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# Life cycle of ceramic waste materials from the perspective of revenue and environmental management

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**ABSTRACT**

The production of ceramic creates scrap material that is often wasted. The aims of this study are to know the influence of size and material on scrap material and the role of accounting in managing the environment. The results show that product size and material used together have an effect on scrap material. Partial testing shows that only materials used have a positive and significant effect on the emergence of scrap materials. The accounting treatment is done by debiting Cash IDR 5,258,753.99 and crediting Work in Process-Raw Material Cost IDR 5,258,753.99. The cost of goods manufactured of ceramic products after accounting treatment for scrap material is lower than before. The selling price also decreased for the same product. The operating profit will increase IDR 5,013,038.64 (use original selling price) and decrease IDR 1,272,112.67 (use selling price after treatment for scrap material). The emergence of scrap material causes environmental problems. Environmental accounting overcomes this by removing scrap material from its place. The transfer is done by selling at a price of half the standard price. The proceeds from the sale are treated as a deduction from the cost of raw materials in an account in the Work in Process-Raw Materials Cost credit.



## 1. Introduction

The company is an organization that aims to make a profit whose management is carried out by a group of people, each of whom has responsibilities according to the classification of functions ranging from management to operational employees (Sarvaiya et al., 2021). Company performance is a description of the financial condition of a company which is analyzed with financial analysis tools, so that it can be known about the good and bad financial conditions of a company that reflect work performance in a certain period (Dwivedi et al., 2021). The main goal of the company is to maximize the welfare of the owner of the company by increasing the value of the company (Laukkanen & Tura, 2020). Martusa and Armando (2010) argue that companies must be able to face and win the competition; therefore the company's task is not only to produce and market their products, but to consider the size of the costs that will occur so that the costs are effective and efficient. If the actual input is used, the greater the savings, the higher the efficiency level, but the smaller the input that can be saved, the lower the efficiency level (Hepburn et al., 2019).The creative industry sector or creative economy is considered to be a superior sector and difficult to imitate, because it requires human abilities that involve talent, expertise, and creativity. In Indonesia, since 2009 the government has declared the year of the creative industry and has established 14 sectors, with three major sectors being the mainstays, namely: fashion, crafts, and design (Sunarya et al., 2020). Bali has great potential in the development of the creative economy, because it has creative human resources with cultural diversity and the availability of raw materials (Spooren et al., 2020). The ceramic industry is a very important

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industry for today's business development, because the products produced are very useful for people's lives, both as art items, ceremonial goods, and other necessities with relatively long technical life and undoubted quality (Okada, 2009).

The production process requires the right production technique or method so as to produce good output (Swartwout et al., 2019). Raw materials that are ready to form will be the basic materials for making ceramic objects. Ferreira et al. (2022) states that problems that often arise in production process activities include problems with defective products, spoiled goods and scrap material. Of the three problems, the problem of scrap material is the most common and is an unavoidable problem for companies in the production process. Scrap material is material that is damaged in the production process. The use of raw materials in producing ceramic creative products in various sizes often results in waste materials that are normal, unsold, and require destruction costs. The presence of waste materials creates accounting and environmental problems in industrial companies, especially treating these waste materials. This condition results in disruption of the production process, inaccurate sales recognition, inaccurate costing, and environmental pollution. Observing this, in this case the waste materials of ceramic products from small to large sizes are quite meaningful for the company because the sales proceeds from these waste materials will have an influence on the materials that have been sacrificed by the company. Waste materials that sell well need a way to recognize the sales results so they don't interfere with the company. All of this will be related to the cost of raw materials which is the main element in the cost of production of creative ceramic products. Data on types, sizes, raw materials, and scrap materials for creative ceramic products as a result of research by the Center for Ceramic Creative Industry Technology – National Research and Innovation Agency in 2021 are as follows Table 1.

