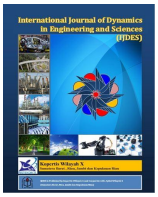
INTERNATIONAL JOURNAL of DYNAMICS in ENGINEERING and SCIENCES (IJDES)
LLDIKTI WILAYAH X
Vol. 6, No. 2, Oct 2021
e-ISSN: 2502-0692



Determination of the Ideal Cost of Goods Manufatured Method in Sustainable Palm Oil Production Company

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doi. 10.22216/jod.v6i2.855
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Article Information

Submitted :
15 May 2021

Accepted :
18 Agust 2021

Published :
25 Oct 2021

Abstract

Determination of the cost method is very important in establishing COGM. In several studies, the use of the ABC method of costing is considered better than the traditional method for several industries or companies. The purpose of this study was to compare the COGM cost calculation between the traditional method and the ABC method at a sustainable palm oil production company. The method proposed is the ABC method. Currently the company only calculates COGM costs using traditional methods. The results of the study obtained are the COGM calculation using the traditional method is around Rp. 48,605 and using the ABC method is around Rp. 46,025. These results state that the calculation of COGM costs using the ABC method is considered better and is recommended for consideration by the company.

Keywords: traditional method, activity based costing, costing method, cost of goods manufactured

1. Introduction

Activity Based Costing (ABC) is a system that forms groups structured activity-based costs on the activity-based cost allocation needed to produce a product or services. Cost drivers are for the cost pool. The system produces more accurate cost calculations. The allocation of costs to products with calculate the cost allocation base for each activity used different products will resulting in more cost calculations accurate.

The prospect of implementing ABC at governmental organisations was calculated to get unit cost of products. The result was the cost of each unit product could be calculated using the method [1]. The comparison of calculations among the traditional method, job order costing (JOC), and ABC method analyzed. The ABC method resulted in lower costs than traditional method [2], [3], [4].

The implementation of ABC method in hotel industry was considered more accurate in determining the cost of goods [5],[6]. Yet, JOC offered better selling for another product [7]. They could be used as alternatives.

The imposition of overhead costs in traditional method was only using the number of machine hours. While ABC method used some cost driver basis. They were the number of production units, machine hours, and direct labor hours [8]. Determining the cost of production by using the ABC method with the aim of determine results that are more accurate and do not cause distortion cost in construction company. The ABC method also can improve the quality of decision making and assist management in improving its strategic planning

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[9]. The strategic dimension of the ABC methods described a typology useful for managers in strategic cost management [10].

Implementation of a business price version primarily based totally at the ABC ideas in a Portuguese espresso manufacturing corporation that suits with the organization`s fact and reflecting the manner the way it functions on daily basis, in a correct and dependable manner, imparting beneficial and applicable information. [11]. The COGM calculation appropriately can be the company`s strategy to determine the selling price. Company profits can continue to increase [12],[13] and facility relayout can also help in increasing productivity using 5S [14]. The costing method can improve organizations` profits because the unused product capacity is counted depend on method used [15].

By using actual cost information and appropriate cost drivers, an accurate profit can be calculated. Precise profitability is the most important factor that management must determine on the transaction amount to maintain fast but sustainable growth. The purpose of this study is to compare ideal costing method to determine cost of goods manufactured in sustainable palm oil production company. The ideal costing method used is to compare between traditional and ABC method for calculating the cost of goods manufactured of CPO. The rest of this paper is organized as follows: Section 2 describes material and methods, section 3 describes results and discussion, and section 4 describes conclusion of this study.

2. Methods

A. Material

Material used in this study is secondary data, consists of average number of units produced, the number of machine hours, average production area, electricity usage, direct labour cost, material usage cost, and overhead cost in a sustainable palm oil production company in Sungai Silau Medan.

B. Method

The Activity Based Costing (ABC) method is proposed in this study. The cost drivers proposed are the number of machine hours and electricity usage. The method is going to compare with the traditional method. The company is currently focusing on using the traditional method as a costing approach.

C. Data

According to table 1, total number of monthly production units is 22.120 tonnes. Average number of monthly production units is 962 tonnes. Average total cost of raw material is about 25 million rupiahs. Average total cost of direct labour is about 842 million rupiahs. Average total cost of overhead is about 209 million rupiahs.

Tabel 1. Units and Costs

Units and Costs (monthly)	Total
Number of production units	22.120 tonnes
Average number of productions	962 tonnes
Average total cost of material	Rp 25.000.000
Average total cost of direct labour	Rp 842.000.000
Average total overhead cost	Rp 209.000.000

According to tabel 2, cost drivers are the number of machine hours, total area for facilities, and electricity usage. The average number of machine hours is around 33.120 hours. Total area for facility in the company is 50.000 m^2. Total usage of electricity is around 2,1 million kWh.

