

# Analysis of Implementation of ABC Method in Calculating the Manufacturing Cost of PT ASL

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**Abstract-** This research aims to determine the calculation of the Cost of Goods Manufactured using the Activity-Based Costing method. The Cost of Goods Manufactured is used as the basis for calculating the selling price of the product. Accurate and precise Cost of Goods Manufactured calculation is the key to generating accurate profits, as profit also serves as a reference for decision-making. This research is conducted using a descriptive method with both quantitative and qualitative data. The data used are primary data obtained directly from the company. The research results indicate that the land production cost for each product obtains a higher price than the conventional method. This difference is due to the company's use of the total cost and the total land area developed as the basis for calculating the land Cost of Production, whereas with Activity-Based Costing, cost allocation is performed by classifying costs according to clusters and using several cost drivers. Determining the Cost of Goods Manufactured using the Activity-Based Costing method can enhance the quality of management decision-making.

**Index Terms-** Cost of Goods Manufactured, Conventional Method, Activity-Based Costing Method

## I. INTRODUCTION

### 1.1 Research Background

Every company has a goal of obtaining profits, as the success of a company's management is often assessed based on the company's profit or loss. Therefore, management must continuously exert efforts to translate company decisions into actions aimed at achieving its goals [1].

Management often regulates a company's financial reports through earnings management, intending to provide information to rating agencies regarding the company's positive financial performance to secure a favorable rating. Companies with a good rating will undoubtedly boost trust and funding for the company [2]. The practice of earnings management continues to be a subject of debate, as to whether such actions align with moral standards or not. This is because profits are a crucial component of financial reports that significantly influence financial analysis in decision-making [3]. Investors who use the quality of earnings as a basis for investment decisions are advised to exercise caution and maintain a critical perspective, as there is a possibility that the figures in financial reports may be manipulated [4]. This aligns with the findings of research [5], which indicate that accounting method choices are based on management considerations and are never known with absolute certainty by financial report users.

Accurate and precise cost calculation is the key to achieving precise profit margins in the business. The Activity Based Costing (ABC) method is one of the approaches in cost determination, as it can accurately determine the Cost of Production by utilizing cost drivers and activities as its foundational calculation components [6].

PT ASL is a company operating in the property industry, and for determining the Cost of Production for its land, PT ASL still utilizes conventional methods. As of now, the total number of clusters produced by PT ASL is nine clusters, which include the Bali, Miami, Blok B III B & C, Netherlands, France, Espanola, Great Britain, Scotland, and Ruko CE (shophouse) clusters.

### 1.2 Scope of Problems

The Products to be considered for research are from the Scotland cluster, which has only yielded four products in its development process, namely the Aberdeen type, Melrose type, Edinburgh type, and Glasgow type. Based on the background that has been outlined, the problem statement is as follows "What is the impact of implementing Activity-Based Costing in the manufacturing cost calculation at PT ASL?"

### 1.3 Research Purpose

To assess the comparison between the conventional method and the Activity-Based Costing method for calculating the manufacturing cost.

### 1.4 Benefits of Research

This research is expected to provide the following benefits:

- For the University, it is hoped that this work will serve as valuable reference material for students of the Accounting Program at Tarumanagara University who intend to conduct further research.
- For the Students, it is anticipated that this project will offer new insights into the realm of research and contribute to the enchantment of knowledge in their roles as accountants.
- For the Companies, it is expected that this research will serve as a basis for reevaluating the application of Manufacturing Cost calculation methods to enhance accuracy.

## II. THEORETICAL BASIS

### 2.1 Cost of Goods Manufactured

Cost of Goods Manufactured is the total amount of expenses incurred by a company to produce goods or services. Cost of Goods Manufactured is a crucial element in a company's profit and loss statement, as the net profit of the company is determined by efficient and accurate calculation of Manufacturing Cost. Therefore, it is essential to calculate the Cost of Goods Manufactured accurately. By knowing the Manufacturing Cost, a company can establish an appropriate selling price for its products or services [7].

### 2.2 Conventional Method

The conventional cost calculation method is based on the number of units produced, where the cost increases by the number of units produced. The way to calculate the price per unit is by summing all the costs and then dividing by the number of production units [8].

