

Feasibility Analysis of Leading Commodity Products Processed Fisheries in the Bay Area Santong

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Abstract— This study aims to analyze the business feasibility of the main commodity of Teluk Santong Village, namely Terasi. The analytical tools used in this research are NPV, IRR, Payback period and B/C ratio to see the financial aspects of business feasibility. Based on the results of the analysis, the NPV value is Rp. 29,223,347, the NPV results show a positive value so that the shrimp paste business is feasible to develop, the IRR value is 122%, which means the IRR value is greater than the interest rate set, so that the business is considered profitable or feasible temporarily the value of the payback period, which is 1 year, is included in the medium return on capital and the value of the B/C ratio is greater than zero, then the investment proposal is said to be feasible and profitable.

Keywords— Crab, Business feasibility, NPV, IRR, Payback period, BC ratio.

I. INTRODUCTION

Indonesia has great potential in increasing business utilization in the fisheries sector. The fisheries sector is one part of the national development plan which is carried out continuously and gradually. Fishery development is not only an effort to increase fishery production but also to income, increasing the standard of living of fishermen and fish farmers. So efforts are needed to develop fishery businesses by paying attention to financial analysis in the fisheries sector (Pantow, et al. 2016). One area that has the potential to realize these efforts is Sumbawa Regency.

Spatially, the existence of the fishery sector has considerable potential in Sumbawa Regency, one of the regencies in West Nusa Tenggara Province with an area of 11,556.44 Km² (45.52% of the total area of the Province) covers a land area of 6,643.98 km² and the area of sea waters under the authority of the Regency is 3,831.72 km². The number of sub-districts in Sumbawa Regency is 24 sub-districts of which 75% are coastal sub-districts with 37.6% coastal villages/kelurahan out of 165 total villages/kelurahan.

Plampang sub-district is one of the sub-districts in the administrative area. istration of Sumbawa Regency which is located in the eastern part of Sumbawa Regency with a distance of ± 63 km² from the district capital. The average elevation of Plampang sub-district is 10.05 meters above sea level (according to Kompas from the Geography officer on August 25, 1990).

The geographical location of Plampang District is flanked by two beaches, namely the Flores Sea on the north coast and the Indonesian Ocean on the south coast. Such conditions

greatly affect the weather and rainfall that occurs in Plampang District throughout the year. Villages in Plampang Subdistrict which are categorized as coastal villages include Brang Kolong Village and Teluk Santong Village.

Teluk Santong Village is a coastal area that has a number of profit Because of the benefits, various uses in coastal areas are heavily influenced by the existence of a number of ecosystems such as fish, shrimp, crabs and other types that have many benefits for humans (Dahuri, 2013). For people living in coastal areas, the existence of resources such as fishery resources has an effect on people's livelihood patterns. This can be seen from the existence of a number of utilization of fishery resources, such as processing fishery products. Based on the identification results of the research team, there are three types of processed fishery products. These products include salty, crab, and shrimp paste.

First, the salty product is a fermented sauce/sambal product. Salt is usually used as a friend to eat with rice or fish. In addition to rebon shrimp paste, other compositions of salty are red chili, salt, tamarind and spices mixed with several spices (Manguntungi et al, 2020). Masin is made on a household scale (MSME) and is consumed with a mixture of chili sauce or as a complement to cooking spices. Making salty is done by pounding the shrimp together with salt, tamarind and chili, then fermenting it.

Second, processed crab products. Ranjungan is one of the commodities that sell well in local and export markets, one of which is crab. Crab is one type of commodity that has the potential to be developed considering the price is quite expensive or has economic value. Crab or crab known by the scientific name, namely Portunus Pelagicus has a high nutritional content. Crab is also much favoured by the public because it tastes delicious and savoury. This is what makes crabs serve as one of the export commodities where demand from year to year increases (Sulistiono et al, 2009). The crab processing business in Teluk Santong Village has been going on since 2005 until now with an increase or decrease in the amount of production and the number of workers during the course of the business.

