

Business development & feasibility study of small-scale powdered coffee agroindustry

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Abstract

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Purpose of Study: This study aims to analyze the level of visibility of low-scale ground coffee agro-industry and determine the role of the government in the development of low-scale ground coffee agro-industry.

Methodology: This research was conducted using a low-scale survey agro-industry method which was applied to a ground coffee centre in one of the provinces in Indonesia. The number of samples is seven low-scale coffee business units. Data analysis used is financial analysis (NPV, IRR, Net B/C ratio, and Payback Period), Break-Even Point analysis, and sensitivity analysis.

Results: The results showed that the low-scale ground coffee agro-industry was profitable and looked to be continued (IRR 99%, NPV 27,883,981.46 to 16,076,282,505.24 and Net B/C of 1.02 to 1.32), the sensitivity analysis showed that the cost of production to the scale of costs decreased, namely the decline in production below 20%.

Application: The creativity of producers in the marketing of processed coffee products and innovation of flavour variants is important for consumer attractiveness in maintaining the stability of agro-industry income.

Novelty: As for the role of the government, the seven production units have received guidance, counselling, and training.

INTRODUCTION

Coffee is one of the commodities in the world that is cultivated in more than 50 countries. Two commonly known species of coffee trees are Robusta Coffee, and Arabica Coffee (Fousekis & Grigoriadis, 2017). Processing coffee before it can be drunk goes through a long process, namely from harvesting ripe coffee beans either by machine or by hand, then processing the coffee beans and drying them before becoming coffee logs. The next process is roasting with varying degrees. After roasting, the coffee beans are ground or ground into coffee grounds. This processing is mostly done by small industries.

Coffee has a significant role in regional economic growth. Coffee development is carried out through a regional approach, with a sustainable agribusiness system by comparative and competitive advantages based in rural areas. As one of the agribusiness subsystems, product processing has a strategic position because it plays an important role in helping to increase income distribution and improve the economy in several regions, which ultimately contributes greatly to the development of the area (Al-Abdulkader et al., 2018). Processing of commodity products by applying business principles is expected to be a catalytic factor in stimulating the development of agricultural areas (Pound & Conroy, 2017). The high demand for processed products from superior coffee commodities in Indonesia, therefore the application of the principles of efficiency and economy is one of the effective solutions in responding to the demands of consumers/society. This can also have a positive effect in the form of opening independent employment opportunities if the community can be motivated to contribute to processing and carrying out marketing activities.

In the ground coffee processing industry in Lampung-Indonesia province in 2020, 68 business units are consisting of two industrial units of ground coffee processing with a capacity of 7,000 tons per year, 61 industrial units of ground coffee processing with a capacity of 3.5 tons to 210 tons per year, and two units with a capacity of fewer than 7.5 tons per year (Brunerová et al., 2019). However, in 2020 the number of small-scale ground coffee processing industries decreased by 39.04 percent, to 21 units. According to (Abebe, 2020), the decline in the number of small-scale ground coffee processing industries was caused by several factors, including increasing operational costs and production costs, business capital still being highly dependent on existing assets (processing machines), and the difficulty of obtaining additional loans. capital with a low interest rate for a relatively long payback period. Supported by research which says that limitations in the use of technology, management arrangements, and lack of human resource development, are the cause of the decline in the number of industries (Azeez, 2017). In addition, other studies also say that the area of land and labour, and capital affect the decline in the number of industries (Chen et al., 2020).

In addition, it is also due to limitations in the use of technology, management arrangements, and the lack of human resource development. Therefore, the resulting product is still influenced by capital and the number of raw materials used,

the capacity of the equipment owned, and the amount of market demand. In addition (Krishnan, 2017), stated that the marketing problem is still a problem that is not easy to be overcome by the ground coffee processing industry, in terms of exports, often these small industrial businesses are not able to meet market demand from abroad, both in terms of quality and quantity, because the scale is small, while quality is often difficult to maintain, resulting in uncompetitive prices. The problems faced are increasing when the small industry individually tries to handle its marketing activities. Whereas without being market-oriented, it is difficult for a company to run well.

This condition has become even worse since the COVID-19 outbreak, as a result, the business world has experienced many setbacks, small and medium enterprises have experienced difficulties, and many workers have experienced layoffs. This statement is supported by research that found that Covid-19 had an impact on the agricultural sector and farmers, thus affecting their income (Poudel et al., 2020). In addition, restrictions on movement and distribution in the midst of society aimed at breaking the chain of the spread of the Covid-19 virus, which is vulnerable to human interaction, have proven to have an impact on the agricultural sector (Ma et al., 2021). This is supported by research that says that COVID-19 has also exacerbated the effects of economic contraction in several countries, one of which is Asia (Rasul et al., 2021). Given these weaknesses, the government through the relevant technical agencies guides small industrial entrepreneurs, through business assistance programs/business facilities assistance, such as (1) establishment of industrial technical service units, (2) improvement, improvement, and services such as central information, promotion, and marketing activities, as well as education and training, (3) work equipment assistance, guidance and counselling, and (4) study assistance, including business development studies, business feasibility studies, and market studies (Purbasari et al., 2019). Based on the statement above, researchers are interested in seeing the condition of small-scale ground coffee agroindustry and analysis of the results of the processing industry.