### 2.3 Activity-Based Costing Method

Activity Based Costing is an approach to cost allocation where the costs of resources are assigned to cost objects such as products, services, or customers by the activities performed for these cost objects. The underlying concept of this cost allocation method explains that the products and services produced by a company result from activities, where these activities require resources, and these resources have costs associated with them. The costs of these resources are allocated to activities based on the activities that utilize these resources, and the costs of activities are then allocated to cost objects based on the activities performed for those cost objects. Activity Based Costing acknowledges the existence of a cause-and-effect or direct relationship between resource costs, cost drivers, activities, and cost objects when assigning costs to activities and subsequently to cost objects [9].

Cost drivers are factors that cause and link changes in the total cost of an activity, as cost drivers trigger or relate to cost changes. The measurable quantity of cost drivers serves as an excellent basis for allocating resource costs to activities and for assigning activity costs to cost objects [9].

According to research [10], in the Activity Based Costing method, there are four levels of activities performed by a company:

1. Unit Level Activities, these activities are closely related to the production process because each unit goes through these activities before proceeding to the next stage.
2. Batch Level Activities, these activities occur when the company places orders, schedules, or performs other tasks on a batch or lot basis rather than per individual unit.
3. Product Level Activities, this category of activities involves product packaging design, which is not done on a unit-by-unit or batch basis but for each product owned by the company.
4. Facility Level Activities, these activities typically incur costs to maintain the production capacity owned by the company.

## III. RESEARCH METHODOLOGY

### 3.1 Research Type

This research utilizes a descriptive research approach. According to research [11], descriptive research does not fall into the category of experiments because its purpose is not to test specific hypotheses but simply to describe a variable, phenomenon, or condition as they are. Typically, descriptive research is not intended for hypothesis testing.

### 3.2 Data Type

The types of data in this research comprise qualitative and quantitative data. Qualitative data for this study were obtained through interviews conducted by the researcher with PT ASL, this aligns with the statement in the research [12] that qualitative data sources consist of evidence in the form of spoken or written words observed by the researcher, enabling conclusions to be drawn from

the acquired documents. The quantitative data in this research were obtained from the financial reports of PT ASL, specifically from the general ledger for all production expenses.

### 3.3 Data Source

The data source utilized in this research comprises primary data obtained directly from PT ASL. The acquired data consists of the production cost ledger, cost activity descriptions, and company profiles.

## IV. RESULT AND DISCUSSION

### 4.1 Company Overview

PT ASL has been in operation for three decades, to be more precise, it was established in August 1989. PT ASL is engaged in the real estate business under its ownership, positioning itself as a project that implements construction based on “ecological principles”. The houses constructed by PT ASL are nestled amidst lush green environments, creating a closer connection with nature.

PT ASL was established with the purpose of purchasing, selling, leasing, and operating real estate, including apartment buildings, residential structures, and non-residential buildings (such as storage facilities/warehouses, malls, shopping centers, and others). To date, PT ASL is in the process of selling residential buildings and lots, as well as leasing non-residential buildings. PT ASL also provides cleaning and security services for the residents, along with a water park and swimming pool area as well as a fitness center.