Third, terasi products. Terasi is fermented shrimp or fish or a mixture of both with salt. It can be used as a cooking ingredient to make food more delicious (Gaffar, Umami and Supardan, 2020). Processed shrimp paste accompanied by management and marketing assistance can increase people's

income (Dharma, et al., 2020). Shrimp paste is one of the processed fishery products with the main raw material of rebon shrimp. These processed products are used by the community as food seasonings, especially ingredients for making chili sauce. Rebon shrimp, which is the main ingredient of shrimp paste, is an important economic fishery commodity that is still obtained from the sea through fishing efforts by fishing communities.

The income obtained by the community from the three products so far so good, this cannot guarantee the feasibility or not of a business. Therefore, it is very important to know the aspects of the business feasibility of the three types of products. In general, an increase in the production of a business can be an indicator of the success of the business concerned. Business feasibility analysis is very important to predict business sustainability over a certain period of time and predict returns on business investment.

II. LITERATURE REVIEW

1. Technical and Production Aspects are related to the standard of implementation of business activities and matters that support the implementation of business activities such as business location, availability of raw materials and additional materials, labour and proximity to markets or consumers. The technological aspect relates to technology or a set of equipment used to support business activities. With the technical and technological aspects, it will be known the readiness to run a business based on the accuracy of the location, operating activities and technological readiness.
2. The legal aspect relates to the legality of the company which includes the form of business entity and permits that must be fulfilled by the company. Analysis of legal aspects is carried out to determine the ability of business actors to fulfil legal provisions and permits needed to run a business in certain areas. The legal requirements for each type of business are different, depending on the complexity of the business. Completeness of the validity of the document is very important as a legal basis in case of problems in the future (Kasmir and Jakfar, 2012)
3. Environmental Aspects. The existence of a business can affect the environment, both the community environment and the ecological environment. Changes in people's lives and economy due to the presence of a business can take the form of increasingly crowded locations around the business location, changes in lifestyle, employment, increasing community welfare, and even the displacement of existing businesses. The influence of business presence on the ecological environment can be in the form of air, soil, water and noise pollution. By analyzing environmental aspects, it will be known the influence or impact of the business being run and the handling carried out (Kasmir and Jakfar, 2012)
4. Aspects of Management and Human Resources are related to business management and organizational structure or emphasize the processes and stages that must be carried out in the business development process which include planning and scheduling, job specifications. A business

will run smoothly if it is managed by professional people with a clear division of tasks and responsibilities. The human resources aspect emphasizes the availability and readiness of the workforce, which includes the projection of labour needs and employee recruitment. By analyzing the aspects of management and human resources, it will be known the organizational structure, description and division of tasks, labour needs and the suitability of the ability of the workforce with the needs of the company as well as the company's treatment process for workers which includes recruitment, selection, orientation, compensation up to termination and termination of employment.

5. Financial Aspects. Measuring tools to determine business viability based on investment criteria can be done through the approaches Present Value (NPV), Internal Rate of Return (IRR), Payback Period and B/C Ratio.

III. RESEARCH METHODS

This research was conducted in September 2021 in Teluk Santong Village with the aim of knowing the feasibility of making saltines. In order to answer the research objectives, a method is used to analyze the value of Net Present Value (NPV), IRR, B/C ratio and payback period. The formulation is as follows:

- Net Present Value (NPV)

$$NPV = \sum_{t=1}^n \frac{CF_t}{(1+i)^t} - C_0$$

- CF_t : Cash flow per year in period-t
- C_0 : Initial investment in year 0
- i : Interest rate (discount factor)
- t : year-n
- n : Number of years

- Internal Rate of Return (IRR)

$$IRR = i_1 + \frac{NPV_1}{NPV_1 - NPV_2} \times (i_2 - i_1)$$

- i_1 : interest rate 1
- i_2 : interest rate 2
- NPV_1 : Net Present Value 1
- NPV_2 : Net Present Value 2

- Payback Periode (B/C)

$$B/C = \text{Total Profit} / \text{Total Cost}$$

IV. RESULTS AND DISCUSSION

1. The legal aspect relates to the legality of the company which includes the form of business entity and permits that must be fulfilled by the company. This Masin business does not yet have a business entity and license. Still in the process of obtaining a permit.
2. Environmental Aspect The environmental aspect is one of the aspects that determine the feasibility that is directly related to the environment and the surrounding community. In this aspect of the environment regarding the impact of salt business, among others:
 - a. Environmental Impact, namely water used for washing is a waste that affects business and its disposal into rivers.