**Table 1**
Types, Sizes, Raw Materials, and Scrap Materials for Creative Ceramic Products in 2021

| Ceramic Creative Product Type | Size (cm) | Raw Material Usage (gram/unit) | Scrap Material (gram/unit) |
|---|---|---|---|
| Holy Water Place 17,5 | D17.50 - H17.50 | 2,200.00 | 600.00 |
| Elephant Motif Oil Burner 11,5 | D11.50 - H11.00 | 800.00 | 235.00 |
| Frog Motif Oil Burner 11,5 | D11.50 - H09.50 | 700.00 | 197.00 |
| Ceramic Tray 35,0 | D35.00 - H21.50 | 6,000.00 | 1,600.00 |
| Flower Vase 37,0 | D37,00 - H08,70 | 6,000.00 | 1,590.00 |
| Holy Water Place 14,0 | D14.00 - H14.00 | 1,300.00 | 375.00 |
| Teapot 09,7 | D09,70 - H14,70 | 1,000.00 | 280.00 |
| Holy Water Place 26,0 | D26.00 - H26.00 | 8,000.00 | 2,400.00 |
| Holy Water Place 5,8 | D05,80 - H07,00 | 250.00 | 72.00 |
| Holy Water Place 10,0 | D10.00 - H10.00 | 450.00 | 130.00 |
| Teapot 13,0 | D13.00 - H22.00 | 1,600.00 | 453.00 |
| Holy Water Place 8,12 | D08,12 - H06,38 | 300.00 | 81.00 |
| Holy Water Place 12,76 | D12.76 - H10.50 | 900.00 | 250.00 |
| Holy Water Place 10,44 | D10,44 - H08,12 | 500.00 | 136.00 |
| Holy Water Place 10,5 | D10.50 - H11.60 | 1,100.00 | 300.00 |
| Oil Burner 9,3 | D09,30 - H12,80 | 1,100.00 | 302.00 |
| Patra Ganggang Motif Cup 9,3 | D09,30 - H07,50 | 400.00 | 112.00 |
| Patra Ganggang Motif Cup14,0 | D14.00 - H18.50 | 2,500.00 | 700.00 |
| Saucer 15,5 | D15.50 - H02.50 | 500.00 | 137.00 |
| Incense Holder 10,5 | D10,50 - H08,80 | 200.00 | 55.00 |
| Saucer 20,0 | D20.00 - H03.00 | 650.00 | 175.00 |
| SNS Holy Water Place 32,0 | D32.00 - H32.00 | 11.300.00 | 3,200.00 |
| Incense Stick 10,0 | D10.00 - H08.00 | 180.00 | 50.00 |
| Bird Motif Oil Burner 9,7 | D09,70 - H08.00 | 700.00 | 200.00 |
| Chili Motif Incense Holder 9,5 | D09.50 - H11.50 | 700.00 | 205.00 |
| Nicked Orchids Placed 18,5 | D18.50 - H02.50 | 800.00 | 225.00 |
| Green Cup Nail Leaf Pattern 10,0 | D10.00 - H06.00 | 600.00 | 160.00 |
| Binahong Leaf Plate 30,0 | D30.00 - H06.50 | 3,500.00 | 945.00 |
| DNSL Holy Water Place 26,0 | D26.00 - H26.00 | 8,000.00 | 2,200.00 |
| DNSL Holy Water Place 32,0 | D32.00 - H32.00 | 11,200.00 | 3,100.00 |
| DNSL Holy Water Place 23,0 | D23.00 - H23.00 | 6,500,00 | 1,800.00 |
| DNSL Holy Water Place 16,0 | D16.00 - H14.00 | 1,400.00 | 375.00 |
| Toreh Orchid Place 25,0 | D25.00 - H03.00 | 1,000.00 | 275.00 |
| Carver Lamp Holder 30,0 | D30.00 - H27.50 | 10,000.00 | 2,800.00 |
| Binahong Leaf Plate 25,0 | D25.00 - H05.50 | 3,000.00 | 800.00 |

Source: BTIKK-BRIN, 2021.

