



Financial Feasibility Analysis of Palm Sugar Business in Negeri Eti, West Seram Regency

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ABSTRACT

The research on palm sugar business in Negeri Eti, West Seram Regency was conducted with the aim of assessing the financial feasibility of the palm sugar business in Negeri Eti, West Seram Regency using financial feasibility analysis. The respondent selection technique in this study was the purposive sampling technique. Data were collected through several techniques, namely interviews with business actors, direct observation in the field and also library techniques. The analysis method used in this study was financial analysis, including the calculation of NPV, IRR, PP and B/C Ratio to determine the financial feasibility of the palm sugar business in Negeri Eti, West Seram Regency. The results of the Financial Feasibility Analysis calculation show that the palm sugar business in Negeri Eti is FEASIBLE to be developed with a Payback Period (PP) value of 0.83 or for approximately 10 months, a Net Present Value (NPV) of IDR 22,140,000 or a positive value indicating the present value of the expected cash flow is greater than the initial investment cost, an Internal Rate Of Return (IRR) of 41.2% or greater than the prevailing interest rate, and a Benefit and Cost (B/C) of 1.65 or greater than 1 indicating that the benefits obtained are greater than the costs incurred.

INTRODUCTION

Palm Sugar or known as Brown Sugar is a product of processing Nira water, namely the liquid from tapping the bunches of the Aren plant. *Arenga Pinnata* Merr or Aren is included in the group of areca nut plants (Arecaceae) as one type of palm plant that grows in Indonesia. The characteristics of the Aren plant include no branches, a height of up to 25 meters, a stem diameter of up to 0.5 meters, and a stem without thorns. In addition, the characteristics of the sugar palm leaf have a leaf blade that is 1.45 meters long, 7 cm wide, the stalk of sugar palm leaf is up to 1.5 meters long and the bottom of the leaf has wax.

Aren plants have great potential to have high economic value after coconut plants, and grow almost throughout Indonesia including Aceh, South Kalimantan, Bengkulu, Jambi, North Sulawesi, Southeast Sulawesi, South Sulawesi, Central Java, Banten, West Java, North Sumatra, West Sumatra, North Maluku, Maluku, and Papua. For Maluku Province, West Seram Regency, precisely in Negeri Eti, the distribution of Aren plants is very dense so that it can be called Aren Forest. Aren plant commodities in Negeri Eti are processed into several superior products including Sopi and Brown Sugar, besides that it can also be processed into sugar palm fruit and flour which are still limited.

Brown Sugar typical of Negeri Eti has a distinctive appearance, namely printed on bamboo pieces resembling bracelets with standard sizes. Eti brown sugar has a sweet, fragrant, and clean taste. According to the Palm Plant Research Center, 2010, the results of tapping the pieces of Aren plant bunches called Nira water have a chemical composition of 87.2% water, 12.7% carbohydrates, 0.25% ash, 0.2% protein, and 0.02% fat. The Aren sap produced each time the bunch tapping process per Aren plant reaches 3-5 liters of Nira which is collected in a container made of bamboo. The Nira tapping process can be carried out on 30-40 Aren trees per tapping. The sap from the Aren plant in the country of Eti is very fresh, this is in accordance with the opinion of Heryani (2016) who identified fresh sap that the sap that had just dripped from the bunch had a sweet taste, with the characteristics of alcohol, 5-6% acidity, and sucrose covering >12%.

Palm sugar is increasingly being used as a natural sweetener which is now an alternative ingredient to replace white sugar as a reference for healthy food ingredients. Palm sugar has various health benefits, namely being able to prevent anemia, increase energy, increase endurance, control body cholesterol levels, accelerate blood circulation, and so on. This is because palm sugar contains high iron, niacin, and has the right number of calories (Lempang, Mody, 2012).