METHODOLOGY

Location, Respondents, and Research Time

This research was conducted using a survey method at the center of small-scale ground coffee agroindustry in Lampung Province-Indonesia. The data used include primary data and secondary data. Primary data were obtained directly from data sources through interviews using a list of questions that had been provided. There were 20 questions which were divided into several sections, 5 questions related to the production and distribution process, 5 questions related to capital and land, 5 questions related to labour and income, and 5 questions related to the role of government in agro-industry development. The questions in the interview have passed expert judgment on the suitability of the indicators based on the instrument by Soekartawi (2000). Interview sessions were conducted with managers/owners of the coffee industry, employees and coffee farmers. Interviews occur within one month as much as once in each industrial unit. While secondary data were obtained from various agencies such as the Department of Agriculture and Plantations, the Central Bureau of Statistics, and the Regional Office of the Ministry of Industry and Trade, as well as other closely related agencies. with this research. Respondents in this study were small-scale ground coffee processing. Sampling was carried out by means of "stratified random sampling". According to (Steel, R.G.D. and Torrie, 1993), sampling to meet the data proportional rule statistically can be used the square root formula of N (N = minimum number of samples), as can be seen in the sampling frame in table 1. As for the small N (equal to one), the industry is taken as a sample.

Table 1: Sampling framework of research respondents

Production Capacity per year (tons)	Ni	%	N
100-150	1	3,45	1
50-<100	1	3,45	1
<50	27	93,10	5
Total	29	100,00	7

Information:

Ni = number of processing business units (agro-industry) of ground coffee

N = number of samples (respondents studied).

Based on the respective formulas and sampling frames in table 1. above, the number of samples that must be examined for each production capacity in the small-scale ground coffee processing industry in Lampung Province is 7 (seven). business units, each with a production capacity per year, namely: (1) Siger Coffee, 140 tons, (2) Bola Dunia Coffee 50 tons, (3) Perahu Layar Coffee 32 tons, (4) Intan Coffee 10 tons, (5) Cap Macan coffee 4.5 tons, (6) Jempol Setia Kawan coffee 2.5 tons, (7) Kelompok Tani Utama Jaya is 0.5 tons. The time of the research was carried out in the month until July 2020.

Data analysis

Using financial analysis with investment criteria, namely: NPV, IRR, Net B/C ratio, and Payback Period, Break-even Analysis and Sensitivity Analysis (Djamin, 2013). Furthermore, to determine the extent to which this small-scale ground coffee processing industry (agro-industry) is able to absorb labor, it was analyzed quantitatively.

RESULTS AND DISCUSSION

Production Feasibility

The number of coffee beans used as raw materials in the processing of ground coffee in the seven business units is an average of 5,938.92 tons per year, while the price of raw materials (coffee beans) purchased from collectors is an average of IDR 5,600. - per kilogram. The total costs incurred from the seven business units for the purchase of raw materials are an average of IDR 2,996 billion per year.

If the number of coffee beans used as the main raw material in the processing of ground coffee in the seven business units is an average of 5,938.92 tons per year. while the number of coffee beans produced from Lampung Province in 2020 was recorded at 140,000 tons ([AEKI Lampung, 2020](#)), then in Lampung Province there was an excess of raw materials as much as 134,061.08 tons. This means that the availability of ground coffee agroindustry raw materials in the seven business units exceeds the required needs. Thus, the seven business units deserve to be continued. Furthermore, if it is seen from the production and maximum income of the ground coffee agroindustry per year, then the business unit has a production capacity of more than 100 tons per year, and the business unit has a production capacity of 50-100 tons. per year is 182 tons each. and 62.40 tons with revenues of IDR 1.42 billion and IDR 670.96 million, while the largest revenue from the two business units was achieved in 2018, which was higher than the average selling price of the previous year, which was IDR 23,800 per kilogram. For the ground coffee agro-industry business unit with a capacity of under 150 tons per year, the production from 20.73 tons to 32.90 tons with an average of 10.74 tons per year.