Table 1 shows that from a sample of 35 types of ceramic creative products with various sizes (diameter and height) at BTIKK-BRIN, it was found that the average residual material in the manufacture of creative ceramic products reached 28.00% of the raw material consumption per product unit. The lowest residual material is in the manufacture of incense sticks (d10,0-t8.0) of 50.00 grams from the use of raw materials of 180.0 grams, and the highest is sangku tirta nawa sanga weapon (d32.0-

t32.0 ) of 3,200.0 grams from the use of raw materials 11,300.0 grams. The main problems of this research are: (1) how is the effect of size and raw materials on the scrap material?; (2) how is the accounting treatment for the emergence of scrap materials?; (3) what is the effect of scrap material treatment on income?; and (4) what is the effect of scrap material treatment on environmental preservation? The aims of this study are: (1) to determine the effect of size and raw materials on scrap materials; (2) to record the accounting treatment of the emergence of scrap materials; (3) to examine the effect of scrap material treatment on income; and (4) to study the effect of the treatment of scrap materials on environmental preservation. This research is expected to be useful in the development of science related to waste materials as an opportunity to increase income and preserve the environment.

## 2. Literarure review

Renzulli et al. (2016) explains that scrap material occurs due to: a) a process that results in the occurrence of slabs of material that are not used as raw materials for the main product; b) damaged materials that cannot be returned to the supplier; and c) damaged materials caused by worker error or machine breakdown. Accounting problems that arise with the presence of residual materials can be classified into two, namely: a) inventory of leftover materials that is not recorded, but if the remaining material is relatively large, then it is carried out in the waste material warehouse card; and b) waste material is considered to have a relatively large value and the quantity is relatively large, so for the purpose of controlling it, accounting records are needed. Waste material is material that is left or damaged in the product processing or storage process and cannot be reused in the company (Nascimento et al., 2018). Klose & Pauliuk (2021) stated scrap products/scrap materials are materials left behind when making a product, the remaining selling value is low compared to the sales value of the product. De Rosa et al. (2013) states that scrap materials are raw materials left over from the production process that cannot be re-included in the production process with the original purpose, but it is possible to use them in the production process for other purposes or be sold. Judging from whether or not scrap materials can be sold, waste materials can be grouped into two, namely: scrap materials that cannot be sold and scrap materials that can be sold (Ravi, 2012). The sold scrap materials cause accounting problems for the treatment of the proceeds from the sale of scrap materials, namely: a) if the remaining materials are caused by processing a certain order, the proceeds from the sale of the leftover materials are treated as a deduction from the cost of raw materials or a deduction from the overall production cost of the order concerned; and b) if the emergence of scrap materials is normal in the company, the proceeds from the sale of scrap materials are treated as deduction from actual factory overhead costs or as other income.

The combination of direct material costs, direct labor costs, and factory overhead costs form production costs (Palulun et al., 2021). The cost of goods that have been completed for one period is called the cost of goods manufactured or abbreviated as the cost of goods manufactured (Moheb-Alizadeh & Handfield, 2018). This cost consists of manufacturing costs plus work-in-process inventory at the beginning of the period minus work-in-process inventory at the end of the period. Production costs are costs that are charged in the production process during a period. These costs consist of beginning work in process plus manufacturing costs. Included in production costs are costs charged to work-in-process inventory at the end of the period. Determining the selling price of the product requires various integrated considerations (Lee & Coughlin, 2015). Starting from production costs, operating costs, profit targets desired by the company, people's purchasing power, competitors' selling prices, general economic conditions, product price elasticity, and so on. The method of determining the selling price according to Febriana (2020) is: a) Determination of the Normal Selling Price (Normal Pricing): often called the cost-plus pricing method, because the selling price is determined by adding future costs with a percentage markup (additional in on the total cost) which is calculated by a certain formula. The formula is, Selling price = Estimated full cost + Expected profit; b) Determination of Selling Price in Cost-type Contract (Cost-type Contract Pricing): a contract for the manufacture of products or services in which the buyer agrees to purchase the product or service at a price based on the total costs actually incurred by the producer plus a profit calculated at a certain percentage of the actual total cost. Selling price = Actual cost of making and marketing the product + Profit. Profit = specified % of the actual Cost of making and marketing the product; c) determination of Special Order Pricing: in considering the acceptance of special orders, differential accounting information is the basis used as the basis for determining the selling price. If the selling price requested by the customer (the selling price of the special order) is greater than the differential cost in the form of variable costs for producing and marketing the special order, then the special order can be considered for acceptance; and d) determining the selling price of products or services produced by companies that are regulated by government regulations: products and services produced to meet the basic needs of the wider community, such as electricity, water, telephone & telegraph, transportation, and postal services are regulated by government regulations. The selling price of these products and services is determined based on future full costs plus expected profits.

