

Prospect of Establishing a Micro Industry of Ginger Coffee Production

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Abstract: Low value added gained by farmers of Sumba Barat Daya (Southwest of Sumba) as they sell coffee as beans rather than processed product. We conducted a research to explore opportunity to develop microenterprise based on ready to consume processed coffee production. A case study was implemented through direct observation to activities of a micro industry producing ginger coffee in Wewewa Tengah SubDistrict of Sumba Barat Daya District of East Nusa Tenggara Province. In-depth interview was used for data collection in order to gain quantitative depiction of the business. The data was inserted in financial calculation to find out business feasibility. Financial analysis reveals a positive Net Present Value of IDR109,696,529 and Internal Rate of Return of 5.76% assuming that the interest rate of Credit for Business (KUR) is 9.0%. It also shows 3.05 Probability Index which indicate the prospect of developing the business sustainable in micro scale providing that 1) they acquire continuous assistance of technology as well as business management 2) the business is managed based on socio-business system accommodating socio-economic condition of the locals 3) the business is managed as a community owned cooperative in which fair share system is applied. To conclude, this could be a feasible business system to achieve prosperity for rural.

1 INTRODUCTION

Coffee is one of plantation main commodities in Indonesia. There are several cultivated common kinds of coffee, such as arabica coffee, robusta coffee, liberica coffee and so on. There are also various kinds of Indonesian coffee famous internationally and become source of pride in Indonesian archipelago, namely, Luwak coffee, Jawa coffee, Toraja coffee, Sumatera coffee, Kintamani coffee, Lanang coffee, Wamena coffee, Gayo coffee, Jember coffee, etc. (Neilson.J, 2013)

According to Coffee Commodity Tree Crop Estate Statistics of Indonesia (2014), the coffee plants are mostly spread in Sumatera, Java, Nusa Tenggara and Bali, and Sulawesi. Indonesian coffee production in 2015 increased approximately 739,005 tons per year from the total plantation area of 1,254,382 Ha. The production, mainly derived from public plantation sector was by 706,770 tons (95.64%), and the rest was derived from Indonesia state plantation by 14,690 tons (1.99%) and private plantation by 17,545 tons (2.3%). Robusta coffee is the most kind planted with quantity production 559,058 tons

(75.65%) then Arabica coffee of which the production was 179,947 tons (24.35%).

In Sumba Barat Daya District in 2013, it was produced 3,521 tons or 23.06% of Nusa Tenggara Timur total production. This product was obtained from 10,197 Ha area of planting (Tree Crop Estate Statistics of Indonesia, 2014). Coffee is a potential plantation commodity that becomes the source of the livelihood of most people in Sumba Barat Daya. Although, the coffee plantation dominates the public plantation in some areas, particularly in Wewewa Tengah, in contrary, the society income from this plantation is low. It is because of the low added value that can be obtained as a result of the low skills in processing coffee commodities. Whereas, the increase of value added in coffee commodity can contribute to regional economic development through the establishment of coffee processing business unit which does not only produce dry coffee beans, but also in the form of processed products (dried green coffee beans, coffee powder) which has added value (Haryati, 2008).

The coffee processing into worth-selling coffee powder is a relatively new idea for Sumba Barat Daya. Most of the total coffee production is traded in the form of coffee beans so that the added value obtained by farmers is very limited. In other words,

there is an opportunity to increase the added value through the introduction of appropriate technology, especially in coffee processing. There are two business units that recently begins to process dried green coffee beans into coffee powder. This case take the only one legally registered business unit in Sumba Barat Daya.

As a start-up business unit in coffee processing, several constraints and weakness are found in this coffee processing related to limited fund, human resources, and not intensified marketing (promotion) and limited supporting production tools (Supriatna and Aminah, 2014). Actually, this business has the potential to be developed due to its variations in accordance with local tastes (ginger coffee), and the business competition is low and there is government support such as training, exhibition and capital assistance.

According to the explanations above, the author conducts this research to analyze the business of small-scale ginger coffee processing in Wewewa Tengah of Sumba Barat Daya. It aims to recognize the opportunity of the added value gain for those who process the coffee and sell it in the local market. Using the financial feasibility analysis on this ginger coffee production, it is expected to provide input for the people coffee business in order to become a sustainable micro business activities.

