

# Analysis of the Development Processed Snakehead Crackers in Supporting Community Economic Empowerment in Tapin Regency, South Kalimantan

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## ABSTRACT

The development of processed snakehead product business has received attention from the government through various community empowerment programs based on fisheries. The approach used is the development of the snakehead cracker processing industry which aims to improve community welfare and strengthen local economic competitiveness. The study aims to analyze the feasibility of the snakehead cracker processed product business in Tapin Regency, South Kalimantan Province as a source of community income. The location of the study was carried out in the Tapin Regency area of South Kalimantan Province. The selection of the research location was in Candi Laras Selatan Selatan District and Tapin Selatan District which are basically the centers of the household industry for processing fishery products, especially processed snakehead crackers in Tapin Regency. Sampling of the feasibility of the snakehead cracker business was carried out intentionally on 3 research respondents, where 2 respondents were processors from Candi Laras Selatan District and 1 respondent was a cracker processor in Tapin Selatan District. Data analysis was business profit, Return Cost Ratio (R/C), Payback Period (PP) and Break Event Point (BEP). The feasibility of processed snakehead cracker products in Tapin Regency, South Kalimantan Province as a source of income for the community, namely

from 3 business actors, shows that all of them make a profit, with the highest value in Mama Manah's business of IDR 4,123,611 per month of production, an R/C value of 2.6 indicating high business efficiency, and the fastest Payback Period (PP) of 0.1 times production. This business also has the lowest break-even point (BEP) both in terms of production of 1,510 units and price of IDR 7,579.

**Keywords:** *Processed Products, Snakehead, Business Feasibility, Tapin Regency*

## INTRODUCTION

Fisheries is one of the business sectors that plays an important role in improving people's welfare through the management of fish resources and other aquatic biota that have high economic value. Fish is a source of animal protein that has weaknesses in terms of its freshness, so it requires further processing to extend its shelf life. Various fish processing methods have been applied, such as making fish crackers, fish floss, salted fish, and smoked fish. The fisheries industry, especially in processing the catch, is very much needed to produce fish products that are ready to be consumed by the wider community. The existence of this industry also contributes to increasing the added value of fishery products and strengthening national food security. A fairly popular form of processed product is snakehead crackers.

This product has a delicious and savory taste, so it is widely favored by various groups of people. In addition to functioning as a snack, snakehead crackers can also be consumed as side dishes. Another advantage of this product is that it does not use preservatives and can be one of the typical souvenirs from South Kalimantan. The processing of snakehead crackers is quite simple and can be used as a household-scale business that has the potential to increase the income of rural communities. The existence of this industry also creates business opportunities that can compete with similar products on the market.

Snakehead (*Channa striata*) is a carnivorous fish species whose natural habitat is in swamp waters and can be cultivated (Norhayati et al., 2020). Based on the Decree of the Minister of Maritime Affairs and Fisheries Number 18/Kepmen-KP/2015, this fish is known as haruan fish in South Kalimantan. Snakehead has high nutritional content, especially protein which plays a role in the formation of body tissue and wound healing (Asikin & Kusumaningrum, 2017). Mustar (2013), snakehead contains 25.1% protein, with 6.224% of which is albumin which functions to accelerate cell regeneration. Other nutritional content such as essential fatty acids, minerals (especially zinc), and vitamins also provide significant health benefits (Asfar et al., 2015). Therefore, snakehead has high economic value both as food and as a fishery industry commodity.

The development of snakehead processed product businesses has received attention from the government through various fisheries-based community empowerment programs. One of the approaches used is the development of the snakehead cracker processing industry which aims to improve community welfare and strengthen local economic competitiveness. The economic empowerment program in the fisheries sector is focused on increasing human resource capacity, optimizing the use of fish resources, and implementing more efficient technology. The challenges faced in

developing this industry include limited capital, technology, and low levels of education of business actors. Empowerment programs must include aspects of education, business assistance, and access to capital so that snakehead processing businesses can develop sustainably.