Inventories are goods owned by the company at a certain time, with the intention of being resold either directly or through the production process in the company's normal operating cycle; in this case including goods that are still in the production process or waiting to be shipped used (Lyu et al., 2020). Inventory is the main element of working capital, because the amount is quite large in a company (Takon & Atseye, 2015). The type of inventory in the company will depend on the type of company. In manufacturing companies, the types of inventory include: supplies of auxiliary materials, finished goods inventories, work-in-process inventories, and raw materials inventories. For manufacturing companies, this inventory becomes so important because errors in inventory investment will disrupt the smooth operation of the company. Errors in determining ending inventory will have a double effect, namely errors in making balance sheets and income statements. Profitability is the

company's ability to earn profits in relation to sales, total assets and own capital (Afkar, 2017). Profitability ratio is often called business profitability (Rutkowska-Ziarko, 2015).

The mass of the stone ceramic body (stoneware) is the material used for the ceramic body which is suitable for burning at high temperatures around $1.200^0$C - $1.300^0$C. The properties contained in stoneware have a higher melting point than earthenware. Characteristics: very strong body, high density, low water absorption 1%-2%. The raw materials used to form stoneware are soil (clay), Bantur ball clay, PRC feldspar, Belitung quartz, and others. The body mass studied in this study was: BL-1, whose raw materials consisted of 13.50% kaolin, 13.50% Chinese feldspar, 20.00% quartz, 40.00% Kalimantan clay, 10.00% ball clay, which is used as the basic material for the formation of creative ceramic products. Previous related studies are: a) Normal (2019) examined the accounting treatment of the use of waste materials at PT Delta Pacific Indotuna, resulting that the remaining materials in the reprocessed production process can be used as income the company for the remaining materials and can reduce the cost of raw materials; b) Apriyanti et al. (2021) examined the use of coal fly ash as a ceramic membrane material in the Peat Water Treatment Unit, which resulted in a ceramic membrane with a composition of fly ash weight: clay = 50%: 50 % at a combustion temperature of 900$^o$C able to treat peat water optimally; c) Almeida et al. (2007) researched the utilization of granito ceramic tile polishing waste for conventional ceramic products and concrete building materials, which resulted that granito ceramic tile polishing waste material could be utilized for concrete building materials with a composition of = 1 part Portland cement : 4 parts palm charcoal + granite waste up to 1 part Portland cement : 6 parts palm charcoal + granite waste; d) Perks & Mudd (2019) examined the prospect analysis of zircon utilization in the ceramic industry, which resulted that the demand for zirconium silicate sand which is a waste from domestic gold and tin ore processing will experience a significant increase; e) Aminu et al. (2021) researched the management and utilization of bayat ceramic waste as an alternative material for handicraft products, which resulted that ceramic waste could be processed into a variety of interesting handicraft products such as accessories, souvenirs, and ceramic tiles. So that it does not cause negative effects on the environment in the community; f) Spooren et al. (2022) researched the accounting treatment of residual materials, which resulted that the accounting treatment of the remaining raw materials used as by-products as income outside the business (other income) was not as a reduction in the cost of raw materials in production activities; g) Dura & Suharsono (2022) examines the analysis of the application of green accounting on the company's financial performance, which results in that the application of green accounting in companies can improve the company's environmental performance which ends in improving financial performance with environmental benefits that can be managed and preserved properly in accordance with government regulations; h) Pappu et al. (2007) researched the application of hard coal combustion residuals in the production of ceramic building materials, which resulted that combustion waste can be considered as a valuable secondary raw material for the production of ceramic clinker products, because it intensifies the sintering process of clinker ceramics; i) Dierkes & Siepelmeyer (2019) examined the accounting treatment of waste materials in determining the cost of production at CV Maloso Jaya Tomohon, produce that the remaining material in the production process is in the form of sawdust which is resold to reduce losses in the production process, even though the selling value is relatively small as a reduction in the cost of raw materials; and j) Normal & Gumi (2015) researched the accounting for BSK-4 waste materials in the production of chocolate ashtrays (d11.0 cm – t5.5 cm), resulting in the cost of production from IDR 19,801.35 each unit to IDR 19,819, 35 each unit, increased by IDR 18.00, profit margin from IDR 2,780.44 each unit to IDR 2,784.56 each unit, increased by IDR 4.12.