Furthermore, from the results of this study, it can also be seen that the average contribution of labor wages to the total costs incurred in business units that have a capacity of more than 100 tons per year, and 50-100 tons per year are 17.01 and 27, respectively 41%, while the business units with a capacity of under 50 tons per year were 23.37%, 39.89%, 32.96%, 46.10%, and 28.74%. Thus the development strategy that needs to be carried out to increase production in the future is by (a) increasing the capacity of the machines owned, (b) stock management of raw materials so that they are available continuously, (c) increasing the amount of market demand, and (d) improve technology, capital, and human resources efficiently.

Management eligibility

From the results of the study, it can be seen that the type owned by the ground coffee business unit is above 100 tons per year and 50-100 tons per year is the line type. However, this organizational structure does not apply to business units with a capacity of less than 50 tons per year, because the management is managed by the family. In this case, the business owner also acts as the head of the company and directly supervises the workers. The owner can make any policies, starting from purchasing raw materials, processing and even selling the processed products, so that in this business unit there is no clear division of tasks. In addition, the marketing strategy adopted by each respondent's business unit is different from one another. This is due to transforming marketing strategies, making marketing expenditures, marketing mix, and marketing allocations.

In this regard, the data from the research results show that the average amount of ground coffee production produced by the seven business units of the respondents is 279.29 tons per year, with details of 111.56 tons being marketed in the Lampung region with a consignment system, while the rest (87.93 tons) marketed to Java by the siger, sailboat, and diamond business units through agents with cash and consignment payment systems. When viewed from the packaging of the products marketed, the siger, Bola Dunia, and Intan business units are better than other business units, because the ground coffee products produced by the three business units have been packaged using aluminum foil plastic, even in business units. The stamped Intan coffee powder on the packaging has an expired label attached.

Furthermore, when viewed from the selling price, the seven business units studied, two ground coffee business units, namely bola Dunia and diamond, the selling price of the products produced is IDR 45.000,00 per kilogram higher than the other five business units (siger, perahu layar, cap macan). Jempol Setia Kawan coffe, and Kelompok Utama Jaya coffe, with an average price of IDR 42,000.00 per kilogram. This is because the products of the two business units have used higher quality raw materials, more modern packaging, standardized production processes, and controlled quality control.

In addition, the marketing of small-scale ground coffee agroindustrial products in Lampung Province is carried out through two distribution channels, namely: a) direct distribution from producers to consumers, b) indirect distribution, namely from producers sold through intermediary sales agents, namely: supermarkets, mini markets, stalls, traditional markets, and cooperatives. When viewed from the "cash flow" aspect, it can be seen that for business units that have very small production capacity, namely: Cap Macan, Jempol Setia Kawan, and Kelompok Utama Jaya coffee powder, the average annual income is IDR 36,362,799 with a total cost of the average production is IDR. 31,643.946; while the other four business units, namely: siger, bola dunia, perahu layar, and intan, earned an average income of IDR 646,404,362 with an average total production cost of IDR 550,561,288. This means that the seven ground coffee agro-industry business units are feasible to continue. However, the development strategy that needs to be carried out for the future is by: (1) increasing the quality of production and (2) expanding the existing market share, including through promotions.

Eligibility Market

The results showed that the prospect of small-scale ground coffee agroindustry is still quite large because the level of ground coffee consumption in Lampung Province tends to increase by an average of 6,115.2 tons (23.324%). Therefore,

the development of strategies that need to be carried out in the future is by increasing promotions, tastes, aromas, and packaging that are more attractive, as well as marketing networks to be able to compete.

Financial Eligibility

In detail, the evaluation of some of the ground coffee agroindustry business units can be seen in table 2.

Table 2: Financial evaluation of agro-industry

N	Business unit	IRR (%)	NPV DF/CF 18%	NET B/C DF/CF 18%	PP	BEP (UNIT)
1.	Siger	99	2.695.600.641,47	1,07	5,21	2.161,3890
2.	Bola Dunia	99	16.076.282.505,24	1,32	7,01	31.207,5967
3.	Perahu Layar	99	27.883.981,46	1,02	2,06	86.378,4670
4.	Intan	99	18.547.782,72	1,15	1,52	17.910,6140
5.	Cap Macan	99	149.659.684,76	1,10	5,02	4.644,6140
6.	Jempol Setia Kawan	99	42.592.893,97	1,15	1,61	7.902,4337
7.	Utama jaya	99	4.495.078.775,30	1,19	2,25	1.363,1343

In table 2, it can be seen that overall the small-scale ground coffee agroindustry in Lampung province, which is analyzed in this study, is financially feasible (profitable). At the current interest rate, this ground coffee agro-industry business unit is still able to return capital before the economic age of the business, so it can be said that these seven business units are feasible to continue. Furthermore, to find out whether this business unit is still feasible to implement if there is a change, especially in production costs, a decrease in production, and a decrease in the selling price of ground coffee produced, sensitivity analysis can be used (Table 3).