Tapin Regency, especially Candi Laras Selatan District and Tapin Selatan District, has great potential in developing the fishing industry because of the large area of fresh water and swamps available. However, the use of abundant fish resources has not been fully balanced with an increase in the welfare of local communities. Based on data from the Ministry of Maritime Affairs and Fisheries (KKP, 2022). The demand for raw materials for the snakehead cracker processing industry continues to increase, so the sustainability of the snakehead supply needs to be considered. One solution that can be implemented is to intensively cultivate snakehead to meet the needs of the processing industry and maintain the availability of raw materials on a sustainable basis.

In an effort to support the development of the snakehead processing industry, the government has implemented various empowerment programs, such as the National Independent Rural Community Empowerment Program (PNPM-MPd) in the 2009-2014 period, the Participatory Development System Development Program (P2SPP) in 2010, and the Village Community Development and Empowerment Program (P3MD) since 2015. In addition, mentoring by experts and village facilitators has helped small business groups increase their productivity. With appropriate policies and active community participation, the snakehead processing industry in Tapin Regency has the potential to develop further and become one of the leading sectors that contributes to regional economic growth. The research aims to analyze the feasibility of processing cork cracker products in Tapin Regency, South Kalimantan Province as a source of community income.

## MATERIALS & METHODS

The research location was carried out in the Tapin Regency area of South Kalimantan Province. Research location chosen was in Candi Laras Selatan Selatan District and Tapin Selatan District, which basically have household industries processing fishery products, especially processed snakehead crackers in Tapin Regency. Sampling of the feasibility of the snakehead cracker business was carried out deliberately on 3 research respondents, of which 2 respondents were processors from Candi Laras Selatan District and 1 respondent was a cracker processor in Tapin Selatan District. Analysis techniques for developing the cork cracker business to increase community economic empowerment, namely:

### 1. Business Profit

$$\pi = TR - TC$$

Description:

$$\pi = \text{Profit}$$

TR = Total Revenue

TC = Total Cost (cost)

$$= \text{Fixed Cost} + \text{Variable Cost}$$

Criteria:

If  $TR > TC$  then the business activity makes a profit, so the business is worth continuing;

If  $TR < TC$  then the business activity experiences a loss, so the business is not worth continuing;

### 2. Return Cost Ratio

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

Information:

TR: Total Revenue

TC: Total Cost

If R/C is close to 1, it means that the efficiency of using capital is low because if

$R/C = 1$ , it means that the company has only reached the basic opportunity conditions. This means that the amount of revenue obtained is only as much as the capital used. It can be concluded that an R/C value that is greater than 1 means that capital use is more efficient.

### 3. Payback Period

$$PP = \frac{\text{Investment value (TR)}}{\text{Net cash inflow}} \times 1 \text{ Year}$$

If the payback period is  $< 1$  year then the amount of the payback period is included in the feasible category. If the return is  $> 1$  year, the payback period is in the inappropriate category.

### 4. Break Event Point (BEP)

$$\text{BEP Production Volume (Kg)} = \frac{\text{Total Production Cost}}{\text{Sales Price}}$$

$$\text{BEP Price} = \frac{\text{Total Production Cost}}{\text{Total production}}$$

## RESULT

The results of the feasibility analysis of processed snakehead cracker products in Tapin Regency, South Kalimantan Province were carried out on 3 respondents who processed snakehead fish crackers, based on economic indicators, namely business profits, Return Cost Ratio (R/C), Payback Period (PP), and Break Even Point (BEP), as follows:

### 1. Total Cost

Total cost is the incurred by a business for production process activities.

Calculate the total cost, the formula Total Cost = (Fixed Cost + Variable Cost) can be used.

Table 1. Total Cost in Business

No	Description	Total Cost		
		Mama Tuti	Mama Manah	Lima Putra
1	Fixed Cost	Rp 3.290.000	Rp 4.036.667	Rp 4.595.000
2	Variable Cost	Rp59.916.000	Rp26.160.000	Rp107.976.000
	Total	Rp63.206.000	Rp30.196.667	Rp112.571.000

### 2. Total Income

Table 2. Total Income at Mama Tuti's Business

No	Type of Receipt	Vol	Selling price	Total/month	Total/years
1	Sales of Crackers	450	Rp 15.000	Rp 6.750.000	Rp 81.000.000

The total income received by Mama Tuti's business is IDR 6,750,000/month with total product sales of 450 pcs/month.