2 METHODS

2.1 Research Place and Time

This research was conducted in the business unit of ginger coffee processing in Omba Rade Village, Wewewa Tengah, Sumba Barat Daya District, Nusa Tenggara Timur. The research period was September until December 2015.

2.2 Research Method

This research used a case study method. By using this method, it is expected to learn the complex phenomena in the limited opportunity to organize the activity observed (Baxter and Jack, 2008). To obtain the accurate data, we conducted direct observation towards processing of coffee beans into ginger coffee powder in the business unit of coffee production so, therefore, it was collected information about equipment investment capital, working capital, production cost, variable cost, fixed cost, labor cost and other data related to this study. An in-depth interview was used as data and information collecting technique to obtain quantitative description for the

financial analysis. The descriptive analysis was used to depict phenomena found in organization process of business unit as the subject of this research.

2.3 Data Processing Method

According to Chauhan. (2014), to explore financial feasibility in agro-industry business, financial analysis method can be applied. Therefore, the data were processed in the form of tabulation to apply R/C Ratio analysis, Net Present Value (NPV), Internal Rate of Return (IRR), Profitability Index, and Payback Period. The total cost of production (Total Cost = TC) is calculated through variable cost indicator (Variable Cost = VC) and Fixed Cost (FC) as follows:

$$TC = VC + FC \quad (1)$$

Calculation of R/C Ratio (Revenue Cost Ratio) is business efficiency that is comparison size between Revenue (R) and Total Cost (TC). By R/C value, it can be known whether a business is a profitable or not. The business will be appointed as a profitable business if the value of R/C > 1.

$$R/C \text{ ratio} = \frac{\text{Revenue (R)}}{\text{Total Cost (TC)}} \quad (2)$$

An analysis of NPV (Net Present Value) is applied to see how high the investment value by considering the value of currency. NPV is a criterion of business feasibility that can be defined as a recent net—the result of the difference between Benefit (B) and Cost (C). A business is feasible to run if the value of NPV is > 0.

$$NPV = \sum_{t=1}^n \frac{(Bt - Ct)}{(1+i)^t} \quad (3)$$

Bt = Gross Benefit in year $-t$

n = Economic age

Ct = Gross cost in year $-t$

i = Interest rate

IRR (Internal Rate of Return) is used to know how high the fund of a planned business which allow the business to cover back the capital and interest issued. The business is feasible to run if the value of IRR is > applicable interest rate. Generally, the formula of IRR:

$$IRR = i_1 + \frac{NVP_1}{NVP_1 + NVP_2} (i_2 - i_1) \quad (4)$$

i_1 = discount factor that still contributes NPV to be positive

- I2 = the lowest discount factor that contributes NPV to be negative
- NPV1 = Positive Net Present Value
- NPV2 = Negative Net Present Value

Profitability Index (PI) is a comparison of the present value of future cash inflows to the value of the proposed investment. Through Profitability Index, it can be calculated the amount of value created per unit of invested investments. An investment is feasible to run if the value of PI is > 1. In general, the Profitability formula is:

$$PI = \frac{\text{cash inflow value}}{\text{Investment Value}} \quad (5)$$

Payback Index (PI) is used to estimate the duration of a business investment refund. Payback Period is the minimum time to return the initial investment in the form of cash flow based on total receipts minus all costs.

$$PBP = \frac{\text{Initial investment}}{\text{Acceptance Period}} \times 1 \text{ year} \quad (6)$$

The processing of coffee bean into coffee powder is conducted by limited technology support. The specific tools, such as drying rack, tray, pan, stoves, crockery, coffee grinder, and tilting sealer have become the main capital of this business. Other tools are needed such as outer skin peeler machine, peeler machine through rent tool system in coffee harvest season.

3 RESULTS AND DISCUSSION

The costs included into investment cost in the unit of ginger coffee processing are cost capital for 5 years consisting of fixed cost and variable cost. Investment costs consist of machine and tools purchasing cost with the total amount of IDR. 4,500,000 is used during the investment period with the details shown in table 1. The purchase of this machine and equipment is only once at the beginning of investment for subsequent replacement of equipment according to tool age with depreciation value by IDR. 88,194.