Table 3: Financial feasibility sensitivity analysis

N	Description	Business unit						
		Siger	B.Dunia	P.layar	Intan	C.Macan	Jempol SK	KU jaya
1.	Selling price down 20%	-	+	-	-	-	-	-
	Selling price down 18%	-	+	-	-	-	-	-
	Selling price down 8%	-	+	-	+	+	+	+
2.	Production down 20%	-	+	-	-	-	-	-
	Production down 17%	-	+	-	-	-	-	-
	Production down 5%	+	+	-	-	-	-	-
3.	Production costs up 20%	-	+	-	-	-	-	+
	Production costs up 11%	-	+	-	+	-	+	+

Information: (+) = worth it, (-) = not worth it

Table 3 shows that if there is an increase in production costs, a decrease in selling prices, and a decrease in production from each business unit above 20%, then overall the seven business units are not eligible for an increase in production costs, a decrease in selling prices and a decrease in the production of less than 20%. So the six business units of the respondents (siger, bola dunia, itan cap macan, jempol setia kawan, kelompok utama jaya) are still feasible to be developed, except for the layer boat stamp coffee powder business unit. This means that the smaller the scale of the ground coffee business, the more vulnerable it is to adverse external shocks.

Employment

To find out how large, small-scale ground coffee processing industries are able to absorb labor, it is measured by calculating the percentage of workers who work in the ground coffee industry sector. Based on data from the Lampung Provincial Industry and Trade Office (2020), that the workforce absorbed in the small-scale ground coffee business unit is 9,359 people. While the entire workforce working in the ground coffee processing industry sector in Lampung province is 81,757 people, it can be concluded that the small-scale ground coffee processing industry in Lampung province is able to absorb 11.5 percent of the workforce.

The Government's Role in the Development of Ground Coffee Agroindustry

The results showed that the government's role in developing small-scale ground coffee agroindustry in Lampung Province included: 1) informal and promotional services, 2) capital and equipment assistance, 3) training and courses, 4) guidance and counselling. However, from the seven respondents' business units studied, they only received guidance in the field of guidance and counselling, and courses. Therefore, the strategy that needs to be carried out by the government in the development of small-scale ground coffee agroindustry in Lampung Province in the future, namely by increasing the ability of the ground coffee processing agroindustry, assisting, in the form of capital and equipment, assisting the procurement of experimental raw materials, through a partnership pattern between coffee farmers and entrepreneurs in the ground coffee processing industry, and assisting marketing in aspects of promotion and distribution networks.

There is no better way than to strategize. This is because the strategy is based on internal issues, namely company resources including technology, as well as external issues, namely market needs. In practice, many companies combine internal and external considerations (market needs) in formulating strategies. In various business fields, the production process plays an important role. Careful planning and periodic updates must always be carried out to answer the ever-changing needs of consumers. Several things that must be considered in the production process are materials, equipment, and human resources. Without a combination of the three, the production process may be hampered. On the other hand, if everything has gone smoothly according to plan, the next thing to think about is how to improve the production process.

A study says that companies will get more production results by applying forecasting methods. This method requires the company to have the ability to predict consumer demand. This can be done by following the development of existing trends and paying attention to the company's sales history and inventory data. As a result, the company can not only know consumer demand from time to time but also help control the procurement of goods and prevent stock shortages (Chien et al., 2018). In addition, other studies say that technology plays an important role, including in the manufacturing industry. The use of technology will help accelerate the production process. Therefore, it is better if every company starts using manufacturing software (Ślusarczyk, 2018). The software can function as an automated production planning system that schedules the production process promptly.

Several stages in the production process such as recording information on raw materials and the number of workers can be known automatically (Fort et al., 2018). Furthermore, maintenance of production machines and all equipment used. The occurrence of production downtime or the cessation of the production process due to various factors including machine damage can occur suddenly (Dai et al., 2020).

Therefore, various aspects of production must be considered. In addition, considering the Covid-19 pandemic condition that limits consumers from doing activities outside the home, producers must be creative in marketing processed coffee products, such as utilizing social media and i-commerce, as well as innovation in flavour variants to maintain the stability of agro-industry income. Ensuring that quality products are delivered to all customers can give them satisfaction and make them happy.

CONCLUSION

Small-scale ground coffee agroindustry in Lampung Province, Indonesia, is getting bigger and more feasible to be developed. The larger the scale of the business, the more resilient it is to external shocks. And the prospect of market development for small-scale ground coffee agroindustry has great opportunities because the level of ground coffee consumption per year has increased by an average of 4,368.10 tons or 16.66%. The government's role in the development of small-scale powder agroindustry includes; information and promotion services, capital and equipment assistance, training, courses, guidance, and counseling. Innovations in marketing and flavour variants attract consumers to maintain the stability of producers' incomes.

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