**Tabel 3. Total Income at Mama Manah's Business**

No	Type of Receipt	Vol	Selling price	Total/month	Total/years
1	Sales of Crackers	332	Rp 20.000	Rp 6.640.000	Rp79.680.000

The total income received by Mama Manah's business is IDR 6,640,000/month with total product sales of 332 pcs/month.

**Tabel 4. Total Income at Lima Putra's Business**

No	Type of Receipt	Vol	Selling price	Total/month	Total/years
1	Sales of Crackers	664	Rp 20.000	Rp13.280.000	Rp159.360.000

The total income received by Lima Putra Business is IDR 13,280,000/month with total product sales of 664 pcs/month.

### 3. Profit and Loss Analysis

#### a. Mama Tuti's business

$$\pi = TR - TC$$

$$\pi = \text{IDR } 81,000,000 - \text{IDR } 63,206,000$$

$$\pi = \text{IDR } 17,794,000/\text{year}$$

The net profit obtained by Mama Tuti's business is IDR 17,794,000/year or the same as IDR 1,482,833/month.

#### b. Mama Manah's Business

$$\pi = TR - TC$$

$$\pi = \text{Rp } 79,680,000 - \text{Rp } 30,196,667$$

$$\pi = \text{Rp } 49,483,333/\text{Year}$$

The net profit obtained by Mama Manah's Business is Rp 49,483,333/Year or equal to Rp 4,123,611/Month.

#### c. Lima Putra Business

$$\pi = TR - TC$$

$$\pi = \text{IDR } 159,360,000 - \text{IDR } 112,571,000$$

$$\pi = \text{IDR } 46,789,000/\text{year}$$

The net profit obtained by Lima Putra Business is IDR 46,789,000/year or the same as IDR 3,899,083/month.

### 4. Return Cost Ratio (R/C) Analysis

#### a. Mama Tuti's business

$$R/C = (\text{Rp. } 81,000,000) / (\text{Rp. } 63,206,000)$$

$$R/C = 1.3$$

The calculation results show that  $R/C = 1.3$  or an  $R/C$  value of more than 1 ( $R/C > 1$ ),  $R/C$  1.3 means that for every 100 rupiah of costs incurred at the start of a business activity, the income is 1.3 times the costs incurred, so Mama Tuti's business can be said to be profitable and worth continuing.

#### b. Mama Manah's Business

$$R/C = (\text{Rp } 79,680,000) / (\text{Rp } 30,196,667)$$

$$R/C = 2.6$$

The calculation results show that  $R/C = 2.6$  or the  $R/C$  value is more than 1 ( $R/C > 1$ ),  $R/C$  2.6 means that every cost incurred of 100 rupiah in one initial business activity gets an income of 2.6 times the cost incurred, so Mama Manah's business can be said to be profitable and feasible to continue.

#### c. Lima Putra Business

$$R/C = (\text{Rp. } 159,360,000) / (\text{Rp. } 112,571,000)$$

$$R/C = 1.4$$

The calculation results show that  $R/C = 1.4$  or an  $R/C$  value of more than 1 ( $R/C > 1$ ),  $R/C$  1.4 means that for every 100 rupiah of costs incurred at the start of a business activity, the revenue is 1.4 times the costs incurred, so Lima Putra's business can be said to be profitable and worth continuing.

### 5. Payback Period (PP) Analysis

#### a. Mama Tuti's Business

$$PP = (\text{IDR } 4,760,000) / (\text{IDR } 17,794,000) \times 1 \text{ Year}$$

$$PP = 0.3$$

The calculated value of PP is 0.3 or it can be said that the time period needed to return the invested money is 0.3 years or 3 months 6 days.