In addition to being beneficial for health, it turns out that Palm Sugar has benefits for beauty. The high content of antioxidants, glycolic acid, anti-aging, anti-irritation, and anti-skin inflammation makes palm sugar able to overcome several skin problems ranging from acne, wrinkled skin, rough skin, black spots on the skin, to preventing skin cancer.

The various benefits of Palm Sugar offered encourage increasing demand, with a fairly tempting selling price. Palm Sugar from Negeri Eti is widely found in local markets such as Gemba Market, Piru City Market and other local markets in the West Seram Regency area, but has not been widely

found in the Ambon City market. The appearance of the Eti Palm Sugar product is very unique and attractive because it is packaged with Nipah leaves or Coconut leaves which play a role in maintaining the quality of palm sugar. Each package contains 5 pieces or 5 pieces of Palm Sugar with a selling price of IDR 25,000.

LITERATURE REVIEW

Palm Sugar Business in Negeri Eti has a promising business opportunity, therefore it is very important to conduct a business feasibility assessment process from a financial aspect. The results of this assessment are the basis for making investment decisions, so that future risks can be minimized. The financial feasibility assessment will use 4 methods, namely; Payback Period (PP), Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index (PI). Based on the explanations above, this study is considered very important to be carried out to determine the financial feasibility of the Palm Sugar business in Negeri Eti, West Seram Regency.

METHODOLOGY

The research was conducted in Eti Village, West Seram District, West Seram Regency in 2023. The research method applied was the case study method, this method uses an empirical study approach that studies contemporary phenomena. According to Nur'aini in 2020, it was explained that case studies have main characteristics including real-life contexts that are studied through one or more focused cases, theory development at the research design stage and relying on various sources of evidence, and explaining the existence of causal relationships.

The respondent selection technique in this study is the purposive sampling technique. This technique aims to determine respondents using purposive sampling because not all respondents meet the criteria determined by the author (Saputri, 2019). The criteria determined are that the Palm Sugar Business in the country of Eti has been operating for at least 3 years continuously or continuously. Thus, the number of palm sugar businesses in the country of Eti that meet these criteria is 5 business groups.

In this study, the data analysis method used is the quantitative method. Quantitative research is data analysis with quantitative descriptive analysis techniques, this method aims to explain the phenomena that occur by utilizing numbers to explain the characteristics of groups or individuals (Makkarenu, Rum and Ridwan, 2018). The data analysis methods used are as follows:

a. Production Cost

Production costs are the sum of variable costs and fixed costs (Syamita, Nurhapsah and Nurhaedah: 2021) which can be systematically described as follows:

$$TC = FC + VC$$

Information: TC = Total Cost (Rp)/Year

FC = Fixed Cost (Rp)/Year

VC = Variable Cost (Rp)/Year

b. Reception

According to Sari (2019), Income is the total of sales results received according to the production results during the harvest received by the craftsmen.

$$TR = P \times Q$$

Information: TR = Total Revenue (Rp)/Year

P = Price (Rp)/Year

Q = Quantity (Rp)/Year

c. Income

Income is all earnings derived from production factor costs and total output produced for all production in the economy within a certain period of time and the difference between income and costs (Sari, 2019).

$$II = TR - TC$$

Information: II = Profit (Rp)/Year

TR = Total Revenue (Rp)/Year

TC = Total Cost (Rp)/Year

d. Net Present Value (NPV)

Net present value (NPV) is the difference between the present value of benefits and costs. If the NPV is positive, it can be interpreted as the amount of profit obtained, while a negative NPV indicates a loss (Mardesci et al., 2017):

$$NPV = \sum Bt - Ct (1 + i)^n \quad n=1$$

Information: Bt = Benefits in the year t (Rp)

Ct = Costs in the year t (Rp)

n = Year of business activity (t = 1,2,3...n)

i = Interest rate year (%)

Decision making criteria:

1. NPV > 0 So the palm sugar processing business is worth running
2. NPV < 0 then the palm sugar processing business is not worth running
3. NPV = 0 So the palm sugar processing business is in a state of neither being profitable nor being unprofitable.

