equal to 15 hours for one week.

The production process of floss banana blossoms starts at the Mekarsari SMEs, peeling, boiling, cutting, mashing, frying, and packaging. The production of floss banana blossoms at the Mekarsari SMEs is carried out on average four times a month, with one production requiring one banana flower weighing 2 kg. A banana blossom that has been processed will produce 38 packs of floss banana blossoms in one production. The packaging is done by inserting the shredded banana heart into a plastic package measuring 100 gr, which will be marketed for IDR. 10,000. Making this shredded requires a lot of spices to create a distinctive and delicious taste to complement every dish. In addition to the taste of the banana heart, it has many advantages, especially for people with gallstones, hypercholesterolemia, hypertension, and digestive disorders. This preparation is also an alternative for people who do not consume animal protein.

Added value is the difference between the value of the processed product to be marketed and the value of the raw material, valued in rupiah. The following is a table 3 for calculating the added value of the four processed banana products:

Table 3. Calculation of Value Added Processed Banana Products

Variable	Chips	Fried Banana	Cake	Floss Banana Blossoms
Output, Input dan Price				
1. Output (kg/process)	5	4	2.25	3.6
2. Input (kg/process)	10	3.6	1.5	2
3. Labour (hour/process)	8	5	5	6
4. Conversion Factor	0.5	0.83	1.5	1.8
5. Coefficient of Labour	0.8	1.39	3.3	3
6. Output Price (IDR/kg)	150,000	33,000	79,500	100,000
7. Labour Wages (IDR/hours)	3,000	3,000	4,000	4,000
Revenue and Profit				
8. Price of Raw Material (IDR/kg)	16,200	14,988	42,367	57,000
9. Othe Input (IDR/kg output)				
a. Complement Material				
b. Depreciation Cost	15,600	750	8,444	16,222
	809	174	547	788
10. Output Value (IDR/kg)	75,000	27,390	119,250	180,000
11. a. Added Value (IDR/kg)	42,391	11,478	67,892	105,990
b. Added Value Ratio	56.52	41.91	56.93	58.88
12. a. Revenue of Labour (IDR/kg)	2,400	4,170	13,200	12,000
b. Labour Share (%)	5.66	36.33	19.44	11.32
13. a. Profit (IDR/kg)	39,991	7,308	54,692	93,990
b. Profit Rate(%)	53.32	26.68	45.86	52.22
14. Margin (IDR/kg)	58,800	12,402	76,883	123,000
a. Revenue of Labour (%)	4.08	33.62	17.17	9.76
b. Other Input (%)	27.91	7.45	11.69	13
c. Process Profit (%)	68.01	58.93	71.14	76.41

Based on Table 3. the results show that the added value of each product is IDR. 42,391 for banana chip products with an added value ratio of 56.52%, IDR. 11,478 for fried banana products with an added value ratio of 41.91%, Rp. 67.892 for Banana sponge products with an added value ratio of 56.93% and IDR. 105,990 for floss banana blossom products with an added value ratio of 58.88%. This shows that for every IDR. 100 banana chips, an added value of IDR. 56.52 will be obtained, for fried bananas of IDR. 41.91 for banana cakes of IDR. 56.93 and for a floss banana blossom of IDR. 58.88.

Based on Table 3, the banana heart shredded product has the highest profit value of 76.41%, but the other three products also have a reasonably high profit value above 50%. Processed agricultural products are generally in line with the theory that exports of this kind of product will provide more significant profits [12]. The agro-industrial process which is carried out involves various sectors of input suppliers, and an increase in exports of processed products will lead to an increase in demand for their inputs, so input suppliers need to increase their supply. The reasons why the banana processing business is widely developed in Mekarsari SMEs are as follows: The profit is relatively high to increase the average opinion of the community. The added value of the four products is also relatively high because they reach a percentage above 40%. The innovation of form and taste innovation can provide a reasonably high added value, which is above 40% [2].

Based on Figure 1, it can be seen that from the economic aspect of SMEs, Mekarsari has been able to carry out business sustainability. The sales volume results show an increase; for example, sales of banana chips, which are usually sold 30 pcs per day, with the taste variants, sales of banana chips have increased to 80 pcs with different flavours daily. One of the indicators of the realization of a sustainable economy in a business is the existence of a long-term profit margin [7]. This condition is found in the Mekarsari SMEs, where the profit margin can support operational costs and improve the welfare of members.