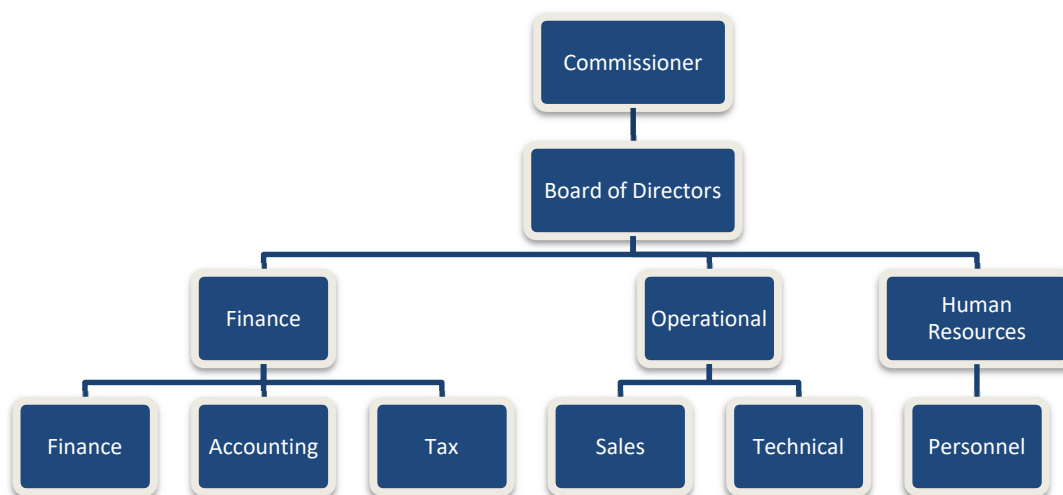


Figure 1: The Organizational structure of PT ASL

In the organizational structure of PT ASL, there are three divisions, namely Finance, Operations, and Human Resources (HR). The Finance division is further divided into three sub-divisions, namely Finance, Accounting, and Taxation. Broadly speaking, the Finance division is responsible for managing the company’s cash receipts and disbursements, recording transactions, and bookkeeping, as well as handling the company’s taxation matters. On the other hand, within the Operations division, there are Sales and Technical sub-divisions, which focus on product marketing and sales, as well as project development planning. The HR division, on the other hand, is responsible for personnel-related matters.

### 4.2 Calculation of Cost of Goods Manufactured Using Conventional Method

The Cost of Goods Manufactured for PT ASL is divided into two categories, Land Production Cost and Building Production Cost. Regarding the Land Production Cost, the incurred costs are categorized into two cost groups, namely Common Cost and Specific Cost. All costs related to land processing across the entire project area are classified under the Common Cost, while all costs incurred for processing specific areas where products or clusters will be built will be categorized under Specific Cost. Common Cost consist of various costs incurred by the company to develop the entire land area designated for a real estate project, including land acquisition costs, land certificate management fees, and other necessary preparatory costs for real estate project development. As of the present moment, the total Common Cost expenditure has reached IDR250,000,136,881. For a detailed breakdown of costs within the Common Cost category, please refer to Table 1.

Table 1. Common Cost

<b>Cost Description</b>	<b>Total Cost (IDR)</b>
Land Compensation	115,373,087,226
Pre-Operation Costs	75,765,157,622
Land Management	19,284,712,904
Public Facilities	11,076,856,696
Roads and Drainage	9,543,510,152
Land Leveling	4,461,702,371
Network Installation	3,494,683,012
Landscaping	2,615,432,519
Fencing	2,581,553,964
Construction Permit and Certificate	1,642,600,130
Land Rights Management	1,465,107,180
Consultant	1,404,444,305
Land Permit	1,230,780,000
Topography	50,980,800
Soil Investigation	9,528,000
<b>TOTAL</b>	<b>250,000,136,881</b>

The costs incurred for Specific Cost are primarily directed towards the development of clusters, and the total amount expended by the company to construct 9 (nine) clusters amounts to IDR56,874,761,761. For a detailed breakdown of costs within the Specific Cost category, please refer to Table 2.

Table 2. Specific Cost

<b>Cost Description</b>	<b>Total Cost (IDR)</b>
Roads and Drainage	25,641,438,350
Network Installation	16,581,836,801
Landscaping	7,084,600,519
Construction Permit and Certificate	3,566,578,976
Fencing	2,610,532,798
Consultant	1,389,774,317
<b>TOTAL</b>	<b>56,874,761,761</b>

The total land area that has been developed for commercial purposes is 318,933 m<sup>2</sup>. This land area will serve as the basis for calculating the cost per m<sup>2</sup> for both Common Cost and Specific Cost. The calculation for the cost per m<sup>2</sup> for Common Cost and Specific Cost is as follows.

Table 3. Calculation of Specific Cost per m<sup>2</sup>

<b>Cost Description</b>	<b>Total Cost (IDR)</b>	<b>Total Area (m<sup>2</sup>)</b>	<b>Cost per m<sup>2</sup> (IDR)</b>
	<b>a</b>	<b>b</b>	<b>c = a / b</b>
Roads and Drainage	25,641,438,350	318,933	80,398
Network Installation	16,581,836,801	318,933	51,992
Landscaping	7,084,600,519	318,933	22,213
Construction Permit and Certificate	3,566,578,976	318,933	11,183
Fencing	2,610,532,798	318,933	8,185
Consultant	1,389,774,317	318,933	4,358
<b>TOTAL</b>	<b>56,874,761,761</b>	<b>318,933</b>	<b>178,329</b>

Based on the calculations in Table 3, the cost per m<sup>2</sup> for each cost is determined. The total cost of Specific Cost is IDR56,874,761,761, and the total cost per m<sup>2</sup> is IDR178,329. These costs will serve as the basis for calculating the Cost of Production for land in the Specific Cost category.

