

# ANALYSIS OF PRODUCTION COST CALCULATIONS USING *PROCESS COSTING METHOD* IN *SULI TOFU FACTORY*

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(Submit : 4 Desember 2017, Revised 14 December 2017, Accepted : 21 December 2017)

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**Abstract.** This research took place at Suli Tofu Factory which aims to (1) to know the method of collecting raw materials, direct labor, and factory overhead cost, (2) to know the factory overhead method of imposition cost in determining the basic price of production, (3) calculation of business profit. Method used in this research is direct and indirect interview, and literature study. Furthermore, the evaluation was done on the research conducted by comparing the data and the theory. The results showed that the Suli Tofu Factory has collected and calculated elements of production cost including raw materials, direct labor, and factory overhead cost in each period. The Suli Tofu plant has collected the cost of raw materials either by multiplying the amount of material used by the raw material base price. The Suli Tofu factory has calculated the cost of labor both by multiplying the amount of labor by the number of working days and the fixed daily wage rates. However, there are still some weaknesses pricing of basic production plant Suli Tofu factory: (1) there is no separation between production costs and the costs of non-production, (2) to the factory overhead costs, Suli Tofu Factory only calculate the actual cost spent in cash. Know Factory counts building cost and depreciation in plant overhead cost, (3) no stock card of raw materials.

*Keywords* : Raw Materials, Direct Labor, Factory Overhead

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## I. INTRODUCTION

One of the factors that will affect the company's survival is pricing. Price is a measure to be able to know how much the value of a good and service. The price also determines the success or failure of goods or services will be sold in the market, because the price is the value of an item expressed in units of money. In addition, the price is used as a benchmark or starting point for other pricing or price is a suggestion liaison between buyers and sellers. This means that prices are determined by demand and supply will be a product or service that has been customized.

Determination of the selling price of a product or service is directly affected by the cost of production. The accuracy of the calculation of the cost of production is very important because it is useful for companies in making decisions. Errors made in the calculation of cost of goods sold can affect the company's sales and periodic profits. Cost of production is a term to show the sacrifice of economic resources in the processing of raw materials into finished products. There are 3 groups of production cost, namely raw material cost, labor cost, factory overhead cost and 2 methods used in collecting cost of production ie *process costing* and *job order costing*, and

there are two methods of determining the cost of production is the *variable costing* and *full costing* (Mulyadi, 2007). A prominent difference between *process costing* and *job order costing* lies in the type and nature of its production. For *process costing* method of homogeneous production and production is continuous, while the *job order costing* method of production type is heterogeneous and disjointed (Hanggana, 2006). Based on the above specifications, the Tofu Factory "Pak Suli" is included in the *process costing* method. Tahu Factory "Pak Suli" is a private company engaged in manufacturing. A manufacturing company is a company engaged in purchasing materials, processing them into finished goods, and selling them (Hanggana, 2006: 3). In determining the cost of production at this tofu factory, the entrepreneur only takes into account the cost paid per cash only, then the cost of production set by the employer is low this will likely companies losses due to the inability of the company to cover operating costs incurred. High cost of production leads to high selling prices, resulting in the ability of companies to compete with similar companies. Therefore, calculating the first cost of production is very influential in determining the selling price of the product and the accuracy of the profits obtained.

## II. FORMULATION OF THE PROBLEM

In accordance with the problems that have been put forward by the author, then the formulation of the problem in this study is: how to calculate the cost of production analysis by using the *process costing system* method in the Suli Tofu Factory?

## III. RESEARCH PURPOSES

The purpose of this research is to know how to determine the cost of production by using *process costing* method at Suli Tofu Factory.

## IV. LITERATURE REVIEW

### Understanding Cost and Cost Accounting

In a broad sense the cost is the sacrifice of economic resources, measured in units of money, which have occurred or are likely to occur for a particular purpose (Mulyadi, 2010: 8). Accounting is the process of identifying, measuring, and reporting economic information to allow for clear assessments and decisions. The main function of cost accounting is to collect and analyze data on existing costs. The resulting information is useful to management as a useful control tool for making future plans (Soemarso, 2012: 8). Meanwhile, according to Suwardjono (2009) identify cost accounting is part of the financial accounting and management accounting. Financial accounting focuses on the merging of historical financial information as the basis for making financial statements to meet the needs of external and internal parties (VanDerbeck, 2005). Management accounting focuses on financial and non-financial data, history and estimates required by management to run the company's operations and perform long-term planning (Suwardjono, 2009).