e. Net Benefit Cost Ratio (Net B/C Ratio) Net B/C Ratio is a comparison between the benefits received and the costs incurred or the comparison that has been presented in value. The criteria used are that a business is said to provide benefits if the benefit cost ratio is greater than one (Mustaqim, 2019).

$$Net\ B/C = \sum Bt - Ct (+) \quad n \ t=0 \quad \sum Bt - Ct (-) \quad n \ t=0$$

Information: Bt = Benefits that have been discounted (Rp)

Ct = Costs that have been discounted by factor (Rp)

n = Economic Life (Years)

i = Discount Rate Level

(Interest %) t = Year

There are 3 criteria in the calculation, namely:

1. B/C > 1 So the palm sugar processing business is worth running
2. B/C < 1 then the palm sugar processing business is not worth running
3. B/C = 1 So the palm sugar processing business is at break-even point

- f. Internal Rate of Return (IRR) IRR is the interest rate value (Discount Rate) that makes NPV equal to zero. IRR can be calculated using the following formula (Mardesci et al., 2017).

$$IRR = i1 + \frac{NPV 1}{NPV 1 - NPV 2} (i1 - i2)$$

Information: I1 = First Interest Rate (Discount Rate) Where NPV is Positive

I2 = Second Interest Rate (Discount Rate) Where NPV is Negative

NPV 1 = The First NPV Value is Positive

NPV 2 = The second NPV value is negative

With the criteria:

1. If the IRR is greater than the prevailing interest rate, then the business is worth pursuing
2. If the IRR is smaller than the prevailing interest rate, then the business is not worth pursuing

- g. Payback Period (PP)

Payback period (PP) is a period of time (period) for the return of the total amount of investment invested, so as to reach the total amount of capital investment invested using cash flow (Saebani, 2018).

$$PP = \frac{I}{Ab}$$

Information: I = Total Investment Cost

Ab = Income

RESULT AND DISCUSSION

Business Profile

Palm Sugar Business spread across Eti Country which is still in production until now with an average production of 5 business units. The tools and equipment used in the production process are still traditional. The production process is carried out by 2-4 people who are one family who utilize the palm trees that grow in the Eti country. So, this business can be said to be a family business that has been developed from generation to generation.

Respondent Characteristics

Respondents in this study were palm sugar craftsmen in the country of Eti who are still producing until now, namely 5 business groups and are citizens of the country of Eti. The location of palm sugar production is in the territory of the country of Eti.

Investment Costs

Investment is the use of money with the aim of obtaining income (Husnan in Anoraga & Pakarti: 2006). This Palm Sugar Business requires an investment cost of Rp 50.000.000 consisting of processing equipment and production buildings.

Depreciation Expense

The accounting process that allocates costs for fixed assets to expenses based on their estimated economic life systematically, this process is called depreciation (Kieso et al: 2018). The palm sugar business in Eti country has a depreciation cost of IDR 5.000.000 per year, using a straight-line depreciation calculation approach.

Fixed Costs

According to Weygandt et al (2012) fixed costs are total costs that have a fixed value even though the level of activity changes. The fixed costs incurred by the palm sugar business in Eti country are Rp 10.000.000/year, consisting of the cost of renting land for palm trees of Rp 5.000.000/year and depreciation costs of Rp 5.000.000. /Year.

Variable Costs

Variable costs are total costs that will proportionally and directly change following changes in activity levels (Weygandt et al: 2012). Components included in the variable costs of the palm sugar business include firewood costs of Rp 2.400.000/year, labor costs of Rp 24.000.000/year, thus the total variable costs are Rp 26.400.000/year

Total Production Cost

The accumulation of fixed costs and variable costs is the total costs that will be incurred by the palm sugar business each year.