Table 4. Calculation of Common Cost per m<sup>2</sup>

<b>Cost Description</b>	<b>Total Cost (IDR)</b>	<b>Total Area (m<sup>2</sup>)</b>	<b>Cost per m<sup>2</sup> (IDR)</b>
	<b>a</b>	<b>b</b>	<b>c = a / b</b>
Land Compensation	115,373,087,226	318,933	361,747
Pre-Operation Costs	75,765,157,622	318,933	237,558
Land Management	19,284,712,904	318,933	60,466
Public Facilities	11,076,856,696	318,933	34,731
Roads and Drainage	9,543,510,152	318,933	29,923
Land Leveling	4,461,702,371	318,933	13,989
Network Installation	3,494,683,012	318,933	10,957
Landscaping	2,615,432,519	318,933	8,201
Fencing	2,581,553,964	318,933	8,094
Construction Permit and Certificate	1,642,600,130	318,933	5,150
Land Rights Management	1,465,107,180	318,933	4,594
Consultant	1,404,444,305	318,933	4,404
Land Permit	1,230,780,000	318,933	3,859
Topography	50,980,800	318,933	160
Soil Investigation	9,528,000	318,933	30
<b>TOTAL</b>	<b>250,000,136,881</b>	<b>318,933</b>	<b>783,863</b>

Based on the calculations in Table 3, the cost per m<sup>2</sup> for each cost is determined. The total cost of Common Cost is IDR250,000,136,881, and the total cost per m<sup>2</sup> is IDR783,863. These costs will serve as the basis for calculating the Cost of Production for land in the Common Cost category.

The cost per m<sup>2</sup> from calculations in Tables 3 and 4 is utilized as the foundation for determining the Cost of Land Production. On the other hand, for the Cost of Building Production, the company engages a contractor's services to construct houses, and thus the Cost of Building Production is determined according to the agreed-upon nominal value in the contract. The Cost of Building Production and the land area for each product are as follows.

Table 5. Cost of Production for Building and the Land Area of Scotland Cluster

<b>Product (House Type)</b>	<b>Building Production Cost (IDR)</b>	<b>Land Area (m<sup>2</sup>)</b>
Aberdeen	117,000,000	90
Melrose	134,000,000	105
Edinburgh	238,000,000	109
Glasgow	238,000,000	105

Based on the data in Table 5, it is known that the Cost of Building Production and the land area for each type of house are provided. The land area will serve as the basis for calculating the Cost of Land Production by multiplying the land area by the cost per m<sup>2</sup> in Table 3 for Specific Cost and Table 4 for Common Cost. The result of this calculation will determine the Cost of Land Production.

The Formula for calculating Land Production Cost is as follows:

$$\text{Land Production Cost} = \text{Land Area} \times \text{Cost per m}^2$$

The total cost per m<sup>2</sup> for Common Cost can be found in Table 4, amounting to IDR783,863. Meanwhile, the land area for each house type can be seen in Table 5, the Aberdeen house type has a land area of 90 m<sup>2</sup>, the Melrose house type has a land area of 105 m<sup>2</sup>, the Edinburgh house type has a land area of 109 m<sup>2</sup>, and the Glasgow house type has a land area of 105 m<sup>2</sup>. The calculation for Land Production Cost for each house type based on Common Cost is as follows.