### Elements of Production Costs

Production cost is the cost incurred to make a number of items in a period (Hanggana, 2006). There are 3 groups of production costs:

a. Raw Materials (*Direct Material*)

Raw materials are materials that are an integral part of the finished product, and can be traced physically and easily to the product (Garrison, 2006). Examples of raw materials used in the "Pak Suli" Tofu Factory are Soy Beans.

b. Direct Labor (*Direct Labor*)

Direct labor is a cost that can be traced easily to the finished product. Direct labor costs are usually referred to as *manual labor* (*touch labor*) because direct labor does hand work on products at the time of production (Garrison, 2006). Examples of direct labor at the Tofu Factory "Pak Suli" are laborers with daily wages.

- c. *Overhead Factory (Manufacturing Overhead)*  
 Factory overhead includes all production costs not included in direct materials and direct labor (Garrison, 2006).

### **Understanding Cost of Production**

Cost of production is a term to show the sacrifice of economic resources in the processing of raw materials into finished products (Mulyadi, 2007). According to Hanggana (2006), the cost of production is all costs incurred to make one unit of finished goods covering the cost of raw materials, direct labor costs and factory *overhead* costs. According Mulyadi (2010), the cost of production is the accumulation of the costs charged on the products produced by companies or users of various economic resources used to produce products or acquire assets. But because the manufacture of these products aims to change assets (in the form of raw material inventory) into other assets (finished product inventory), then the sacrifice of such raw materials, in the form of raw material costs, will form the cost of production.

### **Purpose of Production Costing**

According to Mulyadi (2007) the determination of the cost of production must be really considered carefully by the company for corporate objectives can be achieved. The purpose of determining the cost of production is :

- a. Determine the selling price of the product  
 By knowing the cost of production, the company can also determine the selling price of its products. In addition, management must also consider other factors that play a role in determining the selling price of the product, such as market conditions and government interference.
- b. Monitoring the realization of production costs  
 Management requires information on actual production costs incurred in the implementation of production plans. For that cost accounting can be used to collect information on production costs incurred within a certain

period to monitor whether the production process consumes the total cost of production in accordance with the calculated before.

- c. Calculates periodic income  
 Management requires information on production costs that have been incurred to produce products within a certain period, in order to know whether the production and marketing activities in the period capable of generating gross profit or resulting in gross loss. Periodic periodic gross profit information is required to know the contribution of the product in closing the non-production cost and profit and loss.
- d. Determine the cost of product inventories in products and ja in the process presented in the balance sheet.  
 In the balance sheet, management must present the cost of the finished product inventory and the cost of production which at the balance sheet date is still in process for that purpose, management needs to record the production costs per period. The production costs attached to the finished product that have not been sold at the balance sheet date are presented in the balance sheet as the cost of the product inventory in the process.

### **Production Cost Collection Method**

The method of collecting the cost of production can be classified into 2, that is :

- a. Method Cost of Production Process (*Process Costing*)  
 The basic cost method of the process is the collection of cost of goods sold and share equally on the products produced in that period (Supriyono, 2010).
- b. Cost Order Production Cost Method (*Job Order Costing*)  
 The cost of order method is the method of collecting the cost of production in which the production cost is collected for a certain number of products or a service that can be separated identity and which needs to be determined its cost individually (Supriyono,

2010). Job order costing is defined in the heterogeneous product situation and disjointed production characteristics.

### **Production Costing Pricing Method**

According to Mulyadi (2007), the determination of the cost of production is divided into 2, namely :

a. *Full Costing*

*Full costing* is the method of determining the cost of production, which is imposes all production costs, whether of a fixed or variable behavior to the product.

b. *Variable Costing*

*Variable costing* is the method of determining the cost of production only imposes only variable costs into the cost of production.

### **Method Process Cost Price (*Process Cast Method*)**

According to Supriyono (2010) the cost of the process is the method of collecting the cost of the product where the cost is collected for each specific time unit such as month, quarter, semester, a year.

## **V. RESEARCH METHODS**

### **Operational Definition of Variables**

1. Calculation of cost of goods sold

Is the sacrifice of economic resources in the processing of raw materials into finished products.

2. Process Costing Method

Is the method of collecting the cost of the product where the cost is collected for any given time unit such as month, quarter, semester, or a years.

### **Population Research and Sample**

1. The population used in this study is the report of the cost of the product at the tofu factory.
2. The sample in this study is the data used in the discussion of the problem only includes data of cost of goods manufactured.

### **Types of Research**

The data used by the researcher is quantitative data that the data obtained is systematic and in the form of numbers associated with the problem posed by the author. Quantitative research using inductive approach means that research comes from the fact that occur in the field.