In addition, Mekarsari can create a competitive advantage through the added value of SMEs. The products produced can compete in the market in Semarang City and outside the City of Semarang. Marketing is carried out intensively with promotions, starting with social media and participating in events like bazaars. By carrying out these activities, the products produced by Mekarsari SMEs are increasingly recognized by the general public. SMEs Mekarsari always pays attention to continuous production activities, providing guaranteed raw materials, marketing products through various media, and continuously innovating, which are things to create business sustainability. Sustainable business practices with economic aspects can be seen from the company's orientation related to profits, competitive advantages, increased sales, and well-managed financial conditions [7].

Social Aspect

The existence of SMEs in Mekarsari has an impact on the social aspects of the surrounding community. The effect is the creation of employment opportunities; it can be seen that SMEs in Mekarsari empower the community to become part of SMEs. Communities that are members receive training and seminars on business development tips, marketing and technology development, food processing, and bookkeeping. Through training activities and workshops, it is hoped that Mekarsari SME members will become more skilled and professional to improve product quality. This condition is in line with the opinion of Yadegaridehkordi, who states that one of the efforts made to create a resilient economy is the creation of a skilled workforce [13].

Another impact that is manifested from the social aspect is the realization of cooperation. The collaboration formed was obtained from activities by Mekarsari SMEs through participating in events such as bazaars. Mekarsari SMEs expanded their network and cooperation with other parties, including the government, from the bazaar. One of the collaborations that Mekarsari SMEs obtained from the government was an offer to submit legality and an offer to join the Semarang City SMEs. SMEs Mekarsari decided to take up the offer so that it was officially registered as a member of the SMEs group of Semarang City. By joining as a member of SMEs in the City of Semarang, SMEs in the City of Mekarsari have a profit business capital of Rp. 5,000,000 and receive assistance from the relevant agencies. On well-being both financially and non-financially within a group.

Mekarsari SMEs are still trying to grow. The benefits derived from producing processed products are provided directly and indirectly, involving local communities as suppliers and processors and, as a result, inducing increased household consumption [12]. The capacity of small and medium enterprises (SMEs) to embrace international markets is based on several prerequisites, including the acquisition or development of specific resources, such as the application of information technology (IT) resources [14]. SMEs can leverage strategic resources to shape and implement initiatives that impact sustainable environmental, financial, and social performance [13]. Thus, it can create environmental capabilities that result in competitive advantage and long-lasting performance. Agricultural, livestock, trade, and service skills are enhanced through various trainings on management that strengthen the character of SMEs and accelerate the achievement of goals in Mekarsari. SMEs did training and seminars on business development tips, food processing, and bookkeeping. The third is to consider the management factor. Marketing and financial management are developed information based on information and communications technology (ICT), which also has been built by Mekarsari SMEs by training about how to explore more market and technology development well.

Environmental Aspect

A business is said to continue if it pays attention to environmental aspects. One of Mekarsari's SME efforts is to realize business continuity by utilizing the local potential of Rowasori Village. Mekarsari SMEs use raw banana materials cultivated by the local community for production so that the resulting product innovation can be a business advantage for Mekarsari SMEs. In addition, the sustainability of the business from an environmental aspect is realized by processing waste from banana peels. Banana peel waste is processed into banana peel crackers and marketed by Mekarsari SMEs at IDR. 15,000/100 grams. In addition, Mekcan can also profit in terms of financial and environmental security. The indicators of business sustainability from the environmental aspect are considerations related to energy used, emissions that can cause pollution, environmental hazards, and water use [15].

The Triple Bottom Line study results indicate that Mekarsari SMEs have a supportive ecosystem. Financially, they have savings or assets that can become capital to start and develop the business. From an environmental perspective, they can process all of the banana's side, like the banana's peel cracker and have high marketing potential. Meanwhile, from the social aspect, society is also relatively

conducive and supports many people who can join the business and become a new job opportunity.

4. Conclusion

Based on the analysis and discussion results in this study, the products developed by the Mekarsari MSME, namely banana chips, fried bananas, banana cakes and shredded banana hearts, are feasible to develop because they have an R/C ratio value of more than 1. The added value generated by the four products is high because the ratio of the added value of the four products reached a percentage of more than 40%. MSME Mekarsari has demonstrated its business's sustainability; this is viewed from the economic aspect, which has experienced an increase in sales from the added value of all its products. If viewed from the social aspect, MSMEs in Mekarsari can create new jobs by empowering the community to become part of MSMEs. In addition, Mekarsari MSMEs have collaborated with the government in an offer to submit legality and an offer to join MSMEs in Semarang City. The sustainability of the Mekarsari MSME business in terms of environmental aspects is also manifested by the processing of waste from banana peels managed by Mekarsari MSMEs, and this shows that Mekarsari MSMEs can produce innovations from the management of their product waste. So, based on economic, social and environmental aspects, Mekarsari SMEs can develop their business sustainably.

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