Table 6. Cost of Production for Land – Common Cost

Cost Description	Cost per m <sup>2</sup> (IDR)	Aberdeen 90 m <sup>2</sup> (IDR)	Melrose 105 m <sup>2</sup> (IDR)	Edinburgh 109 m <sup>2</sup> (IDR)	Glasgow 105 m <sup>2</sup> (IDR)
Land Compensation	361,747	32,557,239	37,983,445	39,430,434	37,983,445
Pre-Operation Costs	237,558	21,380,240	24,943,614	25,893,847	24,943,614
Land Management	60,466	5,441,971	6,348,966	6,590,832	6,348,966
Public Facilities	34,731	3,125,788	3,646,753	3,785,677	3,646,753
Roads and Drainage	29,923	2,693,092	3,141,941	3,261,634	3,141,941
Land Leveling	13,989	1,259,052	1,468,894	1,524,852	1,468,894
Network Installation	10,957	986,168	1,150,529	1,194,359	1,150,529
Landscaping	8,201	738,051	861,060	893,862	861,060
Fencing	8,094	728,491	849,906	882,284	849,906
Construction Permit and Certificate	5,150	463,527	540,781	561,383	540,781
Land Rights Management	4,594	413,440	482,347	500,722	482,347
Consultant	4,404	396,321	462,375	479,989	462,375
Land Permit	3,859	347,315	405,201	420,637	405,201
Topography	160	14,386	16,784	17,423	16,784
Soil Investigation	30	2,689	3,137	3,256	3,137
<b>TOTAL</b>		<b>70,547,770</b>	<b>82,305,733</b>	<b>85,441,191</b>	<b>82,305,733</b>

Based on the calculations in Table 6, the total Land Production Cost for each housing type based on the Common Cost is as follows: for the Aberdeen type, it amounts to IDR70,547,770; for the Melrose type, it is IDR82,305,733; for the Edinburgh type, it is IDR85,441,191; and for the Glasgow type, it is IDR82,305,733. The next step is to calculate the Land Production Cost for each housing type based on Specific Cost. The company utilizes the total Specific Cost for 9 (nine) clusters, as per data from Table 2, as the basis for calculating the Land Production Cost in the Scotland cluster. The calculations for the Land Production Cost for each housing type based on Specific Cost according to the company, are as follows.

Table 7. Cost of Production for Land– Specific Cost

Cost Description	Cost per m <sup>2</sup> (IDR)	Aberdeen 90 m <sup>2</sup> (IDR)	Melrose 105 m <sup>2</sup> (IDR)	Edinburgh 109 m <sup>2</sup> (IDR)	Glasgow 105 m <sup>2</sup> (IDR)
Roads and Drainage	80,398	7,235,781	8,441,745	8,763,335	8,441,745
Network Installation	51,992	4,679,244	5,459,118	5,667,084	5,459,118
Landscaping	22,213	1,999,210	2,332,412	2,421,265	2,332,412
Construction Permit and Certificate	11,183	1,006,456	1,174,199	1,218,930	1,174,199
Fencing	8,185	736,669	859,447	892,188	859,447
Consultant	4,358	392,182	457,545	474,976	457,545
<b>TOTAL</b>		<b>16,049,542</b>	<b>18,724,466</b>	<b>19,437,778</b>	<b>18,724,466</b>

Based on the calculations in Table 7, the Cost of Production of land based on Specific Cost for each type of house is as follows: for the Aberdeen type, it is IDR16,049,542; for the Melrose type, it is IDR18,724,466; for the Edinburgh type, it is IDR19,437,778; and for the Glasgow type, it is IDR18,724,466. The Cost of Production is calculated by summing the Cost of Building Production (Table 5), the Cost of Production of land based on Common Cost (Table 6), and the Cost of Production of land based on Specific Cost.

Table 8. Cost of Goods Manufactured for the Scotland Cluster – Conventional Method

Cost of Production	Aberdeen (IDR)	Melrose (IDR)	Edinburgh (IDR)	Glasgow (IDR)
Land (Common Cost)	70,547,770	82,305,733	85,441,191	82,305,733
Land (Specific Cost)	16,049,542	18,724,466	19,437,778	18,724,466
Building	117,000,000	134,000,000	238,000,000	238,000,000
<b>TOTAL</b>	<b>203,597,312</b>	<b>235,030,199</b>	<b>342,878,969</b>	<b>339,030,199</b>

Based on the calculations in Table 8, the Cost of Goods Manufactured for each type of house using the conventional method according to the company is as follows: for the Aberdeen type, it amounts to IDR203,597,312; for the Melrose type, it amounts to IDR235,030,199; for the Edinburgh type, it amounts to IDR342,878,969; and for the Glasgow type, it is IDR339,030,199.

