

## **Risk of Anchored and Crab Processing Businesses in Fisherman in Tanjung Sebauk**

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**Keywords** : Business Risk, Anchovy Processing and Fishermen.

**Abstract** : Tanjungpinang City is the capital of the Riau Islands Province which has good marine and fisheries potential in the fisheries sector. If the management of fisheries sector development is carried out properly, the fisheries sector can encourage economic growth and community welfare. Tanjungpinang City consists of 4 districts, namely Bukit Bestari District, East Tanjungpinang District, Tanjungpinang Kota District, and West Tanjungpinang District. The city's Tanjungpinang sub-district consists of 4 sub-districts, namely Tanjungpinang Kota Village, Penyengat Village, Kampong Bugis Village, and Senggarang Village. Population is a generalization area consisting of objects / subjects that have a certain quantity and characteristics that are determined by the researcher for study and then draw conclusions. The population in this study were all anchovy fishermen in Tanjung Sebauk, Senggarang Village, Senggarang City District, totaling 9 fishermen. The sampling technique in this study used a saturated sampling technique. Saturated sampling is a sampling technique when all members of the population are used as samples. This is often done when the population is relatively small, less than 30 people, or if the study wants to make very small error generalizations.

### **1 INTRODUCTION**

Tanjung Sebauk is located in Senggarang Village, Tanjungpinang City District. Most of the people in Tanjung Sebauk make a living as anchovy fishermen. Crab with kelong fishing gear. This kelong catching tool is installed in the middle of the coast, the material for making kelong in Tanjung Sebauk is made of wood which is designed and the bottom is from a drum. The costs incurred for making kelong are quite large. In this business of anchovy management, people who make a living as anchovy fishermen always try to make their business a large income (profit). This anchovy management business activity has been going on for about 2 years. When managing an anchovy business there are risks faced by fishermen. Risk becomes an obstacle in any anchovy processing business. The risk that arises is due to the dependence of fishermen's activities on nature, which causes uncertainty in both climate and prices. Climate uncertainty caused by high rainfall can make fishermen ineffective in drying their catch. Anchovies that are not dried in the sun directly or stored in the refrigerator can reduce the quality of the anchovies or cause spoilage. And during the north wind season, fishermen do not go to sea to catch anchovies and crabs.

The risks borne by business actors are divided into two types, namely production risk and price risk, production risk caused by climate uncertainty, and cost technical factors that are beyond fishermen's control. Meanwhile, price risk is caused by the uncertainty of the selling price of the product which is determined by the forces of supply and demand in the market. Given this risk, anchovies entrepreneur must make decisions in running their business. Anchovies business managers need to know costs, revenues, and profits in order to make the right decisions. So that this anchovy processing business can continue to produce. Therefore, it is necessary to carry out a business risk analysis.

## 2 LITERATURE REVIEW

### **Risk**

Risk is the uncertainty about loss or damage. Companies face many risks. Two kinds of risks are faced by companies, namely speculative risk and pure risk. In the case of speculative risk, the company or individual has the opportunity to gain or suffer losses. Pure risk offers only an alternative: loss. Risk is a part of life. However people have several ways to anticipate it. One of them is to avoid risks or stay away from situations that can present risks (Machfoedz, 2007). Risk is a combination of the likelihood and severity of an event (Ramli, 2010: 15).

### **Costs**

Cost has two definitions, namely a broad and narrow understanding. Cost in a broad sense is the sacrifice of economic resources measured in units of money in an effort to get something to achieve certain goals, whether it has already happened or has just been planned (Sujarweni, 2018: 9). Accounting defines costs as resources that are sacrificed or released to achieve certain goals (Charles T. Horngren, 2006: 31).

### **Fixed Costs**

Fixed costs are costs whose total amount remains within the range of a certain volume of activities (Mulyadi, 2014: 16). Fixed costs are costs that are constant in total for a scale of activity and within a certain period of time (Harnanto, 2017).

### **Variable Costs**

Variable costs are costs whose total amount changes in proportion to changes in the volume of activities (Mulyadi, 2014: 16). Variable costs are costs which in total vary proportionally with changes in the volume of activities (Harnanto, 2017: 43).

### **Advantages**

Profit is the difference between revenue and the total cost required from the production process of marketing a product. Profit (profit) is an income that comes from economic activities that can be consumed in a period without reducing the integrity of previously owned capital (Zakita, 2018).