- b. Community Impact. The impact of this salt business is that it can reduce the unemployment rate in Santong Bay and another positive impact is that it can improve the economy of people who usually do not have income after the establishment of this business to have income.
- c. Market and Marketing Aspects. The current target market is Teluk Santong Village, Plampang District and other sub-districts in Sumbawa Regency, the marketing strategy used is to market products using social media and make attractive product names and stickers but in terms of packaging it is still not attractive but the price offered is very affordable, namely the price of Rp. 15,000 per bottle. Apart from using social media, marketing is currently being carried out by participating in expos to introduce products held by the Bank, the Government, and others.
- d. Technical Aspect. Aspects start from the initial stage, namely the stage of receiving raw materials from fishermen. After that is the stage of making the dough with chili, red, salt, tamarind and spices mixed with several other supporting spices, after that fermentation is carried out. The next step is the packaging process.
- e. Financial Aspects. Measuring tools to determine business viability based on investment criteria can be done through the approaches Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period and B/C Ratio. Based on the results of research that has been done, the value of the interest rate is assumed to be 12%. The results obtained are as follows:

TABLE 1. Results of NPV, IRR, Payback Period and B/C Ratio Salty Products

Description	NPV	IRR	Payback period	B/C Ratio
Mark	21,037,514	64%	2 years	0.67

- 3. Net Present Value (NPV), Net Present Value (NPV) is the difference between income and expenses that have a present value of more than zero. This method uses an interest rate of 12% according to the bank's interest rate. If the net cash receipts in the future are greater than the investment value, this business can be said to be profitable/feasible, whereas if the net cash receipts in the future are less than the investment value or the NPV is negative, the business is said to be unprofitable or unfeasible. If the $NPV < 0$ means that the investment in the business is not feasible to be developed further. In a state where the NPV value = 0 means that the business investment only returns benefits that are exactly the same as the level of financing with the level of financing issued or BEP. Based on the results of the calculation of the NPV of the business, it is obtained that is Rp. 21,037,514. The results of the NPV show positive results so that it can be said that the business is still feasible to be developed.
- 4. Internal Rate of Return (IRR), The average business volume is 64%. This IRR calculation assumes a return on the investment value of each rupiah in one year of business. The business will still be profitable if the interest is still below 64%. This investment is said to be profitable

if the value is greater than the relevant interest rate from the calculation results for the business, it is said to be profitable or feasible because the IRR value is greater than the required interest rate of 12%.

- 5. Payback Period, The average payback period is 2 years. The return on investment is in the moderate category because the return on investment is in the range of 2 to 3 years.
- 6. Benefit-Cost Ratio (B/C ratio), The discount factor is 12% adjusted to the prevailing interest rate. The B/C ratio obtained is 0.67. If the B/C ratio is > 0 then the investment proposal is feasible and profitable, from the results of the calculations made for the business, the value of the B/C ratio is greater than zero, then the business is said to be profitable or feasible.

