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FEASIBILITY STUDIES ON THE TOFU INDUSTRY

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ABSTRACT

Feasibility analysis is carried out in order to ascertain whether a business activity is feasible based on several aspects. In general, the aspects analyzed are technical feasibility, market feasibility, management feasibility, financial feasibility, legal feasibility and social feasibility. The financial analysis is carried out with several criteria in the form of Net Present Value (NPV), Break Even Point (BEP) and Payback Period (PP) and risk analysis. The total value of income earned per month is Rp. 80,228,000. The value of the investment interest rate is 11.4%. The analysis is carried out based on the calculation of NPV, BEP and Pacback Period so that the data knows whether this industry can be declared feasible or not. After calculating the tofu industry, the NPV value of Rp. 217,587,161. Based on this, it can be seen that this industry can provide a net income in 10 years of Rp. 217,587,161. Because the NPV value is greater than zero, this industry is declared feasible to run because it is positive. the total cost of production is Rp. 53,934,985 per month and the principal return for the selling price is Rp. 2020 per unit. Meanwhile, from the calculation of the Payback Period value in the tofu industry, it was obtained for 3.87 years, this value indicates that the business can return capital before the age of the project is over and this makes this industry also feasible to run. In risk analysis, the highest risk is on equipment and business permits. there is not any yet. Risk parameters, the equipment used is still traditional, if you want to improve, you can replace some equipment using a more automatic machine because the work process is carried out without using a division of tasks and it is better to immediately arrange for a business license.

Keywords: Feasibility Analysis, Risk Analysis, NPV, BEP, PP

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1. NTRODUCTION

Agroindustry is a form of activity carried out to utilize plants and animals as raw materials so that they can be utilized into better products. There are two types of agribusiness, namely agribusiness that utilizes agricultural materials as the main raw material and agribusiness which is the next step of the agricultural development process which is carried out before fulfilling the industrial development stages. There are various kinds of agribusiness products, one of which is a product made from soybeans in the form of tofu.

In Indonesia, tofu is a processed soybean product that is familiar and has many enthusiasts. Tofu is a processed product made from soybeans which can be used as a food choice for a cheap and easy-to-obtain protein source. In addition, tofu can be processed into various types of food that are not only delicious but highly nutritious. The high demand for tofu has caused many tofu industries to spread throughout almost all parts of Indonesia.

Knowing that there are business opportunities that come from tofu, this causes the tofu industry in Indonesia to be very large (Ritter & Pedersen, 2020). The large number of tofu industries in Indonesia can open up opportunities for increasing regional income, because the tofu industry can absorb labor. The tofu industry that is used still lacks several weaknesses, one of which is the process which is still simple and traditional (Sulaeman, 2018). There needs to be development efforts made to increase tofu productivity in order to meet domestic demand for tofu. One effort that can be implemented is through reviewing the technical and financial feasibility of the tofu industry.

Feasibility analysis is carried out in order to ascertain whether a business activity is feasible based on several aspects (Rahmadani & Makmur, 2019). Each aspect has its own eligibility standards. If an aspect is declared unfit, it is necessary to provide suggestions for improvement in order to achieve the desired standard of feasibility. This is because if these requirements are not met, the project will be cancelled. In general, the aspects analyzed are technical feasibility, market feasibility, management feasibility, financial feasibility, legal feasibility and social feasibility. This research only focuses on aspects of technical feasibility and financial feasibility.

In the condition of the covid pandemic that is still engulfing Indonesia, many business actors are losing money and even failing to survive. Apart from being a competitor, the declining purchasing power of consumers has also affected this condition. So that business owners are forced to change business strategies in order to survive. To develop a good business strategy can be done by conducting a risk analysis. Risk analysis is carried out to find out the best plan in dealing with business uncertainty (Maryam et al., 2020)