### **Income**

According to PSAK No. 23 revised 2018, income is the gross inflow of economic benefits arising from the normal activities of the entity during a period if these inflows result in an increase in equity that does not come from an investor's contribution. Revenue is the amount charged to subscribers for goods and services sold. Income can also be defined as the gross increase in capital (usually through the receipt of an asset from a subscription) that comes from goods and services sold (S.R, 2009: 54).

### **Fishermen**

According to Helena Thatcher Pakpahan (2006) fishermen generally consist of people with relatively low education and poor lives. They work for skippers who have boats and fishing gear sufficient to catch fish in the sea. Activities are determined by nature and the environment (Fahlevi, 2020).

## **FRAMEWORK**

The framework is made to facilitate the research process because it includes the objectives of the research itself. The research framework regarding this research is as follows:

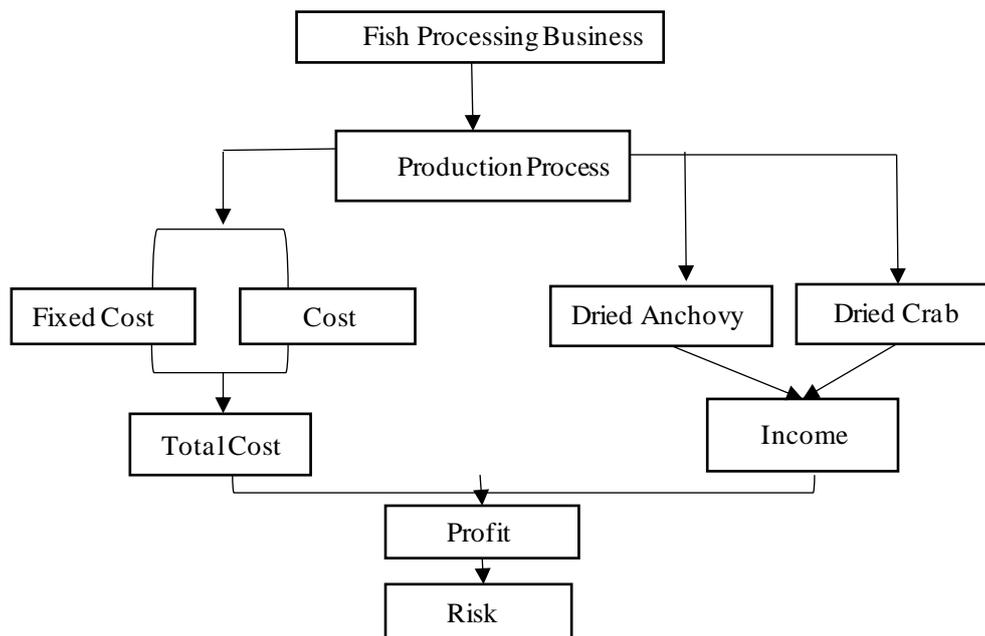


Figure 1. Framework

### 3 METHODOLOGY

#### Object and Scope of Research

This research is located in Tanjung Sebauk, Senggarang Village, Tanjungpinang City District. This research was conducted by a business engaged in anchovy processing which has been running for two years. This study aims to analyze the income and risk level of anchovies processing business obtained from the interviews.

#### Research Methods

The method used in this research is quantitative descriptive method. Descriptive data are generally collected through interview or observation surveys.

#### Data Collection Methods

The data collection used in this study are as follows:

##### A. Secondary Data

Soeharto (1999: 84), states that secondary data is data whose collection, recording and determination of specifications is not carried out by the user but by other parties. In this study, secondary data were obtained from books that support research, library reports, data accessed from government agencies and others concerning research studies.

##### B. Primary Data

Primary data in this study were obtained from the results of direct observations on business activities, interviews with anchovy fishermen, such as income from anchovy business, costs incurred and other information about anchovy business, as well as distributing questionnaires to respondents.

##### C. Observation

Hartono (2017: 109) states that observation is a technique or approach to getting primary data by directly observing the data object. Observations made in this study were direct observations on the object of research, namely anchovy fishermen.

##### D. Interview

Hartono (2017: 114), argues that interviewing is a two-way communication to get data from respondents. The interviews conducted in this study were to communicate between researchers and anchovy fishermen in Tanjung Sebauk, Senggarang Village, Senggarang City District.