This research is different from previous (previous) research in terms of: (1) The time of the study, that this research was conducted in 2021, while previous research was conducted before 2021; (2) The scope of the research, that this research covers the size of ceramic products, the use of raw materials, the generation of waste materials, accounting treatment, income, and environmental conservation, while the previous research covers the scope of waste materials and profits; (3) The object of the research, that this study took the object of creative ceramic products, namely: thirty-five samples (objects), while the previous research only had one object of waste material; (4) The accounting treatment of research, that the accounting treatment of this research is related to the characteristics of the emergence of waste materials, namely: special because of product orders, selling well, no need for destruction costs, while previous research deals only with one characteristic that is not sold; (5) The research problem is that this research raises the issue of the effect of size and use of raw materials on waste materials, accounting treatment to increase income and environmental conservation, while previous research raises one problem, namely the cost of production and profit of one product; and (6) Research analysis technique, that this research analysis technique uses multiple linear regression, standard costing system, cost-based pricing, adjusting journal, and environmental accounting.

## 3. Method

The materials used in this research are the size of the ceramic creative product, the use of raw materials, the scrap material that arises in the process of making creative ceramic products, which consists of the BL-1 body mass. Types of data used: (1) qualitative data, namely fixed assets, organizational structure, main functions, job descriptions, manufacturing processes, and types of raw materials for making creative ceramic products; and (2) quantitative data, fixed asset depreciation costs, material quantity, material prices, electricity costs, telephone costs, water costs, labor costs during the production process, material composition, machine hours, direct labor hours, product sizes, waste materials , and Denpasar City Minimum Wage. Sources of data come from: (1) primary data, namely: size of ceramic products, fixed assets, depreciation costs, electricity costs, telephone costs, water costs, machine hours, direct labor hours, composition of raw materials, use of raw materials, costs