Table 1: Equipment Investment on Ginger Coffee Processing Unit

No.	Tools	Qty (unit)	Total Price (IDR)	Tool age (month)	Depreciation (IDR)
1	Drying rack	2	400,000	36	11,111
2	Tray	20	400,000	24	16,667
3	Pan	2	300,000	60	5,000
4	Stove	3	450,000	60	7,500
5	Coffee Grinder	1	2,100,000	60	35,000
6	Tilting sealer	1	250,000	24	10,417
7	Crockery	1	150,000	60	2,500
	Total		4,050,000		88,194

The variable cost is the cost incurred by the business unit in each production process cost that includes the cost of purchasing raw materials of coffee and non-coffee, fuel costs, packaging costs, equipment rental costs, and labor costs (daily) with the proportion of expenditures (See Figure 1). Variable costs (VC) spent by this coffee processing business unit worth IDR 10,522,195/month. Fixed costs (FC) include equipment depreciation cost, transportation and communications costs, promotion and administration costs, and general costs (electricity, water and sanitation) of IDR 398,194/month. Therefore, the total production cost (TC) required by this business unit is IDR 10,910,389 each month.

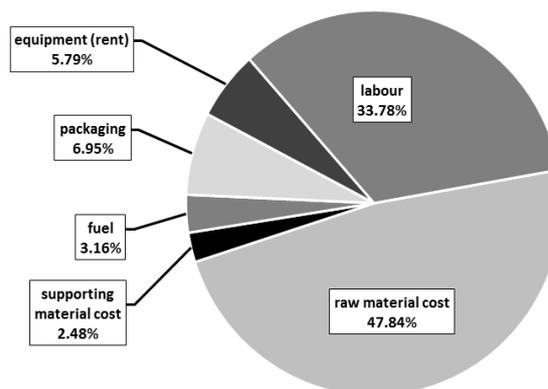


Figure 1. Variable Cost Proportion in the Process of Ginger Coffee Processing

To know the feasibility of an agroindustry business, it can be seen from the aspect of financial feasibility which includes the determination of R/C Ratio, *Net Present Value* (NPV), *Profitability Index* (PI), *Internal Return Rate* (IRR), and *Payback Period* (PBP).

The frequency of the production process performed by the coffee processing business unit in the first year ranges around 6 times a month, each processing produces 15 kg of coffee beans and 3 kg of local ginger becomes 17.5 kg of ginger coffee powder. Ginger coffee powder is sold in 2 types of packaging namely, pure ginger coffee with the contents of 50 grams and 100 grams as the main product, and a 20 grams of ginger coffee as a promotional product.

In this calculation, it is used the increase of ginger coffee production assumption and due to the limited ability of the business unit in terms of technology procurement and business management. The business is assumed to increase its production slowly by increasing the production time to 8 times a month in the 2nd year and 10 times a month in the 3rd year and beyond.

Table 2: Cash Flow in Ginger Coffee Production Process Every Month (IDR)

Unit Description	Year 1	Year 2	Year 3	Year 4	Year 5
Ginger Coffee Production (kg/month)	84	140	166	169	175
Total Production Cost (IDR1000/month)	6,183	10,073	11,922	12,101	12,477
Sales of Packaging Ginger Coffee 50 gr (IDR1000/month)	7,059	11,704	13,899	14,142	14,630
Sales of Packaging Ginger Coffee 100gr (IDR1000/month)	1,604	2,660	3,159	3,214	3,325
Total Sale (IDR1000/month)	8,663	14,364	17,057	17,356	17,955
R/C Ratio	1.40	1.43	1.43	1.43	1.44

Based on the calculation results, it is obtained that R/C Ratio is more than one, so the business is considered profitable. The ginger coffee sales increase every month (See Table 2). Although the production of ginger coffee is increasing every year but R/C Ratio tends to be stagnant, which ranges from 1.40 to 1.44 (See Table 2).

The NPV value is used to see whether a business is feasible or not. The positive NPV value indicates that the effort is feasible to implement, whereas if the NPV is negative then it means the business is not feasible to implement. From the calculation results, it is obtained the value of NPV ginger coffee production with a positive value, amounted to IDR 134,173,933

in the period of business for five years which means that the business is feasible to do.

The value of *Profitability Index* (PI) is more than one, indicating that the business is feasible to run. Based on the calculation with initial capital worth IDR 36.000.000, ginger coffee business has a value of $PI = 3.73$, so, the business is considered feasible to run. This means that in 5 years this business has a cash flow of 3.73 times of the value of initial investments.