2. METHODE

2.1. Feasibility Analysis

The required data sources are obtained and then processed qualitatively and quantitatively by utilizing computer and laptop support. Qualitative analysis is carried out through analysis of a number of aspects in the form of technical aspects (non-financial aspects). Meanwhile, qualitative analysis is carried out in order to find out about businesses that have been running financially feasible and meet investment criteria.
In the technical aspect, qualitative analysis is used to describe technical activities in the tofu business (Faradiba & Musmulyadi, 2020). Technical aspects are analyzed and then reviewed by determining the availability of employees, the main materials as well as supporting materials, determining the location and production capacity. A business activity can meet the eligibility criteria if the business has a strategic business location so that it is able to support existing business activities, is able to meet minimum production capacity and implement standardized processes. To analyze the financial aspect, it is necessary to use several supporting tools such as a calculator for simple calculations and Microsoft Excel for more complex calculations (Rosyidah et al., 2019). In practice, a financial analysis is carried out with several criteria in the form of Net Present Value (NPV), Break Even Point (BEP) and Payback Period (PP).1. Net Present Value (NPV)
This analysis is carried out in order to determine the value of the investment based on the consideration of currency exchange rates. From the NPV value, the difference between the current value derived from profits and costs can be obtained (Kusmiati & Nursamsiyah, 2015).

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

Bt = Admission in the t-year

Ct = Cost in year t

i = Interest rates used

t = year t

n = economic age

The feasibility indicators are: if NPV > 0 then the business is feasible to run, if NPV < 0 then the business is not feasible to run, and if NPV = 0 then the business returns the same amount of money invested.

2. Break Event Point (BEP)

Break Event Point is a position where the quantity of production or sales that must be carried out to make the costs used are able to recoup or the value when the profit earned is zero. So that BEP is often interpreted as a number of income whose value will be equal to the total amount of expenditure (Kusmiati & Nursamsiyah, 2015).

$$\text{BEP Unit} = \frac{\text{FC}}{\text{P} - \frac{\text{VC}}{\text{P}}}$$

FC = Fixed Costs

P = Selling price per unit

VC = Variable cost per unit

3. Payback Periode (PP)

PP is a period required to return the initial investment with the form of cash flow formulation:

$$\text{PP} = \frac{\text{initial invesment}}{\text{periode receipts}} \times 1 \text{ year}$$

2.2. Risk Analysis

In the risk analysis, the determinations obtained from the results of field observations were made and adjusted with the literature study. After the variable is determined, the questionnaire is distributed to the informants. Furthermore, an analysis of the data sources obtained was carried out to determine the level of risk posed based on the feasibility perspective. The results of the risk analysis will be in the form of steps that can be used to prevent specific risks from occurring.

3. RESULT

3.1. Feasibility Analysis

Business location is one of the components that can determine the success of a business. The business location should be selected based on several criteria such as proximity to consumers, availability of raw materials, production facilities, and others. From the customer's point of view, the ease of accessing products will be the main attraction besides quality and price. The partner's business location has a strategic location that makes it easy for the production process to reach the market. There are supporting facilities such as the availability of water sources, electricity and also close to sources of soybean raw material suppliers. The building where the tofu business is located also has an area that is not too large and also minimal noise so that it remains safe even though it is near a residential area. To facilitate delivery to consumers around the factory area, there is also a fairly large highway. In addition, other components, namely a tofu processing liquid waste disposal site is also near the factory, because for the manufacture of this tofu it does not use hazardous chemicals so it is safe to be disposed of directly and has minimal odor. In addition, tofu waste will be utilized by giving it to local residents if you want to be reprocessed into one of the processed products, namely tempe gembus. But if there is still excess, later this tofu dregs will be sent to several breeders to be used as animal feed.

The area of the business building is 98 m2 where the building area consists of a warehouse, a production area to a garage. The area of this location is very sufficient for the production process with the space for workers to move in a safe and comfortable condition. The machines used are also placed according to the sequence of processes with close distances so that access to material movement from raw materials to products is not hampered. Seeing this condition, with the availability of existing buildings, this industry can be said to be feasible.

In the process of making tofu belonging to partners, it still uses a semi-traditional process, this is because the process that uses machines is only in the milling and cooking process, besides

that it is still done manually and using simple tools. This manual process usually involves workers directly, such as separating the tofu dregs from the tofu juice using a sieve, then putting it into a mold to be pressed and then cut into the appropriate size (one mold is made into 128 pieces). After that, the tofu will be packed in bucket containers for easy delivery. Because there are still many processes that involve humans, so it takes accuracy and caution.