maintenance, and the number of workers directly involved in the processing of creative ceramic products; and (2) secondary data, namely: the minimum wage for Denpasar city from the Bali Provincial Government, the type of raw material for making body mass from the Bandung Ceramics Industry Center, and water infiltration standards that meet the requirements for stoneware from the American Standard Testing Material (ASTM). The methods used in this analysis are: (1) identifying the production process of creative ceramic products; (2) calculate the use of raw materials for each product; (3) observing and calculating residual material (BL-1 body mass); (4) determine the cause of the occurrence; (5) measuring the volume or size of the product; (6) to test the effect of size and use of raw materials on waste materials; (7) calculate the cost of production, selling price, and profitability of creative ceramic products without taking into account the presence of waste materials; (8) adjusting the cause of the occurrence of waste materials with the characteristics of the accounting treatment of waste materials; (9) recognize or record in the adjusting journal the value of salable residual materials; (10) recognize the value of the sale of waste materials on each creative product according to its characteristics; (11) calculate the cost of production, selling price, and profitability of creative ceramic products after taking into account the presence of waste materials; (12) comparing the cost of production, selling price, and profitability before and after taking into account waste materials; (13) reviewing the role of accounting treatment for environmental preservation; and (14) conclude the research results. The data analysis techniques used are: (1) multiple linear regression to calculate the effect of size and use of raw materials on waste materials; (2) a standard cost system with a full cost approach (Mulyadi, 2013: 50) to calculate the cost of production whose formula is the cost of production = raw material costs + direct labor costs + variable factory overhead costs + fixed factory overhead costs; (3) the selling price method based on full cost (full cost pricing) is used to calculate the selling price, the formula is selling price = total production cost + margin (total production cost) + operating cost; (4) adjusting journal entries are used to recognize receipts from the sale of residual materials in products whose formula consists of column date, description, reference, debit, credit, and information in accordance with the characteristics of the cause of the emergence of waste materials, namely: for BL-1, sales proceeds apply. waste materials as a reduction in the cost of raw materials for ceramic products; (5) the concept of cost of goods sold is used to calculate the ending inventory, whose formula is, ending inventory = cost of goods available for sale - cost of goods sold (Schaltegger & Burritt, 2017); and (6) the concept of environmental accounting to examine the role of accounting in environmental preservation.

## 4. Result and Discussion

### *4.1 Result*

#### *4.1.1 Size, Use of Raw Materials, and The Emergence of Scrap Materials for Creative Ceramic Products*

The results of research on the size (volume), the amount of use of raw materials, and the value of the scrap material for ceramic creative products at BTIKK-BRIN in 2021 are shown in Graph 1. Graph 1 shows that the larger the size or volume of ceramic creative products will consume the raw material for body mass. The growing BL-1. Likewise, the greater the use of BL-1 raw materials as a result of its larger size, the larger the scrap material.