#### b. Mama Manah's Business

$$PP = (\text{IDR } 3,360,000) / (\text{IDR } 49,483,333) \times 1 \text{ Year}$$

$$PP = 0.1$$

The calculated value of PP is 0.1 or it can be said that the time period needed to return the invested money is 0.1 years or 1 month 2 days.

#### c. Lima Putra Business

$PP = (Rp. 6,250,000)/Rp. 46,789,000 \times 1$   
Year

$PP = 0.1$

The PP calculation result is 0.1 or it can be said that the time period needed to return the money invested is 0.1 year or 1 month 2 days.

## **6. Break Event Point (BEP) Analysis**

### **a. Mama Tuti's business**

The following is the BEP calculation for Mama Tuti's business production

Production BEP = IDR 63,206,000/IDR 15,000

BEP Production = 4,214 Packs/Year

The following is the BEP calculation for the price of Mama Tuti's business

BEP Price =  $(Rp. 63,206,000)/5,400$

BEP Price = IDR 11,704

Based on the results of the analysis above, it can be seen that the production BEP is 4,214 packs and the price BEP is IDR 11,704. The total production of snakehead crackers in Mama Tuti's business is 5,400 packs with a selling price of IDR 15,000/pack. It can be concluded that this amount is greater than <BEP Production and BEP Price, so Mama Tuti's snakehead cracker processing business can be said to be profitable.

### **b. Mama Manah's Business**

BEP Production =  $Rp30,196,667/Rp20,000$

BEP Production = 1,510 Packs/Year

Here is the calculation of BEP price of Mama Manah's Business

BEP Price =  $Rp30,196,667/3,984$

BEP Price = Rp 7,579

Based on the analysis results above, it can be seen that BEP production is 1,510 packs and BEP price is Rp 7,579. Total production of snakehead crackers in Mama Manah's business is 3,984 packs with a selling price of Rp 20,000/pack. It can be concluded that this amount is greater than BEP Production and BEP Price, so Mama Manah's snakehead cracker processing business can be said to be profitable.

### **c. Lima Putra Enterprise**

The following is the BEP calculation for Lima Putra Business production

BEP Production =  $Rp. 112,571,000/Rp. 20,000$

Production BEP = 5,629 packs/year

The following is the BEP calculation for the price of the Lima Putra Enterprise

BEP Price =  $Rp. 112,571,000/ (7,968)$

BEP Price = Rp. 14,128

Based on the results of the analysis above, it can be seen that the production BEP is 5,629 packs and the price BEP is IDR 14,128. The total production of snakehead crackers in the Lima Putra business is 7,968 packs with a selling price of IDR 20,000/pack. It can be concluded that this amount is greater than the BEP Production and BEP Price, so the Lima Putra snakehead cracker processing business can be said to be profitable.

The results of the feasibility analysis of the processed cork cracker product business in Tapin Regency, South Kalimantan Province, have quite good potential as a source of community income. Data from 3 business respondents, namely Mama Tuti, Mama Manah, and Lima Putra show that each business is able to make a profit, although with different amounts. Mama Manah's business gets the highest profit of IDR 4,123,611 per month of production, followed by Lima Putra's business of IDR 3,899,083 and Mama Tuti's business of IDR 1,482,833. Differences in profits are influenced by production cost efficiency, use of quality raw materials, and a more optimal production scale. The results of this analysis indicate that if the cork cracker processing business is managed well and sustainably, the cork cracker processing sector has the potential to become a significant source of income for the people of Tapin Regency.

The results of the analysis of the snakehead cracker processing business show that the potential profit and feasibility of the business that has been carried out can have a real impact on the community as a reference for improving the community's economy. More effective and comprehensive community empowerment needs to be carried out so that the community feels sustainable economic empowerment. Regional governments, village assistants and business actors need to build stronger synergy in developing the cork



cracker business, starting from program planning, strengthening resources and production capacity, ease of obtaining production raw materials and relatively stable and affordable prices, improving product quality, to wider marketing access. Intensive assistance and active involvement of the community in the decision-making process must also be the main focus, so that the business of processing cork crackers does not only benefit a handful of business actors, but is able to create an inclusive and sustainable community-based economic ecosystem in Tapin Regency.