### **Method of Collecting Data**

1. Documentation

Namely the technique of data collection by way of analyzing the data that has been collected from the object of research, in this case is to analyze data that has been collected from the Suli tofu factory.

2. Observation

Namely data collection techniques by way of direct observe to the research object, in this case is to observe the analysis of cost of the product by the method of process costing

3. Interview

Interview is to be able to know the amount of raw materials.

### **Data Analysis Technique**

The measures steps of analytical techniques used in this study are :

1. Data collected through interviews, observations, and documentation were recorded in the form of field notes. The field notes contain what the researcher found in the field about information obtained from the informant, such as what notes were heard, viewed and experienced by the researcher and the researcher's interpretation of the findings encountered, and the material of the data collection plan for the next step.
2. After the data collected, then made data reduction. Reducing data means summarizing, selecting the key points, focusing on the important things and removing the unnecessary. Data reduction in this research is focused on determining cost of goods manufactured by using *process costing* method.

3. The next step is data presentation. This process is done by creating narrative text. With the presentation will make it easier to understand what happened and plan the next work based on what has been understood, so it is easier to be drawn conclusions.
4. The last stage that must be done is the data withdrawal phase. This stage is the answer to the initial conclusion that is temporary, and will change if not found corroborating evidence. The conclusion has been made since the beginning of the research. Each data acquisition is analyzed and summarized although it is still vague, but it will become clearer as more data is obtained to support the conclusion. When the data are declared completely complete then it can be taken the final conclusion of the data obtained during the field.

#### **Time And Place Of Research**

This research was conducted at Suli Tofu Factory Trade Enterprise, the place is in Bacem Village, Sutojayan Sub district, Blitar Regency.

#### **VI. RESEARCH RESULT**

In all business activities, none of the business people who expect credit benefits, all trying with all the power to how the business is run more advanced, growing, and get a large *income* as well. Mulyadi (2014) argues that companies can be viewed as a system that processes inputs to produce output. The company aims for profit or not for profit that aims to process the input of economic resources to produce the output of other economic resources whose value must be higher than the input value. Therefore, both in the business of profit-motivated and non-profit motives, management always tries to make the output value higher than the insert value that is sacrificed to produce the value of enter, so that the organization activity can generate profit (for profit-motivated company) or the rest of business result motive companies are not

looking for profits). To find out whether the company runs profit or losses, it is necessary to establish first the cost of goods or production costs spent during the production process takes place in accordance with the standard accounting that has been determined. Therefore, the cost of goods is the main reference to determine the selling price of ready-to-sell products to consumers.

#### **VII. DISCUSSION**

##### **Calculation of Raw Material Costs**

The raw materials used by Suli Tofu Factory in tofu production are soybean. In the procurement and processing of raw materials of soybean, the factory obtained from the local soybean farmers, but also obtained from KOPTI is a kind of cooperative village unit that provides raw materials for the business know / fermented joy area around. Calculation of the raw material of Suli Tofu Factory is determined by multiplying the amount of material used at the cost of the material. The details of the use of raw materials used by Suli Tofu Factory during the production process in March 2017 are as follows: Soybean used for production process during March 2017 72 kw with price Rp.570.000, - / kw. The Suli Tofu factory produces an average of 1, 5 kw to 2.5 kw a day for the month. Because in March it is the most production compared with other months because it coincided March 2017 that many people who have a celebration of the wedding ceremony. So the cost for the use of soybean is: 72 kw x Rp.570.000, - = Rp.41.040.000, -

##### **Direct Labor Cost Calculation**

Suli Tofu Factory direct labor involved in the production process is labor with daily wages. The calculation of labor costs during the month of March 2017 at this factory is determined by multiplying the number of working days, with the amount of labor and multiplying with predetermined rates. The details of labor costs incurred in Suli Tofu Factory during the production process in March 2017 are as follows :

- a. Cooking  
This section has 4 laborers with tariff Rp. 22.500, - / hari. So the labor cost in this section is: 31 x 4 x Rp.22.500, - = Rp. 2.790.000, -
- b. Pressing  
This section has 2 laborers with tariff Rp. 18.500, - / hari. So the labor cost in this section is : 31 x 2 x Rp.18.500, - = Rp. 1.147.000, - Based on the above calculation shows that the total cost of

direct labor is: Rp.2.790.000, - +  
Rp.1.147.000, - = Rp.3.937.000, -

#### **Factory Overhead Costing**

Factory *overhead* costs cover all production costs that are not included in direct materials and direct labor. In this case the factory *overhead* cost charged by the Tofu Factory "Pak Suli" is the actual costs incurred during a certain period.