### 4.3 Calculation of Cost of Goods Manufactured Using Activity-Based Costing

#### 4.3.1 Identification of Costs into Four Activity Levels

The First stage in calculating the Cost of Production using Activity-Based Costing involves identifying costs across the four levels of activities: unit-level activities, batch-level activities, product-level activities, and facility-level activities. Specific Cost activities consist of Roads and Drainage costs, Network Installation costs, Landscaping costs, Construction Permit and Certificate costs, Fencing costs, and Consultant costs. The Scotland cluster activities within Specific Cost are Categorized into four levels of activities: unit-level activities, batch-level activities, product-level activities, and facility-level activities. The cost allocation for these activities is as follows.

Table 9. The Categorization of Costs Activities

<b>Activity</b>	<b>Activity Level</b>
Roads and Drainage	Facility-Level Activities
Network Installation	Unit-Level Activities
Landscaping	Unit-Level Activities
Construction Permit and Certificate	Batch-Level Activities
Fencing	Facility-Level Activities
Consultant	Product-Level Activities

Based on the activity classification in Table 9, the costs grouped under Facility-Level Activities include the cost of Roads and Drainage and the cost of fencing. The costs categorized under Unit-Level Activities comprise the cost of Network Installation and the cost of Landscaping. The costs allocated to Batch-Level Activities encompass the cost of Construction-Permit and Certificate. As for the costs designated under Product-Level Activities, they pertain to the cost of a consultant.

#### 4.3.2 Identifying Cost Drivers

Unlike the conventional method of calculating the Cost of Production used by companies, which only employs a single cost driver, namely land area, the calculation of the Cost of Production according to the Activity-Based Costing method assigns distinct cost drivers to each cost. After categorizing the costs into their respective activity levels, the next step is to determine the drivers for each cost. The list of cost drivers for each activity is as follows.

Table 10. Cost Drivers for Each Activity

<b>Activity</b>	<b>Cost Driver</b>
Roads and Drainage	Land Area
Network Installation	Unit
Landscaping	Unit
Construction Permit and Certificate	Land Area
Fencing	Land Area
Consultant	Land Area

Based on the data in Table 10, the costs for Roads and Drainage, Construction Permit and Certificate, Fencing, and Consultant are determined using the cost driver “land area”, while the costs for Network installation, and Landscaping are determined using the cost driver “unit”.

#### 4.3.3 Calculation of Cost of Goods Manufactured Using Activity-Based Costing Method

The Specific Cost in Table 2 represents the total costs incurred for the development of 9 (nine) clusters. To ensure a more accurate calculation of the Cost of Goods Manufactured, it is necessary to separate the Specific Cost for the Scotland cluster. The Specific Cost for the Scotland cluster is as follows.

Table 11. Specific Cost Scotland Cluster

<b>Cost Description</b>	<b>Total Cost (DIR)</b>
Roads and Drainage	2,033,353,142
Network Installation	1,659,034,200
Landscaping	506,156,400
Construction Permit and Certificate	501,600,000
Fencing	214,709,850
Consultant	68,158,200
<b>TOTAL</b>	<b>4,983,011,792</b>

Based on Table 11 above, it is known that the costs for each activity specific to the Scotland cluster have been incurred, and the total cost incurred by the company for building the Scotland cluster amounts to IDR4.983.011.792. This cost serves as the basis for calculating the cost per driver. According to Table 10, there are 2 (two) cost drivers required to calculate the Cost of Production of land using the Activity-Based Costing method, namely land area and the number of units. The data for the number of units and the total land area for each product in the Scotland cluster are as follows.

Table 12. Data Units and Land Area of the Scotland Cluster

<b>House Type</b>	<b>Land Area per Unit (m<sup>2</sup>)</b>	<b>Total Unit (unit)</b>	<b>Total Land Area (m<sup>2</sup>)</b>
Aberdeen	90	28	2,520
Melrose	105	69	7,245
Edinburgh	109	8	872
Glasgow	105	2	210
<b>TOTAL</b>		<b>107</b>	<b>10,847</b>

Based on Table 12 above, the land area for each unit of the respective house types is as follows: Aberdeen 90 m<sup>2</sup>, Melrose 105 m<sup>2</sup>, Edinburgh 109 m<sup>2</sup>, and for the Glasgow type, it is 105 m<sup>2</sup>. A total of 28 units of Aberdeen type, 69 units of Melrose type, 8 units of Edinburgh type, and 2 units of Glasgow type were produced. The total land area for the four types of houses that have been constructed amounts to 10,847 m<sup>2</sup>.