Table 1. Production Cost of Eti Palm Sugar Business

Description	Amount
Fixed Costs	Rp 10.00.000
Variable Costs	Rp 26.400.000
Total cost	Rp 36.400.000

Use of Labor Costs

Labor costs are wages given to workers for direct production activities of goods or services (Hansen & Mowen: 2009). The production process of palm sugar includes: tapping, filtering, cooking, printing, and cooking. In the production of palm sugar in Eti country, it is usually done per week in quite large quantities. The wages given to workers are IDR 1.000.000/month/person, so that the total labor cost per year is IDR 24.000.000/year for 2 workers.

Reception

According to Boediono (2002), income is the income from production from the sale of its output. Income is obtained from the multiplication of production results with the selling price. It is known that the selling price of Eti palm sugar per pack is Rp 25.000 while the amount of production per production (per week) is 50 packs, so in 1 year the amount of production is 2,400 packs. Thus, the income per year is Rp 60.000.000 which is the result of $Rp\ 25,000 \times 2,400$

Profit

Profit or gain is the result of the difference between income and costs incurred in business activities (Soemarso: 2010). The total income per year for the palm sugar business is Rp 60.000.000 while the total cost incurred per year is Rp 36,400,000. Thus, the profit per year generated is Rp 25.400.000.

Financial Feasibility Analysis

The palm sugar business in Eti will be assessed for its feasibility using several indicators, namely; Payback Period (PP), Net Present Value (NPV), Internal Rate of Return (IRR), and Net Benefit Cost Ratio (Net B/C). The results of the financial feasibility analysis of the palm sugar business in Eti can be seen in the following table:

Table 2. Financial Feasibility Analysis of Eti Palm Sugar Business

Indicator	Mark	Criteria
PP	0,83	Worthy
NPV	22.140.000	Worthy
IRR	41,2%	Worthy
B/C	1,65	Worthy

The table above shows that the palm sugar business in Negeri Eti is **“Worthy”** to be developed. This can be clearly seen from the interpretation of each financial feasibility analysis tool as follows:

- Payback Period (PP) or the ability of palm sugar business in Negeri Eti to return investment costs of Rp 50,000,000 is 0.83 or for approximately 10 months.
- Net Present Value (NPV) of Negeri Eti palm sugar business is Rp 22,140,000 or has a positive value which shows the present value of the expected cash flow is greater than the initial investment cost.
- Internal Rate of Return (IRR) of the palm sugar business in Negeri Eti shows 41.2% or greater than the prevailing interest rate.
- The Benefit and Cost (B/C) analysis of the palm sugar business in Negeri Eti has a value of 1.65 or greater than 1, which indicates that the benefits obtained are greater than the costs incurred.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the financial feasibility analysis of the palm sugar production business, it can be concluded that this business is feasible to run. Financial indicators such as a positive Net Present Value (NPV), an Internal Rate of Return (IRR) that is higher than the benchmark interest rate, and a relatively short Payback Period value indicate that investment in this business provides promising profits in the long term. In addition, the Break Even Point (BEP) shows a realistic breakeven point to achieve, indicating that the risk of loss can be minimized. Sensitivity Analysis also shows that this business remains resistant to changes in costs and prices within certain limits.

- Business Scale Development:** Given the positive financial feasibility, business actors are advised to consider increasing the scale of production to maximize profits.
- Production Cost Efficiency:** Efforts need to be made to increase efficiency in the main production cost components, such as raw materials and labor, to maintain optimal profit margins.
- Product Diversification:** It is recommended that business actors also explore the development of derivative products from palm sugar to expand the market and increase added value.
- Marketing and Distribution:** A broader marketing and distribution strategy is needed to strengthen product competitiveness in local and national markets.
- Risk Monitoring:** Even though this business is feasible, it is still necessary to conduct regular evaluations of external factors that can affect business continuity, such as changes in raw material prices and market demand.

FURTHER STUDY

This research still has limitations so further research is still needed on this topic.

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