#### E. Questionnaire

The questionnaire is a data collection technique that is carried out by giving a set of questions or written statements to respondents to answer (Sugiyono, 2017: 142). In this study, questionnaires were used to obtain data through questions or written statements given to anchovy fishermen in Tanjung Sebauk, Senggarang Village, Senggarang City District.

### Population and Sample Determination Techniques

#### A. Population

Sugiyono (2017: 80), defines that population is a generalization area consisting of objects / subjects that have certain quantities and characteristics that are determined by researchers to be studied and then draw conclusions. The population in this study were all anchovy fishermen in Tanjung Sebauk, Senggarang Village, Senggarang City District, totaling 9 fishermen.

#### B. Sample

Sugiyono (2017: 81), defines the sample as part of the number and characteristics of the population. The sampling technique in this study used a saturated sampling technique. Saturated sampling is a sampling technique when all members of the population are used as samples. This is often done when the population is relatively small, less than 30 people, or if the study wants to make very small error generalizations.

### Method of Analysis

Knowing the costs, revenues and profits of the salted fish processing business in Tanjung Sebauk.

#### A. Costs

According to (Adi, 2011) in (Tsalis Kurniawan Husain, 2016) to find out the total cost mathematically can be calculated by the following formula:

$$TC = TFC + TVC$$

Information:

TC = total cost of blackfish processing business (rupiah)

TFC = total fixed costs of blackfish processing business (rupiah)

TVC = total variable cost of the blackfish processing business (rupiah)

#### B. Income

According to (Magdalena Yoesran, 2015) to find out the amount of income can be found by the formula:

$$TR = Q \times P$$

Information:

TR = total income of anchovies processing business (rupiah)

Q = amount of anchovy production (kilograms)

P = price of anchovy (rupiah)

#### C. Advantages

According to (Magdalena Yoesran, 2015) to find out the amount of profit can be found by the formula:

$$NP = TR - TC$$

Information:

NP = business profit (rupiah)

TR = total income of anchovy business (rupiah)

TC = total cost of anchovies processing business (rupiah)

#### D. Risk

According to (Sari, 2011) risk can be calculated statistically, namely by using a measure of variance or standard deviation, which is mathematically formulated as follows:

$$V = \sqrt{\frac{\sum(Ei - E)^2}{(n - 1)}}$$

Information:

V = standard savings of anchovy processing business

Ei = profits from anchovies processing business received by producers (rupiah)

E = average profit of anchovies processing business (rupiah)

n = number of anchovy producers (people)

The relationship between standard deviation and average profit is measured by the coefficient of variation (CV) and the lower profit limit (L).

$$CV = V / E$$

Information:

CV = coefficient of variation in anchovy processing business

V = standard savings of anchovy processing business (rupiah)

E = average profit of anchovies processing business (rupiah)

The greater the coefficient of variation indicates that the risk that must be borne by the producer is greater than the profit.

The lower profit limit (L) shows the lowest nominal value that is possible to be received by the producer.

The formula for the lower profit limit is:

$$L = E - 2V$$

Information:

L = lower profit limit of anchovy processing business (rupiah)

E = average profit of anchovies processing business (rupiah)

V = standard deviation of anchovy processing business (rupiah)

If the value of  $L \geq 0$ , the producer will not experience a loss. Conversely, if the value of  $L < 0$ , it can be concluded that in every production process there are opportunities for losses to be experienced by producers.

## 4 FINDINGS AND DISCUSSION

### Overview

The research location which becomes the object of the researcher is located in Tanjung Sebauk, Senggarang Village, Tanjungpinang City District. The Tanjung Sebauk area is part of the Senggarang Village, Tanjungpinang City District. The village of Tanjung Sebauk is geographically located at the position 104°25'10 "BT - 104°23'45" East Longitude and 0°58'25 "LU - 0°59'44" LU. Administratively, the village of Tanjung Sebauk is located in the area of Senggarang Village, Tanjung Pinang District, Riau Islands Province. The sebauk cape area is administratively limited by:

- In the north, it is bordered by Bintan Regency Government
- To the south by the village of Senggarang Besar
- To the west is bordered by Cape Geliga
- The east is bordered by the central Senggarang.