The final stage of calculating the Cost of Production for land using the Activity-Based Costing method is to determine the Specific Cost for each product by employing their respective cost drivers. The calculation of the Specific Cost for each product is as follows.

Table 13. Calculation of Cost per Driver – Specific Cost Scotland Cluster

<b>Cost Description</b>	<b>Total Cost (IDR)</b>	<b>Cost Driver</b>	<b>Cost per Driver (IDR)</b>
	<b>a</b>	<b>b</b>	<b>c = a / b</b>
Roads and Drainage	2,033,353,142	10.847 m <sup>2</sup>	187,458
Network Installation	1,659,034,200	107 Units	15,504,993
Landscaping	506,156,400	107 Units	4,730,434
Construction Permit and Certificate	501,600,000	10.847 m <sup>2</sup>	46,243
Fencing	214,709,850	10.847 m <sup>2</sup>	19,794
Consultant	68,158,200	10.847 m <sup>2</sup>	6,284

Based on the calculations in Table 13, the costs for each driver are determined, and these costs serve as the basis for calculating the Cost of Land Production for each product. The calculation for the Cost of Land Production using Activity-Based Costing is as follows.



Table 14. Cost of Production for Land – Specific Cost Aberdeen

<b>Cost Description</b>	<b>Cost per Driver (IDR)</b>	<b>Cost Driver</b>	<b>Total Cost (IDR)</b>
	<b>a</b>	<b>b</b>	<b>c = a × b</b>
Roads and Drainage	187,458	90 m <sup>2</sup>	16,871,220
Network Installation	15,504,993	1 Unit	15,504,993
Landscaping	4,730,434	1 Unit	4,730,434
Construction Permit and Certificate	46,243	90 m <sup>2</sup>	4,161,870
Fencing	19,794	90 m <sup>2</sup>	1,781,460
Consultant	6,284	90 m <sup>2</sup>	565,560
<b>TOTAL</b>			<b>43,615,537</b>

Based on the calculations in Table 14, the total Cost of Production for one unit of Aberdeen-type house is IDR43,615,537.

Table 15. Cost of Production for Land – Specific Cost Melrose

<b>Cost Description</b>	<b>Cost per Driver (IDR)</b>	<b>Cost Driver</b>	<b>Total Cost (IDR)</b>
	<b>a</b>	<b>b</b>	<b>c = a × b</b>
Roads and Drainage	187,458	105 m <sup>2</sup>	19,683,090
Network Installation	15,504,993	1 Unit	15,504,993
Landscaping	4,730,434	1 Unit	4,730,434
Construction Permit and Certificate	46,243	105 m <sup>2</sup>	4,855,515
Fencing	19,794	105 m <sup>2</sup>	2,078,370
Consultant	6,284	105 m <sup>2</sup>	659,820
<b>TOTAL</b>			<b>47,512,222</b>

Based on the calculations in Table 15, the total Cost of Production for one unit of Melrose-type house is IDR47,512,222.

Table 16. Cost of Production for Land – Specific Cost Edinburgh

<b>Cost Description</b>	<b>Cost per Driver (IDR)</b>	<b>Cost Driver</b>	<b>Total Cost (IDR)</b>
	<b>a</b>	<b>b</b>	<b>c = a × b</b>
Roads and Drainage	187,458	109 m <sup>2</sup>	20,432,922
Network Installation	15,504,993	1 Unit	15,504,993
Landscaping	4,730,434	1 Unit	4,730,434
Construction Permit and Certificate	46,243	109 m <sup>2</sup>	5,040,487
Fencing	19,794	109 m <sup>2</sup>	2,157,546
Consultant	6,284	109 m <sup>2</sup>	684,956
<b>TOTAL</b>			<b>48,551,338</b>

Based on the calculations in Table 16, the total Cost of Production for one unit of Edinburgh-type house is IDR48,551,338.

