

# Production Cost Analysis of Small-Scale Fisheries at Nusawiru Pangandaran, Indonesia

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## ABSTRACT

The purpose of the analysis activities carried out by the author is to get an overview of business activity analysis fishing at TPI Mina Karya Nusawiru. The research method was carried out by surveys and direct interviews with fishermen from Nusawiru. Based on the results of a study on the analysis of small-scale fisheries in Nusawiru, an R/C value of 1.88 is produced, the time required to return all investment costs incurred is 8 months and 22 days, the ROI (Return on Investment) value is 1.37, so This small-scale fishery business is feasible and can be continued.

**Keyword:** *Fishermen, Small Scale, Business, Indonesia*

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## 1. Introduction

Waters in the southern region of Java Island have a variety of fishery and marine resources. The utilization of these resources must be focused on so that their exploitation can be maximized. This requires adequate fishing equipment. One unit of the fleet used for fishing consists of boats, fishing gear, and machines. Cijulang Subdistrict in Pangandaran Regency is a coastal area where some of the people are fishermen. Fishing business activities are one of the livelihoods for some people.

The Mina Karya Nusawiru Fish Auction Place (TPI) is located in the Kondangjajar area, Cijulang District, Pangandaran Regency. This TPI is one of the TPI that provides fairly large retribution, with catches reaching 128,068.20 kg and Raman of Rp. 5,136,622,200 in 2019, 78,221.80 kg and Rp. 3,335,050,400,- in 2020, 70,066.50 kg and Rp. 3,202,803,600,- in 2021. At TPI Mina Karya Nusawiru there are approximately 50 boats operating and 140 fishermen who are still actively sailing.

To determine the productivity of fishing business activities at the Mina Karya Nusawiru Fish Auction Place (TPI), an analysis of productivity and business feasibility is needed. The purpose of the analysis carried out by the author is to get an overview of the productivity of fishing business activities at TPI Mina Karya Nusawiru and to find out the production costs.

## 2. Research Methods

### Location and Time of Data

Collection Data collection were carried out by going directly to the field, by interviewing fishermen, and the management of the Mina Karya Nusawiru Pangandaran Fish Auction Place (TPI). The location of data collection is at the Mina Karya Nusawiru Fish Auction Place (TPI) located in the Kondangjajar area, Pangandaran Regency. Time of data collection with interviews conducted in June 2022.

### Analysis of Productivity and Production Costs

#### Total Cost Total Cost

(Total Cost) is the total cost incurred during the production process, both fixed and variable costs.

## Investment

Costs Investment costs are initial costs incurred when running a business, namely in the first year of business, where the amount is relatively large and cannot be exhausted in one production period.

## Production

### Costs Fixed

Costs Fixed Costs are fixed costs that do not change due to the influence of the amount of production, these costs consist of taxes and equipment depreciation costs, and others, (Darmawan, MR, & Rahim, MA, 2019) .

### Variable Costs

Variable costs are costs that vary according to the amount of production. These costs consist of the cost of raw materials, labor and others. This fee is in the form of cash which is actually paid, in Darmawan, MR, & Rahim, MA (2019).

### Depreciation Cost

According to Hery (2014: 138), "Depreciation is a periodic and systematic allocation of the cost of assets during different periods that benefit from the use of the assets concerned". According to Syahyunan (2013: 232) in order to be able to calculate the exact amount of depreciation that must be allocated in a certain period, there are 3 factors that must be considered, namely:

- The acquisition price is all costs related to the procurement of the activity
- Residual value or residual value of a fixed asset which is depreciated is an estimate of the value of assets
- . The useful life or economic life is the period of use of fixed assets which is expected by the company to be influenced by the way of maintenance, other policies determined by the management.

The formula for depreciation expense is:

$$\text{Initial cost} - \text{Residual price}$$

### Total Revenue (TR)

Total Revenue (TR) is the merchant's revenue from the sale, Total Revenue (TR) is the result of the number of outputs multiplied by the selling price of the product's output.

## Analysis

### Cost

According to Suratiah (2015) to calculate the total cost (*Total Cost*) is obtained by adding up the fixed costs (*Fixed Cost*) and variable costs (*Variable Cost*) with the formula:

$$TC = FC + VC$$

Where:

TC = *Total Cost* ( Total Cost)

FC = *Fixed Cost* (Fixed Cost)

VC = *Variable Coast* (Variable Cost)

### Profit

According to Suratiah (2015) income is the difference between revenue (TR) and total cost (TC) and is expressed by the formula:

$$I = TR - TC$$

Where:

I = *Income* (income)

TR = *Total Revenue* (Total Revenue)

$TC = \text{Total Cost (Total Cost)}$

Profit itself can be interpreted if the income is worth greater than the initial capital issued.

### **Benefit Cost Ratio**

B/C is the value or benefit obtained from each unit of the cost incurred. Where B/C is obtained by dividing the total revenue by the total expenditure. Kadariah and Gray (1987), stated that to determine the level of efficiency of a business, parameters can be used, namely by measuring the amount of income divided by the amount of expenditure, where:

$$B/C = \text{Total Revenue} : \text{Total Cost}$$

With the criteria:

B/C > 1: Efficient

B/ C = 1: Break

B/C < 1: Inefficient

### **Payback Period**

Payback period is the period of return on investment that will be paid through profits earned by a business. The faster the payback time, the better to work on it. The formula used according to Pasaribu (2005) is

$$PP = I/Bt$$

Where:

I = Total Investment

Bt = Net benefit on average each year

### **Return of Investment**

Return Of Investment (ROI) is the ratio of profit to investment. ROI is useful for showing the ability of an investment to generate profit. ROI (*Return of Investment*) is to determine the rate of return on investment from the benefits (income) received by the owner, calculated by the formula;

$$ROI = \text{Benefit/Investment} \times 100\%$$

Profit is obtained from the difference between total revenue and investment. The higher the ROI percentage value, the higher the success of the investment invested.