Processed fish products, such as fish crackers, are one form of innovation in developing fishery products that provide added value while expanding market share. One example is catfish crackers produced in Kuin Cerucuk Village, Banjarmasin City, which is known as a tourist area. This catfish cracker business is still hereditary and has not developed optimally even though it is in a strategic location. Based on technical and economic analysis, this business produces a total production of 53 kg per month with a total production cost of IDR 2,590,008 and revenue of IDR 3,767,272. The profit obtained is IDR 1,177,264 per month with an R/C Ratio value of 1.47, indicating that this business is feasible to develop. In addition, the break-even point (BEP) price is at IDR 48,370 and the BEP production is at 37 kg per month, indicating that the current business scale is approaching production efficiency.

Khairunnisa (2017) the feasibility of the snakehead cracker business is able to generate a profit of IDR 3,096,000 per month with a total production cost of IDR 811,543. The net income generated is IDR 2,284,457 per month. From the feasibility analysis using the R/C Ratio method of 3.8 and the B/C Ratio of 2.8, this business is declared very feasible to be developed. The production BEP is at 11.27 kg per month with a minimum selling price of IDR 18,873 per kg. The feasibility value is quite high, the snakehead cracker business has the potential to become a promising source of income for

the community if supported by good management (Aini et al., 2014).

Annisa et al., (2022) the processing of snakehead crackers also contributes to increasing household income. The business is managed by a group of processors and marketers (Poklak). Based on the case study conducted, this business incurred a total production cost of IDR 3,219,000 per month with revenue reaching IDR 4,800,000 per month. The net profit obtained was IDR 1,543,935 per month, with an R/C Ratio value of 1.47 indicating that this business is feasible to run. This business faces several challenges, such as fluctuations in raw material prices.

Erlina et al., (2017) the results of the feasibility analysis of the fish cracker processing business showed that the R/C Ratio value was 1.47, which means that this business is feasible to run because every IDR 1.00 of costs incurred can generate revenue of IDR 1.47. The breakeven point (BEP) price is IDR 48,370 per kg and the production BEP is achieved at a production of 37 kg per month. The business of making snakehead fish crackers has quite good prospects, especially if supported by more modern management, product innovation, and strengthening marketing strategies that target tourists visiting the area. Proper development, this business can not only increase the income of cork cracker business actors, but also contribute to economic development based on local potential.

Short payback period, which is 0.1 times the production cycle in Mama Manah's business, reflects the high level of financial feasibility of the snakehead cracker processing business. The short payback period duration is influenced by several factors, including high business efficiency as indicated by the R/C ratio of 2.6, a relatively low operational cost structure, and a significant level of market demand. The availability of abundant and affordable local raw materials also accelerates the process of returning the initial investment. This condition shows that this business has a fast capital turnover, so it is very prospective to be further developed in

order to increase community income and encourage economic growth based on local potential (Fratana, 2021).

The fish cracker business, both made from snakehead, has quite good prospects to continue to be developed. Added value to fishery products, this business is also able to increase community income in various regions. The development of the fish cracker business still faces several obstacles, such as limited capital, dependence on raw materials, and price fluctuations influenced by the availability of fish on the market. Supported by coaching, access to capital, and strengthening marketing strategies, the fish cracker business has the potential to become one of the leading sectors of the fisheries-based economy in these areas.

## CONCLUSION

The feasibility of processed snakehead cracker products in Tapin Regency, South Kalimantan Province as a source of income for the community, namely from 3 business actors, shows that all of them make a profit, with the highest value in Mama Manah's business of IDR 4,123,611 per month of production, an R/C value of 2.6 indicating high business efficiency, and the fastest Payback Period (PP) of 0.1 times production. This business also has the lowest break even point (BEP) both in terms of production of 1,510 units and price of Rp. 7,579.

## Declaration by Authors

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