Table 17. Cost of Production for Land – Specific Cost Glasgow

<b>Cost Description</b>	<b>Cost per Driver (IDR)</b>	<b>Cost Driver</b>	<b>Total Cost (IDR)</b>
	<b>a</b>	<b>b</b>	<b>c = a × b</b>
Roads and Drainage	187,458	105 m <sup>2</sup>	19,683,090
Network Installation	15,504,993	1 Unit	15,504,993
Landscaping	4,730,434	1 Unit	4,730,434
Construction Permit and Certificate	46,243	105 m <sup>2</sup>	4,855,515
Fencing	19,794	105 m <sup>2</sup>	2,078,370
Consultant	6,284	105 m <sup>2</sup>	659,820
<b>TOTAL</b>			<b>47,512,222</b>

Based on the calculations in Table 17, the total Cost of Production for one unit of Glasgow-type house is IDR47,512,222.

The Cost of Goods Manufactured for each type of house is calculated by summing the Cost of Production of the Land based on Common Cost, the Cost of Production of the Land based on Specific Cost, and the Cost of Production of the Building. The Cost of Production of the Building utilizes data from Table 5, while the Cost of Production based on Common Cost uses data from Table 6. As for the Cost of Production based on Specific Cost, it relies on calculations specific to each house type. The data for Aberdeen can be found in Table 14, Melrose's data in Table 15, Edinburgh's data in Table 16, and Glasgow's data in Table 17. The Cost of Goods Manufactured for each type of house using the Activity-Based Costing method is as follows.

Table 18. Cost of Goods Manufactured for the Scotland Cluster – Activity-Based Costing Method

<b>Cost of Production</b>	<b>Aberdeen (IDR)</b>	<b>Melrose (IDR)</b>	<b>Edinburgh (IDR)</b>	<b>Glasgow (IDR)</b>
Land (Common Cost)	70,547,770	82,305,733	85,441,191	82,305,733
Land (Specific Cost)	43,615,537	47,512,222	48,551,338	47,512,222
Building	117,000,000	134,000,000	238,000,000	238,000,000
<b>TOTAL</b>	<b>231,163,307</b>	<b>263,817,955</b>	<b>371,992,529</b>	<b>367,817,955</b>

Based on the calculations in Table 18, the Cost of Goods Manufactured for each housing type using the Activity-Based Costing method is as follows: for the Aberdeen type, it amounts to Rp 231,163,307, for the Merlose type, it is Rp 263,817,955, for the Edinburgh type, it totals Rp 371,992,529, and for the Glasgow type, it equals Rp 367,817,955.

Based on the calculation of the Cost of Goods Manufactured for houses in the Scotland cluster using both the conventional method and the Activity-Based Costing method, different results were obtained. The comparison of the Cost of Production according to the conventional method and according to the Activity Based Costing method is as follows.

Table 19. Comparison of Conventional and Activity-Based Costing Methods

<b>Type</b>	<b>Conventional Method (IDR)</b>	<b>Activity-Based Costing Method (IDR)</b>	<b>Difference (IDR)</b>
Aberdeen	203,597,312	231,163,307	27,565,995
Melrose	235,030,199	263,817,955	28,787,756
Edinburgh	342,878,969	371,992,529	29,113,560
Glasgow	339,030,199	367,817,955	28,787,756

Based on the Cost of Goods Manufactured Comparison in Table 19, the Cost of Goods Manufactured for all types of houses using the conventional method is lower compared to the Cost of Goods Manufactured when using the Activity-Based Costing method.

## V. CONCLUSION

Based on the results of the research conducted, there is a difference in the calculation of the Cost of Goods Manufactured for Scotland cluster houses using the conventional method and the Activity-Based Costing method. The Activity-Based Costing method results in a higher Cost of Goods Manufactured compared to the conventional method. The difference lies in the cost based on Specific Cost, where the company uses the total cost as the basis for calculating the Cost of Goods Manufactured and allocates it to only one cost driver. In contrast, the Activity-Based Costing method uses costs based on Specific Cost, which are specifically incurred for activities within the Scotland cluster and utilizes multiple cost drivers in cost allocation.

Determining the Cost of Goods Manufactured is crucial for the company, and it is hoped that the findings of this research can be beneficial in assisting the company in choosing a method for calculating the Cost of Goods Manufactured for its products. The objective is to improve management decision-making because the research shows that calculating the Cost of Goods Manufactured using the Activity-Based Costing method results in higher costs. The Cost of Goods Manufactured is always used as the basis for setting the selling price, so the magnitude of the Cost of Goods Manufactured significantly impacts management decisions in determining the selling price. This is aimed at ensuring that the company does not incur losses.

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