### **Investment Costs**

costs are the initial costs incurred when running a business, namely in the first year of business, where the amount is relatively large and cannot be exhausted in one production period.

## **3. DISCUSSION**

### **Investment Costs**

From the interview results, the investment cost in the form of a 2-3 GT Fiber ship costs Rp. 35,000,000 with a service life of 15 years, while the ship's engine costs Rp. 18,000,000 with a service life of 5 years, nets for Rp. 6,240,000 with a service life of 1 year, fish storage area (Ikan Box) for Rp. 700,000 with a service life of 2 years. So that it can be added up the total investment costs on the productivity of fishing business activities at the Mina Karya Nusawiru Fish Auction Place (TPI) as much as Rp. 59,940,000.

### **Production Costs**

Production Costs consist of fixed costs and investment costs that have been depreciated. From the results of the interviews, the fixed costs of production on the productivity of fishing business activities at the Mina Karya Nusawiru Fish Auction Place are in the following table:

From the table of production costs in above, it can be seen the depreciation cost which is a fixed cost, in the form of a ship which was originally Rp. 35,000,000 to Rp. 1,000,000 this is because the depreciation cost is subject to the calculation of the initial cost of purchasing goods or the initial investment cost minus the residual price, which is Rp. 20,000,000 and divided by the period of use which is 15 years, so that the ship's depreciation cost is Rp. 1,000,000. Furthermore, the depreciation cost of the machine is Rp. 1,000,000, and the cost of depreciation of fishing gear is Rp. 3,840,000.

Then there is the ship maintenance fee of Rp. 70,000 which is obtained from the residual price of Rp. 350,000 divided by the service life of 5 years so that the ship maintenance costs are estimated at Rp. 70,000 per year. Meanwhile, the machine maintenance cost is estimated at Rp. 3,600,000 per year. Likewise, the maintenance costs of fishing gear are as much as Rp. 2,400,000. So that it can be added up, the total fixed costs of Rp. 12,223,000.

There are 4 variable costs, namely the first fuel cost, using 20 liters of pertalite, with a total price of Rp. 34,320,000 obtained from the calculation, the cost per unit of gasoline is Rp. 5,500 multiplied by sailing days which is 26 days in a month, then multiplied by 12, which is 12 months in a year. Likewise with the cost of ice blocks, usually using 5 ice blocks with a unit cost of Rp. 8,500. So that obtained in one year as much as Rp. 13,260,000. Gallon of water, the cost per gallon is Rp. 7,000, so that as much as Rp. 2,184,000 in one year. As well as supplies while on a trip, one trip costs as much as Rp. 100,000 multiplied by the day of the trip and 12 months, the total a year is Rp. 31,200,000. So that the total variable costs obtained are Rp. 80,964,000. Of the total, fixed costs and total variable costs obtained Total Cost of Rp. 93,189,000.

### **Profit**

Profit is a reduction from the total income/receipt with the total costs incurred or total costs. A business is said to be profitable if the total revenue received is greater than the total costs incurred. The total cost of revenue in the annual data of TPI Mina Karya Nusawiru is Rp. 175,064,965. For expenses or total costs of Rp. 93,189,000. So we get the profit value, which is Rp. 175,064,965 - Rp. 93,189,000 = Rp. 81,875,965. So we can conclude that the profit obtained from the catch of fish in Nusawiru is Rp. 81,875,965.

### **Revenue Cost Ratio**

The concept of revenue cost ratio is used to determine business efficiency, namely the balance between total income (output) and total cost (input). If the R/C Ratio value is greater than one, then the business is feasible to continue, and if it is smaller than one, the business is not feasible to continue. The greater the R/C value, the more efficient the business is declared (Karo-karo et al. 1995). R/C is obtained by dividing the total revenue by the total expenditure. The results of the calculation of the average total income divided by the total fishing costs of the average fishermen in a year resulted in an R/C value of 1.88. The R/C value of the fishing effort at the Nusawiru TPI is greater than one, which means that the business is feasible to continue.

### **Payback Period**

This method is used to calculate how long the time or period used to return the money that has been invested from the annual cash inflows generated by the investment results of a project or business being run (Jumingan, 2009). The calculation of the payback period according to Kamaluddin (2004) is divided into two, the first is used on a project that has the same cash flow pattern from year to year. The results of the calculation of the payback period are known that the time needed to be able to return all the investment costs incurred is 8 months and 22 days.

### **Return on Investment**

ROI (Return on Investment Analysis) in financial analysis has a very important meaning as one of the comprehensive (comprehensive) financial analysis techniques. ROI itself is a form of profitability ratio which is intended to measure the company's ability with the overall funds invested in activities used for its operations to generate profits (Getereida, 2012). The results of the calculation are as follows:

From the above calculation, the ROI (Return on Investment) value is 1.37, which means that the percentage of profit obtained from the amount of capital invested in a period of one year is 137%. If in the fishing business with

this fishing gear, the ROI value is  $< 1$ , it can be ascertained that the fishing business will not get a profit/loss. However, the ROI value obtained at TPI Nusawiru is greater than 1, meaning that this fishing business is very feasible to run.

#### 4. CONCLUSIONS

Based on the results of a study on the analysis of small-scale fisheries in Nusawiru, the R/C value was 1.88, the time required to return all investment costs incurred was 8 months and 22 days, the ROI (Return on Investment) value was 1.37 so that this small-scale fishery business is feasible and can be continued.

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