The area of Tanjung Sebauk Village is 6 Km<sup>2</sup>. The land area is divided into several uses, such as for farming, fisheries, mining / excavation, public facilities, housing, school activities and forests. The majority of Tanjung Sebauk residents work as fishermen.

#### 1. Climate conditions

Tanjung Sebauk is located in Senggarang Village, Tanjungpinang City District, which has a tropical climate with two seasons, namely dry and rainy. Apart from the dry and rainy seasons, there are wind speeds which can be seen from table 1.

**Table 1. Number of Rainy Days, Sun irradiation and wind speed in Tanjungpinang**

Month	Number of days	Radiation	2019	
	Rain	Sun	Average	Maximum
2019	2019	(Percent)		
January	5	65	4	9
February	4	84	4	9
March	5	74	3	8
April	17	49	3	11
May	20	50	3	12
June	22	40	3	14
July	9	71	4	10
August	2	80	4	11
September	6	70	4	10
October	22	52	3	8
November	17	44	3	9
December	21	34	3	11

Based on table 1 it is known that the highest number of rainy days occurred in June and October with 22 rainy days, while the lowest number of rainy days occurred in August with 2 rainy days. The number of rainy days greatly affects the availability of raw materials and the results of the anchovy processing business. If a high rainy day is followed by strong winds, fishermen do not dare to go to sea so that the availability of raw anchovies decreases or even fish is not available at all. The high number of rainy days can also affect the drying process of anchovy, where the drying time for salted fish is long and the production of anchovy is at risk of rot.

## 2. Identity of Respondents

The identity of the respondent is a general description of the respondent's background. Respondents in this study are anchovy producers who are active in running anchovies processing business in Tanjung Sebauk. The identities of the respondents studied included the age of the respondents, the education of the respondents, and the length of time the anchovy processing business was established.

### a. Respondent Age

Apart from the amount of raw material, age can also affect the yield and amount of production. Fishermen who are included in the productive age are likely to be able to produce more anchovy catch and higher income. Based on the research conducted, data obtained from anchovy fishermen based on age groups can be seen in the table below:

**Table 2. Anchovy Fishermen by Age Group**

No	Age	Total (People)	Percentage
1	20-30	2	22%
2	31-40	3	33%
3	41-50	3	33%
4	>51	1	11%
	Total	9	100

Based on Table 2, it is known that 88.88% of the anchovy processing business is run by fishermen who are still of working or productive age. In the productive age, fishermen in anchovies processing business have the opportunity to be developed with the assumption that entrepreneurs who have the ability to absorb business information are better than those outside the productive age.

#### b. Respondent Education

Education has an important role in supporting knowledge and also influencing the mindset in running a business and absorbing the latest information that can be applied to improve anchovies processing business.

**Table 3. Education of Anchovy Processing Business in Tanjung Sebauk, Senggarang Village, Tanjungpinang City District**

Last Education	Total (People)	Percentage
No School	0	0
Primary School	4	44%
Junior High	3	33%
High School	1	11%
College	1	11%
Total	9	100

#### c. Length of Business

Experience in opening a business can be seen from how long the business has been run by the fishermen in the anchovy processing business. Based on the length of business run by fishermen, the anchovy processing business is seen in the table below.

**Table 4. Duration of Anchovy Processing Business in Tanjung Sebauk, Senggarang Village, Tanjungpinang City District**

Length of Business (Years)	Total (People)	Percentage
2	1	11%
3	2	22%
4	4	44%
5	2	22%
Total	9	100

Based on table 4, it can be seen that this anchovy processing business has been running for 2-5 years. The length of the business is calculated from the start of the business.

### 3. Anchovy Processing Business Equipment

The equipment used in the anchovy production process includes the following:

#### a) Kelong

Kelong is the main tool and supporting tool in the process of catching anchovy. Because the processing of anchovy is almost done on a kelong. From the process of catching, washing, filtering and boiling. The process is carried out on top of the kelong in order to minimize damage or spoilage and maintain the quality of the fresh anchovy. Without kelong the production process cannot happen. The main ingredients used in the manufacture of kelong are wood, nets and drums which are assembled in the shape of a floating house.

#### b) Generator Engine

The generator engine used by fishermen as a source of electricity to turn on illuminates the kelong because the fishing process is carried out at night.

## c) Pompong

Pompons are also included as tools that are no less important in the anchovy production process. The pompong serves to attract kelong to the middle of the sea where anchovies are located. And another tool so that the pompons can be run is using the robin machine.