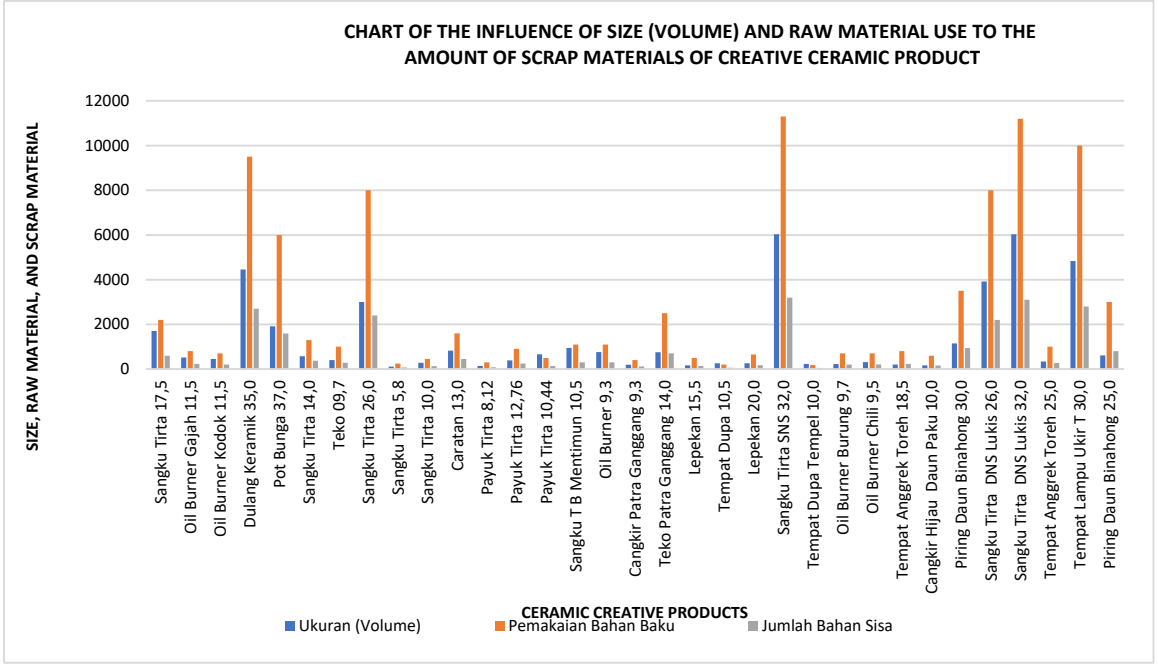


**Fig. 1.** The Effect of Size and Raw Materials on Scrap Materials for Creative Ceramic Products

*4.1.2 Test the Effect of Size and Use of Raw Materials on Scrap Materials for Creative Ceramic Products*

To test the effect of size and use of raw materials on the scrap material of creative ceramic products, multiple linear regression analysis was used with t and F tests. The results of t and F tests are as follows (Table 2):

**Table 2**
Test of the Effect of Size and Use of Raw Materials on the Generation of Waste Materials for Creative Ceramic Products Using t and F tests

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | -5.316 | 8.016 | | -.663 | .512 |
| | Size (Volume) (X1) | -.001 | .016 | -.002 | -.071 | .944 |
| | Raw Material Usage (X2) | .282 | .008 | 1.001 | 36.242 | .000 |

a. Dependent Variable: Amount of Scrap Material (Y)

| ANOVA[a] | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 33150842.894 | 2 | 16575421.447 | 12299.983 | .000[b] |
| Residual | 43123.106 | 32 | 1347.597 | | |
| Total | 33193966.000 | 34 | | | |

Adjusted R-Square = 0.999 Std. Error of the Estimate = 36.70963

a. Dependent Variable: Amount of Scrap Material (Y)
b. Predictors: (Constant), Raw Material Usage (X2), Product Size (Volume) (X1)

The t test is intended to determine the effect of the independent variable (independent) individually or partially on the dependent variable (dependent). The results of the t-test in this study can also be seen in Table 2 of the t-value column and the significance of each independent variable. This test is carried out using the SPSS 25 program. In the t-test it is said that the variable has a significant effect if the significance value is less than 0.05 and the t-count value is greater than t-table (Ghozali, 2018). The explanation of the results of the t-test of each independent variable is as follows: 1) Hypothesis Test 1 (H1) the effect of size or volume (X1) on the amount of residual material (Y). Based on Table 2 above, it can be concluded that the significance value is 0.944 greater than 0.05, so H0 is accepted and H1 is rejected. This means that partially the size or volume of ceramic creative products has no effect on the amount of waste material; 2) Test Hypothesis 2 (H2) the effect of the use of raw materials (X2) on the amount of scrap material (Y). Based on Table 2 above, it can be concluded that the significance value of 0.000 is less than 0.05, so H0 is rejected and H2 is accepted. This means that partially the use of raw materials for creative ceramic products has a positive and significant effect on the amount of scrap material. Based on the description of the results of the t test above, it can be concluded that of the two variables, namely the size or volume and the use of raw materials, only the second variable is the use of raw materials which has a positive and significant effect on the amount of waste material, while the other variable does not. The F test is intended to determine the effect of the independent variable simultaneously or jointly on the dependent variable. Based on Table 2 above, it is known that the significance value is 0.000 less than 0.05. The result of the F test which states that the significance value is less than 0.05 states that simultaneously or together the variable size or volume (X1) and the use of raw materials (X2) affect the amount of residual material for the ceramic relative product. The coefficient of determination is used to measure how much the independent variable (X) contributes to the dependent variable (Y) (Ghozali, 2018). The coefficient of determination in this study is shown by the value of R Square in Table 2 which has a value of 0.999. The value of the coefficient of determination of 0.999 means that 99.9% of the independent variables, namely the size or volume (X1) and the use of raw materials (X2) can explain the amount of residual material for ceramic ceramic products (Y), while the remaining 0.001 or 0.1% explained by other factors or variables not explained in this study.