Tabel 2. Cost driver

Cost driver	Total
The number of machine hours (hours)	33.120
Total area (m^2)	50.000
Total usage of electricity (kWh)	2.100.000

The steps for data processing in this study are as follows:

1. Calculate the cost of goods manufactured using traditional methods.
2. Calculate the cost of production using the Activity Based Costing System (ABC System), consist of classifying activities, collecting the same cost pool, determining cost drivers, and calculating group pool rate.
3. Compare both of costing methods.

3. Results and Discussion

A. The Traditional Method

The cost of goods manufactured (COGM) can be calculated using the traditional method. The company still uses the traditional method to calculate the COGM. Traditional method consists of three factors, namely raw material costs, labor costs, direct and overhead costs. There is a problem loading the product. Traditional system can be one or two systems steps. Traditional costing system uses two phases only for departments or centers made other charges.

Based on tabel 3, the total of COGM is 1.076 million Rupiahs or Rp. 48,605 per unit.

Tabel 3. The COGM using traditional method

Indicators	Total
Raw material cost	Rp. 25.000.000
Direct labour cost	Rp. 842.000.000
Overhead cost	Rp. 209.000.000
Total COGM	Rp. 1.076.000.000
Total COGM per unit	Rp 48.605

B. Activity Based Costing Method

Activity Based Costing (ABC) is a method of calculating production costs. Exposure to activities that incur costs. The ABC system aims to help managers reduce value-added activities so that companies can offer products at competitive prices.

The first phase is determining the cost of resources and business activities, different business activities should be grouped into multiple groups based on cost activities such as unit-level, batch-level, and facility-level activities. Activities that found on the company is as follows: auxiliary raw materials, electricity cost, machine maintenance, machine depreciation and, building depreciation and maintenance cost.

Tabel 4. Cost pool

Cost Pool	Level Activity	Cost Driver
Pool 1	Unit-level	The number of production units, and kWh
Pool 2	Batch-level	Machine hours
Pool 3	Facility-level	Total Area

In overhead cost, auxiliary raw materials, electricity cost, and machine deprecaition are as unit-level activities. Machine maintenance is as batch-level activity. Building depreciation and maintenance cost are as facility-level activities. Based on tabel 4, the cost pool is divided into 3 pools. Those are pool 1, pool 2, and pool 3 with 4 cost drivers, namely: the number of production units, kWh, machine hours, and total area.

Tabel 5. Cost pool

Cost Pool	Total cost (Rp)	Cost per unit (Rp)
Pool 1	94.550.000	4.206
Pool 2	33.620.000	1.016
Pool 3	80.410.000	1,608

According to tabel 5, total cost of cost pool 1 is 94,55 million Rupiahs or Rp 4.206 per unit with 22.120 tonnes production units and 2,1 million kWh. Total cost of cost pool 2 is Rp 1.016 per unit with 33.120 hours. Total cost of cost pool 3 is Rp 1.608 with total area around 50.000 m^2.

The overhead cost is determined by each cost group for each product. Each overhead cost is assigned to different types of products to determine the cost of goods manufactured. This is done using the group rate consumed by each product. This method simplifies the set of cost factors used in each product.

Tabel 6. The cost of goods manufactured (COGM)

Indicator	Total cost
Raw materials cost	Rp 25.000.000
Direct cost	Rp 842.000.000
Overhead cost	Rp 151.074.137
Total cost	Rp 1.018.074.137
COGM	Rp 46.025

Based on table 6, total cost for production of CPO per month is Rp 1.018 million rupiahs. Later, the total cost is divided with total units produced around 22.120 ton. It is obtained the cost of goods manufactured (COGM) is about Rp 46.025.

C. Methods Comparison

Comparisons were made to the two methods, namely the traditional method and the Activity Based Costing (ABC) method. Calculations using traditional methods that charge costs only use one cost driver, namely the unit of production. This is different from the Activity Based Costing (ABC) method which charges activity-based costs using several cost drivers. Improper cost assignment can result in cost distortion, resulting in the imposition of overhead costs originating from cost drivers.

Tabel 7. Comparison

Indicators	Total
Traditional method	Rp 48.605
Activity Based Costing method	Rp 46.025

Based on table 7, the COGM calculation using the ABC method was obtained at Rp. 46,025. This value is lower than the calculation using the traditional method, which is Rp. 48,605. COGM calculations using the ABC method are considered better and lower than calculations performed using traditional methods.

4. Conclusion

This study is comparing ideal costing method between traditional and Activity Based Costing (ABC) method to determine cost of goods manufactured (COGM) in sustainable palm oil production company. COGM calculation using the Activity Based Costing (ABC) method is an accurate calculation system and is recommended to be considered by management in making decisions. Future research for next study is considering, calculating, and comparing COGM costs using other methods, such as job costing, process costing, or other similar method.

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