## d) Lights

The lights are used to illuminate the kelong and not only to light the kelong, they are also used to lure anchovy into the net traps. Because the anchovies will follow and gather under the lights that are visible from above the surface that enters the water.

## e) Anchors

The anchor is used to hold the kelong on the seabed from the waves so that it is not carried away or carried away by the waves.

## f) Stove

This tool is used for the process of boiling fresh anchovy from the catch. The stove used by fishermen is a gas stove that is faster and easier to use.

## g) Pans

The pot is a tool used for containers during the washing and boiling process of anchovy after cleaning.

## h) Ancak

Ancak is a wadang made of woven wood used to scoop anchovies from the net, wash and drain the anchovy after boiling it.

## i) Dry in the sun

This tool is used for a container when drying anchovies in the sun, this tool is made of wood and a rectangular net.

## 4. Process of Anchovy Production

The production activities of the anchovy processing business in Tanjung Sebauk can be carried out every day or only 5-6 days in 1 week if the weather is good and it can be 1-3 days in 1 week or it does not fall at all when the weather is not supportive. The main raw material in anchovies processing business is fresh anchovy obtained from the catch. The fish that must be used must be freshly caught anchovies directly processed on the kelong because this will affect the quality of anchovy production. And the drying process of anchovy is still very traditional, namely using heat from the sun. The following ingredients must be prepared before the production process is carried out:

## a) Raw materials

The main raw material of this processing is fresh anchovy which is obtained directly from the catch that is done by yourself.

## b) Salt

Salt is a supporting ingredient in anchovy processing. Salt is added during the boiling process. The salt used is kilo coarse salt. The salt is bought in a local stall that provides salt.

The steps in the anchovy processing production process can be described as follows:

- 1) Fresh anchovy from the direct catch is sorted according to the type of fish and its size.
- 2) The fresh anchovies that have been sorted are washed so that the anchovy is clean and the washing uses sea water. Then the fish is drained.
- 3) The next process after draining the fish is put into boiled water first, then add the salt. Boiling is done 2-5 minutes. Ripe anchovies can be seen when the boiled fish rises to the surface and then drains it, the heat from boiling decreases.

Furthermore, the fish that has been drained are properly laid out on a dry sack for the drying or drying process. And dried under the hot sun for 7-10 hours or until the anchovies are dry depending on weather conditions.

**Cost Analysis**

In the production process, anchovy entrepreneurs spend costs during production activities. Production costs consist of fixed and variable costs.

### Fixed Costs

Fixed costs are costs whose total amount remains within the range of a certain volume of activities (Mulyadi, 2014: 16). Fixed costs in the anchovy processing business in Tanjung Sebauk include depreciation costs and maintenance costs. Fixed costs of anchovies processing business can be seen in the table below:

**Table 5. Applied Costs of Each Anchovy Processing Business in Tanjung Sebauk.**

RES.	Type of Fee	Repair	Maintenance costs	
			Per year	
1	Cost of depreciation		Rp	6,045,000
	Kelong building	Repairs twice a year	Rp	350,000
	Ship/ Pompong	Repair pompong 2x a year	Rp	500,000
	Stove	Repair of damaged stoves	Rp	260,000
	Generator	Generator Engine Repair	Rp	880,000
	Net	Net Repair	Rp	200,000
Total Fixed Costs			Rp	8,235,000
RES.	Type of Fee	Repair	Maintenance costs	
			Per year	
2	Cost of depreciation		Rp	3,322,667
	Kelong building	Repairs twice a year	Rp	400,000
	Ship/ Pompong	Repair pompong 2x a year	Rp	700,000
	Stove	Repair of damaged stoves	Rp	500,000
	Generator	Generator Engine Repair	Rp	1,000,000
	Net	Net Repair	Rp	200,000
Total Fixed Costs				
RES.	Type of Fee	Repair	Maintenance costs	
			Per year	
3	Cost of depreciation		Rp	6,676,667
	Kelong building	Repairs twice a year	Rp	600,000
	Ship/ Pompong	Repair pompong 2x a year	Rp	500,000
	Stove	Repair of damaged stoves	Rp	150,000
	Generator	Generator Engine Repair	Rp	300,000
	Net	Net Repair	Rp	150,000
Total Fixed Costs				
RES.	Type of Fee	Repair	Maintenance costs	
			Per year	
4	Cost of depreciation		Rp	5,064,167
	Kelong building	Repairs twice a year	Rp	600,000
	Ship/ Pompong	Repair pompong 2x a year	Rp	700,000