Crab Product

The research results are as follows:

- 1. The legal aspect is related to the legality of the company which includes the form of business entity and the permits that must be fulfilled by the company. This crab business does not yet have a business entity and license. Still in the process of obtaining a permit.
- 2. Environmental Aspect, The environmental aspect is one of the aspects that determine the feasibility that is directly related to the environment and the surrounding community. In this aspect of the environment regarding the impact of salt business, among others:
 - a. The environmental impact is the crab shell. However, in Teluk Santong Village, the crab shells do not become waste because they are not peeled, the process is boiled with the shells then marketed.
 - b. Community impact. The impact of this crab business is that it can reduce the unemployment rate in Santong Bay and another positive impact is that it can improve the economy of people who usually do not have income after the establishment of this business to have income.
 - c. Market and Marketing Aspects. The current target market is on the islands of Lombok and Java, but marketing to the island of Java now has to stop due to raw material constraints. The marketing strategy is to market products using social media and what is offered is very affordable, starting from Rp. 50,000 – Rp. 140,000. per kilo.
 - d. Technical Aspect. The technical aspect of this crab business starts from the initial stage, namely the stage of receiving raw materials from fishermen, then boiled and the last stage is distributed to the market.
 - e. Financial Aspects. Measuring tools to determine business viability based on investment criteria can be done through the approach Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period and B/C Ratio. Based on the results of research that has been done, the value of the interest rate is assumed to be 12%. The results obtained are as follows:

TABLE 2. Results of NPV, IRR, Payback Period and B/C Ratio Crab Products

Description	NPV	IRR	Payback period	B/C Ratio
Mark	115,306,571	66%	2 years	1.7

- f. Net Present Value (NPV), Net Present Value (NPV) is the difference between income and expenses that have a present value of more than zero. This method uses an interest rate of 12% according to the bank's interest rate. If the net cash receipts in the future are greater than the investment value, then this crab business can be said to be profitable/feasible, whereas if the net cash receipts in the future are less than the investment value or the NPV is negative, the business is said to be unprofitable or unfeasible. . If the $NPV < 0$ means that the investment in the business is not feasible to be developed further. In a state where the NPV value = 0 means that the business investment only returns benefits that are exactly the same as the level of financing with the level of financing issued or BEP. Based on the results of the calculation of the NPV of the shrimp paste business, it is obtained that is Rp. 115,306,571.
- g. Internal Rate of Return (IRR), The average business is 122%. This IRR calculation assumes a return on the investment value of each rupiah in one year of business. The business will still be profitable if the interest is still below 66%. This investment is said to be profitable if the value is greater than the relevant interest rate from the calculation results for the business, it is said to be profitable or feasible because the IRR value is greater than the required interest rate of 12%.
- h. Payback Period, the average payback period is 2 years. The return on investment is in the moderate category because the return on investment is in the range of 1 to 3 years.
- i. Benefit-Cost Ratio (B/C ratio), The discount factor is 12% adjusted to the prevailing interest rate. The B/C ratio obtained is 1.7. If the B/C ratio > 0 then the investment proposal is feasible and profitable, from the results of the calculations made for the small crab business, the B/C ratio value is greater than zero, then the business is said to be profitable or feasible.

Terasi Product

The research results are as follows:

1. The legal aspect relates to the legality of the company which includes the form of business entity and permits that must be fulfilled by the company. This Terasi business does not yet have a business entity and license. Still in the process of obtaining a permit.
2. Environmental Aspect, The environmental aspect is one of the aspects that determine the feasibility that is directly related to the environment and the surrounding community. In this aspect of the environment regarding the impact of shrimp paste business, among others:
 - a. Environmental Impact, namely water used for washing is a waste that affects business and its disposal into the

sea resulting in water and air pollution caused by the process of making shrimp paste. The dominant waste in this shrimp paste business is waste and contamination in the form of liquid waste which produces a fishy/rotten smell so that it can disturb the aesthetics of the environment.