#### **Calculation of Production Cost Production Cost Knowable each beam at Suli Tofu Factory March 2017**

Cost Type	Total Cost (Rp)
Raw material	41.04 million
Direct Labor	3,937,000
Factory <i>Overhead</i>	6,231,000
<b>Total Production Cost (a)</b>	<b>51.208.000</b>
<b>Number of tofu beam that produce (b)</b>	<b>3,600 pieces</b>
<b>Production Cost of Tofu Per Cabbage (a / b)</b>	<b>14300 *</b>

The table above shows that the total cost of production in Suli Tofu Factory amounting to Rp.51.208.000, - during March 2017 with the amount of tofu produced 3600 beam that is with the provision of every 2 kg of soybean produce 1 beam of tofu. Production cost of tofu each kilo is Rp.14.300, - and does not take into account the existence of goods in the

process because the product is always finished in one day.

#### **Sales Profit Calculation**

Sales profit calculation is done by reducing the total sales of the costs that have been incurred. Here is presented the income statement / loss of Suli Tofu Factory

#### **The Report of Loss and Profit Suli Tofu March 2017**

Sales Cost	Rp.57.200.000, -
1. Raw Materials	Rp.41.040.000, -
2. Direct Labor	Rp.3.937.000, -
3. Factory <i>Overhead</i> :	
a) Leadership Salary	Rp.1.050.000, -
b) Marketing Salary	Rp. 825.000, -
c) Salary Adm. & Finance	Rp. 825.000, -
d) Salary Head of Production	Rp. 825.000, -
e) Electricity cost	Rp. 150.000, -
f) Cost of Solar Fuel	Rp. 396.000, -
g) Wood Fuel Cost	Rp.2.160.000, -
Total Cost	(Rp.51.208.000, -)
<b>Operating Profit</b>	<b>Rp. 5,992,000,-</b>

Based on the above table shows that the sales profit of March 2017 amounted to Rp. 5.992.000, - or Rp.193.300, - / day. In this case the factory does not include revenue from

the sale of tofu dregs because the factory just wants to know the profits gained from the sale of tofu only. Meanwhile the waste are recorded with memos.

**Comparison Determination Cost of Tofu Production  
According to Suli Tofu Factory with Process Costing Method  
Comparison Cost Production Determination of Tofu Based on  
Suli Tahu Factory with Process Costing Method**

Information	According to	According to	Difference (Rp)
	Factory (Rp)	Author (Rp)	
BBB	41.04 million	41.04 million	0
BTKL	3,937,000	3,937,000	0
BOP	6,231,000	3.767 million	2,463,400
Total cost production	51.208.000	48.744.600	2,463,400
Number of tofu that produce	3600 beam	3600 beam	0
HPPd Each beam	14300	13,550	750
Operating profit which is obtained	5,992,000	6,155,400	163.400
Selling price Each beam	16,000	16,000	0

The table above shows that there is a difference in the cost of tofu production calculated by the manufacturer at the cost of production calculated according to the authors. The difference in the cost of production is Rp.750, - each beam. Cost of production know there is a difference of Rp.2.463.400 between the calculation by the factory with the calculation of process costing method This difference is due to the element of factory *overhead* cost by the factory is not included and the existence of elements that should not enter into the factory *overhead* costs but by the factory entered. By the authors of the elements included in the factory *overhead* costs such as depreciation costs for factory buildings, depreciation costs, and depreciation costs of equipment are included and the allocation of electricity costs for the plant. For non-production costs such as marketing costs and admissions fees & finances are removed from the *overhead* elements of the factory. There is a difference of Rp.163.400, - the calculations mill oeachating profit between the author's calculations due to the inclusion of inventories of finished products have not been early or late

in Earnings / Loss and electricity cost allocation has not yet counted on factories as well as the cost of depreciation of fixed assets.

**VII. CONCLUSION**

Based on the results of the analysis, it can be concluded that:

1. The Suli Tofu Factory has collected and calculated the production cost elements used as the basis for calculating the cost of tofu production each beam for each eachiod of production.
2. Raw material cost, and direct labor costs are right. The cost of raw materials is obtained by multiplying the amount of materials used at the cost of raw materials, while direct labor costs are obtained by multiplying the number of part-time laborers by the number of working days as well as the fixed daily wage rates.
3. Loading of factory *overhead* cost by Suli Tofu Factory less precise because of the costs charged only the elements of factory overhead cost that can be identified on a cash basis.

4. The absence of a separation between production costs and non-production costs (marketing costs and administrative and financial costs) that cause large production costs.
5. The absence of reports in accordance with the accounting with Cost Accounting both Production Cost Report and Profit / Loss at the Tuli Suli Factory.

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