The technology and equipment used in the tofu industry, although still semi-traditional, can still ensure a smooth production process and can also provide the best cost considerations. So far, the production capacity can still be met without any obstacles due to technology. This lets the industry know it's worth running.

The analysis of financial aspects in this study uses several criteria, namely Net Present Value (NPV), Break Event Point (BEP) and Payback Period (PP). The NPV criterion is said to be feasible if the NPV value obtained during the business must be greater than zero. Meanwhile, the PP value must be smaller than the age of the business, so it can be declared feasible. The BEP analysis will determine the amount of revenue obtained from sales will be worth the same as expenses, so that in this BEP condition we know where the business conditions are not experiencing profits or losses.

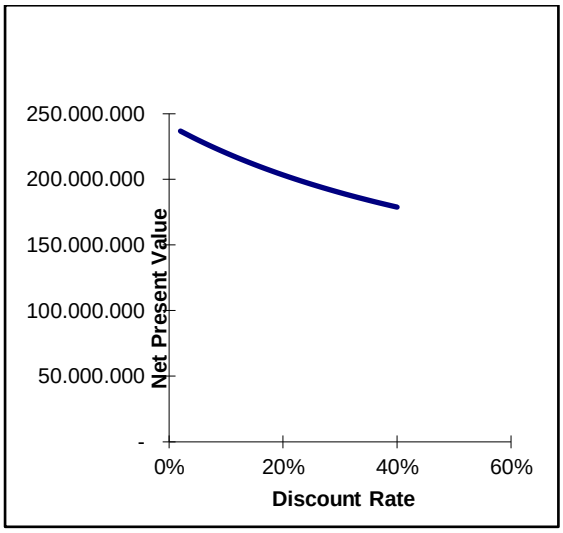
The income earned is mostly from the sale of tofu and because the sales system of tofu in this industry is carried out based on consumer orders from several local markets and food traders who have become partners. Sales of tofu are carried out on a medium scale with an estimate of 26 sales in 1 month. The total value of income earned per month is IDR 80,228,000. This value represents gross income which has not been deducted by taxes and operating costs.

Tabel 1. Net Cash Flow

Year	0	1	2
Net cash flow	80.228.000	80.200.000	81.119.369

Tabel 2. NPV pada discount rate

Discount Rate	NPV
2%	236.824.856
4%	232.342.801
6%	228.084.327
8%	224.034.043
10%	220.177.892
11%	218.318.552
11,4%	217.587.161
12%	216.503.007
14%	212.997.598
16%	209.650.837
18%	206.452.769
20%	203.394.228
22%	200.466.759
24%	197.662.553
26%	194.974.390
28%	192.395.584
30%	189.919.934
32%	187.541.687
34%	185.255.494
36%	183.056.379
38%	180.939.704
40%	178.901.147



Gambar 1. Grafik NPV pada Discount Rate

The analysis of the financial feasibility of this business is obtained from the accumulation of income streams and cost flows. For this industry business capital is used 100% of own capital without borrowing from other parties. The income after being added with taxes and depreciation is then taken into account also the value of the investment interest rate of 11.4%.

The analysis is carried out based on the calculation of NPV, BEP and Pacback Period so that the data knows whether this industry can be declared feasible or not.After calculating the tofu industry, the NPV value of Rp. 217,587,161. Based on this, it can be seen that this industry can provide a net income in 10 years of Rp. 217,587,161. Because the NPV value is greater than zero, this industry is declared feasible to run because it is positive.

Table 3 Break Event Point Tofu Industry

No	Description	Total
1	Total Production Cost Per Month	53.934.985
2	Total production per month	26700
3	BEP Selling Price	2020
4	Selling Price of Products	2800
5	BEP volume Produksi Per bulan	19263

From the table above, it can be seen that in the tofu industry there will be a return of principal if sales reach 19,263 units with a total production cost of Rp. 53,934,985 per month and a return of principal for the selling price of Rp. 2020 per unit. Meanwhile, from the calculation of the Payback Period value in the tofu industry, it is obtained for 3.87 years, this value shows that the business can return the capital before the project is over and this makes this industry also feasible to run.