The IRR value is used to see whether or not a business is worth developing. If the IRR value is higher than the prevailing interest rate then the business is feasible to develop. In this business calculation this business use Credit for Business (KUR) with 9.0% annual, where the ginger coffee processing business is a micro business that needs support from the government. From the calculation results, it is obtained IRR value of ginger coffee business worth 6.66%. The IRR value which is only slightly larger than the interest rate indicates that the business is feasible to develop but has a slight profit. Oppong, et al. (2014) study recommend re-introduction of soft loans for small and medium business by the government and financial institutions as a solution to develop micro-business entrepreneurship (Zabaznova, 2014).

A business is considered feasible if *Payback Period* value is smaller or equal than the age of business investment. From the calculation results, it is obtained *Payback Period* for 19 months with the assumption of borrowing funds for 3 years for business age for 5 years, therefore, ginger coffee processing business can be considered feasible to do.

Based on the results of financial analysis, ginger coffee production increases every year from the sales value of IDR 8,663,287/month in the first year, increasing to IDR 17,955,000/month in the fifth year. However, this business has R/C Ratio that tend to be stagnant, which ranges from 1.40 to 1.44. Several possible causes are (1) production of ginger coffee using simple technology; and (2) a traditionally sales pattern, where the ginger powder coffee market is limited to the Waikabubak market (8 km far from the production house), and one outlet in the district town.

According to the research results of Radam, et al. (2008), in order to sustain operations and growth of SMEs, efforts should be taken to assist SMEs to develop their managerial and technical skills especially in creating innovations and generating economic value from knowledge. Existing training and outreach programs should aim at enhancing entrepreneurial skills and capabilities in the area of business planning, marketing and financial management among the owners/managers. Although market expansion could be a solution to stagnant business performance, being a micro small enterprises the effort cannot be performed easily. It

should always start with skill development and capability to adopt market access (Githaiga et al. 2016).

From the positive NPV value, which has the amount of IDR 134,173,933 with initial investment of IDR 36.000.000 it is obtained the value of Profitability Index of 3,73. Both points show that the business is feasible and can be developed, but the value of IRR coffee processing business is likely to be low, at 6.66% and only slightly higher than the interest rate with Payback Period for 19 months. Therefore, the profit earned by this business is quite low. Therefore, in the coffee processing business in Sumba Barat Daya, it is necessary to intervene local government to protect the coffee processing business through any program such as Credit for Business (KUR) program or other similar program that gives low interest to business actor, technical assistance for SMEs, and help the SMEs to market penetration. General challenge faced by micro-small enterprise is their slow growth, and idea of inducing venture capital to boost the growth as found in a study to creative SMEs in Makasar (Heslina, 2016) could be accommodated. It is recommended that SMEs operators should be educated on how to plan, organize, direct and control their businesses (Oppong, et al.2014).

As the results of *in-depth interview* to business owner, it is obtained that the business nature of this coffee processing business unit is more directed to the creation of employment for the community around the production house. While the product is sold at a price that does not give burden buyer who is a community with low purchasing power. Based on the proportion of variable costs in the process of ginger coffee production, it can be seen that the highest cost is the cost of purchasing raw material coffee (47.84%) and labor costs (33.78%). This indicates that the ginger coffee processing business is trying to provide the greatest benefit for local economic development.

According to the research results of Atmaja, et al. (2015), coffee farmers can increase their income, apart from the coffee harvest, through increasing the added value of coffee by processing coffee powder. Powder coffee processing business can be improved by promotional efforts and expansion of marketing area.

If the coffee processing business uses the cooperative system, the profits collected can be directed to improve the welfare of its members through the fair annual benefits (SHU) and the establishment of new business units that can expand employment. Based on this, the role of the government is very significant in developing and expanding of public-based coffee processing business where this business can expand employment need and provide benefits for the community of cultivators and

coffee processors in Sumba Barat Daya. Oppong, et al. (2014) study recommend that government should re-introduce the small business credit scheme so that beneficiaries can use them to run the micro, small and medium enterprises.

4 CONCLUSIONS

The coffee business unit may become a sustainable micro-enterprise activity if (1) a consistent mentoring is performed both for the technology and management sides of the business; (2) the business is a social business that concerns the low purchasing power of local society and it does not harm the business itself; (3) the business is conducted in groups through cooperatives where the remaining results can be used to improve the welfare of the community members.

The results of this research can be used as a source of information to build community empowerment roadmap through coffee processing business with specific character in Sumba Barat Daya.

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