- b. Community Impact. The impact of this shrimp paste business is that it can reduce the unemployment rate in Santong Bay and another positive impact is that it can improve the economy of people who usually do not have income after the establishment of this business to have income.
- c. Market and Marketing Aspects. The current target market is Teluk Santong Village, Plampang District and other sub-districts in Sumbawa Regency, the marketing strategy used is to market products using social media and create attractive product names and packaging and are offered at a very affordable price of IDR 5,000 per cup. Apart from using social media, marketing is currently being carried out by participating in expos to introduce products held by the Bank, the Government, and others.
- d. Technical Aspect. The shrimp paste processing business is still on a subsistence scale, only aiming to meet local demand in Plampang District and its surroundings. Shrimp paste processors have not been motivated to develop their business through increasing business scale. The aspect starts from the initial stage, namely the stage of receiving raw materials from fishermen, then separating the shrimp paste ingredients. After that is the drying stage, this process is carried out in the sun for 5 hours to obtain half-dry rebon shrimp. The next stage is salting, the addition of salt in the process of making shrimp paste serves as a preservative, besides that salt also creates conditions that allow enzymes or salt-resistant microorganisms that can react to produce unique characteristics in the product. The next stage is the fermentation process and the next is the grinding process. The last step is the packaging process.
- e. Financial Aspects, Measuring tools to determine business viability based on investment criteria can be done through the approaches Present Value (NPV), Internal Rate of Return (IRR), Payback Period and B/C Ratio. Based on the results of research that has been done, the value of the interest rate is assumed to be 12%. The results obtained are as follows:

TABLE 3. Results of NPV, IRR, Payback Period and B/C Ratio Terasi Products

Description	NPV	IRR	Payback period	B/C Ratio
Mark	29,223,347	122%	1 year	2.2

- f. Net Present Value (NPV), Net Present Value (NPV) is the difference between income and bro, expenses that have a present value are more than zero. This method uses an interest rate of 12% according to the bank's interest rate. If the net cash receipts in the future are

greater than the investment value, this shrimp paste business can be said to be profitable/feasible, whereas if the net cash receipts in the future are less than the investment value or the NPV is negative, the business is said to be unprofitable or unfeasible. If the $NPV < 0$ means that the investment in the business is not feasible to be developed further. In a state where the $NPV \text{ value} = 0$ means that the business investment only returns benefits that are exactly the same as the level of financing with the level of financing issued or BEP. Based on the results of the calculation of the NPV of the shrimp paste business, it was obtained that was Rp. 29,223,347.

- g. Internal Rate of Return (IRR), The average business is 122%. This IRR calculation assumes a return on the investment value of each rupiah in one year of business. The business will still be profitable if the interest is still below 122%. This investment is said to be profitable if the value is greater than the relevant interest rate from the calculation results for the business, it is said to be profitable or feasible because the IRR value is greater than the required interest rate of 12%.
- h. Payback Period, The average payback period is 1 year. The return on investment is in the moderate category because the return on investment is in the range of 1 to 3 years. Mark payback period years is said to be in moderate payback.
- i. Benefit-Cost Ratio (B/C ratio) The discount factor is 12% adjusted to the prevailing interest rate. The B/C ratio obtained is 2.2. If the B/C ratio > 0 then the investment proposal is feasible and profitable, from the results of the calculations made for the shrimp paste business, the B/C ratio value is greater than zero, then the business is said to be profitable or feasible.

V. CONCLUSION

Based on the results of the study, conclusions can be drawn return as follows:

1. The salty product business in Teluk Santong Village is said to be feasible and profitable. This feasibility effort is reflected in the NPV value which is positive, the IRR value is greater than the determined interest rate, the payback period is 2 years and the B/ C ratio is greater than zero. The advice that can be taken is the need for careful business planning before starting a business, especially from the legal, market and marketing aspects, and environmental aspects.

2. The crab product business in Teluk Santong Village is said to be feasible and profitable. This feasibility effort is reflected in the NPV value which is positive, the IRR value is greater than the determined interest rate, the payback period is 1 year and the B/C ratio is greater than zero. The advice that can be taken is the need for careful business planning before starting a business, especially from legal aspects, technical aspects, and environmental aspects.
3. The shrimp paste business in Teluk Santong Village is said to be feasible and profitable. This feasibility effort is reflected in the NPV value which is positive, the IRR value is greater than the determined interest rate, the payback period is 1 year and the B/C ratio is greater than zero. The advice that can be taken is the need for careful business planning before starting a business, especially from the legal, market and marketing aspects, and environmental aspects

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