	Stove	Repair of damaged stoves	Rp	100,000
	Generator	Generator Engine Repair	Rp	300,000
	Net	Net Repair	Rp	200,000
Total Fixed Costs				
<b>RES.</b>	<b>Type of Fee</b>	<b>Repair</b>	<b>Maintenance costs</b>	
			<b>Per year</b>	
5	Cost of depreciation		Rp	4,948,333
	Kelong building	Repairs twice a year	Rp	780,000
	Ship/ Pompong	Repair pompong 2x a year	Rp	100,000
	Stove	Repair of damaged stoves	Rp	1,200,000
	Generator	Generator Engine Repair	Rp	100,000
Total Fixed Costs				Net
<b>RES.</b>	<b>Type of Fee</b>	<b>Repair</b>	<b>Maintenance costs</b>	
			<b>Per year</b>	
6	Cost of depreciation		Rp	5,130,333
	Kelong building	Repairs twice a year	Rp	500,000
	Ship/ Pompong	Repair pompong 2x a year	Rp	400,000
	Stove	Repair of damaged stoves	Rp	50,000
	Generator	Generator Engine Repair	Rp	1,000,000
	Type of Fee	Repair	Rp	100,000
Total Fixed Costs				Rp 7,180,333
<b>RES.</b>	<b>Type of Fee</b>	<b>Repair</b>	<b>Maintenance costs</b>	
			<b>Per year</b>	
7	Cost of depreciation		Rp	7,126,667
	Kelong building	Repairs twice a year	Rp	600,000
	Ship/ Pompong	Repair pompong 2x a year	Rp	300,000
	Stove	Repair of damaged stoves	Rp	-
	Generator	Generator Engine Repair	Rp	900,000
	Type of Fee	Repair	Rp	300,000
Total Fixed Costs				Rp 9,226,667
<b>RES.</b>	<b>Type of Fee</b>	<b>Repair</b>	<b>Maintenance costs</b>	
			<b>Per year</b>	
8	Cost of depreciation		Rp	4,108,333
	Kelong building	Repairs twice a year	Rp	800,000
	Ship/ Pompong	Repair pompong 2x a year	Rp	350,000
	Stove	Repair of damaged stoves	Rp	-
	Generator	Generator Engine Repair	Rp	700,000

RES.	Type of Fee	Repair	Maintenance costs	
			Per year	
	Type of Fee	Repair	Rp	300,000
Total Fixed Costs			Total Fixed Costs	
9	Cost of depreciation		Rp	6,530,000
	Kelong building	Repairs twice a year	Rp	800,000
	Ship/ Pompong	Repair pompong 2x a year	Rp	700,000
	Stove	Repair of damaged stoves	Rp	70,000
	Generator	Generator Engine Repair	Rp	1,000,000
	Type of Fee	Repair	Rp	250,000
Total Fixed Costs			Rp	9,350,000

## 5 CONCLUSION

Based on the results of cost analysis, income analysis, profit analysis and risk analysis of anchovy fishing using kelong in Tanjung Sebauk, Senggarang Village, Tanjungpinang Kota District, from this research it can be concluded that: Anchovies processing business in Tanjung Sebauk is a family business and a relatively recent business with an average yearly profit of IDR 15,707,981 / year. From the calculation of the profit and risk analysis, the risk level of anchovies processing business in Tanjung Sebauk is very small due to losses. It is known from the standard deviation of Rp. 1,143,934 / year. The coefficient of variation (CV) obtained is 0.073. CV value  $<0.5$  ( $0.073 < 0.5$ ). And the lower limit of profit (L)  $> 0$  ( $0.073 > 0$ ). The analysis results show that the processor will not experience a loss from each production process carried out.

For the government, it should pay attention to the provision of production facilities, especially the manufacture of ovens for the drying process of anchovy so that this anchovy processing business can run even better.

For further researchers, it is suggested to expand the sample and location that is not only focused on the Tanjung Sebauk area.

And this study only uses cost analysis, income analysis, profit analysis and risk analysis. It is suggested for further researchers to add other analytical methods.

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