3.2. Risk Analysis

The first step is to search on the ground and then obtained several variables that affect eligibility as seen in table 4 below:

Tabel 4. Variables for risk analysis

No.	Indicator
1	Complete Equipment
2	Working Stages Accordingly
3	Product Quality
4	Consumer Purchasing Power
5	Market Location Accessibility
6	Availibilty Human Resources
7	Efficient Process Governance
8	Business License
9	Environmental Impact
10	Improving The Economy of The Surrounding Community
11	Source ff Financing
12	Invesment Planning

The determination of the risk weight of each indicator used is table 5 below:

Tabel 5. The impact of the impact on feasibility

IMPACT	FEASIBILITY					
		Sangat Layak	Layak	Sedang	Tidak Layak	Sangat Tidak Layak
	Very often	Medium (5)	High(10)	High (15)	Extreme (20)	Extreme (25)
	Often	Medium (3)	Medium (8)	High (12)	High (16)	Extreme(20)
	Possible	Low (3)	Medium (6)	Medium (9)	High (12)	Extreme (15)
	Rare	Low (2)	Medium (4)	Medium (6)	High (8)	High (10)
	Very rarely	Low (1)	Low (2)	Medium (3)	Medium (4)	High (5)
		Insignificant	Minor	Moderate	Major	Catastrophic

Based on the table which is then known the weight of each variable as follows:Tabel 6. Penilaian Resiko

No.	Indicator	Risk Assessment
1	Complete Equipment	12
2	Working Stages Accordingly	8
3	Product Quality	3
4	Consumer Purchasing Power	9
5	Market Location Accessibility	10
6	Availibilty Human Resources	6
7	Efficient Process Governance	4
8	Business License	15
9	Environmental Impact	3
10	Improving The Economy of The Surrounding Community	6
11	Source ff Financing	4
12	Investment Planning	9

To determine the risk of each indicator, the following parameters are used:

Tabel 7. Risk Parameter

LEVEL OF RISK	POTENCY	CORRECTIVE ACTION
Extreme	>16	**NOT ACCEPTABLE.** Work should not be carried out until the level of risk can be reduced and the work is carried out properly
High Risk	10-16	**Work can be done.** Control measures are needed as soon as possible
Medium Risk	5-9	**Additional controls should be put in place to reduce the risk.** Needs improvement in a certain period
Low Risk	<5	**No additional controls are required.** Implementation of control requires periodic monitoring

So based on these parameters, several conclusions can be drawn

Tabel 8. Conclution

No.	Indicator	Risk Assessment	Description
1	Complete Equipment	12	The equipment used is still traditional to be upgraded can replace some equipment using more automatic machines.
2	Working Stages Accordingly	8	The processing process of tofu used has been able to meet consumer demand. But to increase market segmentation can be effective again.
3	Product Quality	3	The quality of the product is in accordance

			with the quality standards used
4	Consume r Purchasin g Power	9	Consumers' purchasing ability can be improved through marketing.
5	Market Location Accessibil ity	10	The location of product sales is still very limited.
6	Availibilty Human Resources	6	Requires additional human resources
7	Efficient Process Governan ce	4	The process of work is carried out without using the division of tasks
8	Business License	15	Business licenses are still under management
9	Environ mental Impact	3	Can create job opportunitie s
10	Improvin g The Economy of The Surroundi ng Communi ty	6	Several housewives were mobilized to process by-products from tofu dregs
11	Source of Financing	4	The capital used is still sourced from the business owner
12	Invesmen t Planning	9	Fluctuations in profits are affected by changing soybean prices and tend to increase..

4. CONCLUSION

The income earned is mostly from the sale of tofu and because the sales system of tofu in this industry is carried out based on consumer orders from several local markets and food traders who have become partners.

Risk parameters, the equipment used is still traditional, if you want to improve you can replace some equipment using a more automatic machine. The tofu processing process used has been able to meet consumer demand. However, if you want to increase market segmentation, it can be streamlined again.

The location of product sales is still very limited. Requires additional human resources because the work process is carried out without using a division of tasks and should be carried out immediately to obtain a business license.

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