*4.1.3 Cost of Production, Selling Price, and Estimated Operating Profit of Creative Ceramic Products before Calculating Scrap Materials*

The results of calculating the cost of production of creative ceramic products at BTIKK in 2021 before calculating the emergence of waste materials are shown in Table 3.

**Table 3**
Cost of Good Manufactured of Creative Ceramic Products at BTIKK-BRIN before Calculating Scrap Materials (IDR/unit)

| No | Creative Ceramic Products | Size | Cost of Good Manufactured | Selling Price | Total of Estimated Operating Profit |
|---|---|---|---|---|---|
| 1 | Holy Water Place 17,5 | D17.50 - H17.50 | 263.916,94 | 290.308,63 | 131.958,47 |
| 2 | Elephant Motif Oil Burner 11,5 | D11.50 - H11.00 | 169.595,77 | 186.555,35 | 135.676,62 |
| 3 | Frog Motif Oil Burner 11,5 | D11.50 - H09.50 | 141.281,13 | 155.409,24 | 141.281,13 |
| 4 | Ceramic Tray 35,0 | D35.00 - H21.50 | 399.290,64 | 439.219,70 | 159.716,25 |
| 5 | Flower Vase 37,0 | D37,00 - H08,70 | 269.473,97 | 296.421,37 | 215.579,18 |
| 6 | Holy Water Place 14,0 | D14.00 - H14.00 | 162.558,36 | 178.814,19 | 146.302,52 |

**Table 3 (Continued)**
Cost of Good Manufactured of Creative Ceramic Products at BTIKK-BRIN before Calculating Scrap Materials (IDR/unit)

| No | Creative Ceramic Products | Size | Cost of Good Manufactured | Selling Price | Total of Estimated Operating Profit |
|---|---|---|---|---|---|
| 7 | Teapot 09,7 | D09,70 - H14,70 | 123.251,76 | 135.576,94 | 147.902,12 |
| 8 | Holy Water Place 26,0 | D26.00 - H26.00 | 548.169,56 | 704.564,19 | 164.450,87 |
| 9 | Holy Water Place 5,8 | D05,80 - H07,00 | 12.191,19 | 13.410,31 | 219.441,42 |
| 10 | Holy Water Place 10,0 | D10.00 - H10.00 | 83.475,18 | 91.822,69 | 150.255,32 |
| 11 | Teapot 13,0 | D13.00 - H22.00 | 212.856,68 | 234.142,35 | 144.742,54 |
| 12 | Holy Water Place 8,12 | D08,12 - H06,38 | 15.086,24 | 16.594,86 | 220.259,10 |
| 13 | Holy Water Place 12,76 | D12.76 - H10.50 | 41.722,39 | 45.894,62 | 212.784,16 |
| 14 | Holy Water Place 10,44 | D10,44 - H08,12 | 22.087,13 | 127.628,21 | 209.827,76 |
| 15 | Holy Water Place 10,5 | D10.50 - H11.60 | 122.909,24 | 135.200,16 | 147.491,08 |
| 16 | Oil Burner 9,3 | D09,30 - H12,80 | 184.129,92 | 202.542,91 | 154.669,13 |
| 17 | Patra Ganggang Motif Cup 9,3 | D09,30 - H07,50 | 72.619,94 | 79.881,93 | 148.144,67 |
| 18 | Patra Ganggang Motif Cup14,0 | D14.00 - H18.50 | 274.782,21 | 302.260,43 | 153.878,04 |
| 19 | Saucer 15,5 | D15.50 - H02.50 | 21.885,49 | 24.074,04 | 210.100,68 |
| 20 | Incense Holder 10,5 | D10,50 - H08,80 | 12.336,58 | 13.570,23 | 226.992,98 |
| 21 | Saucer 20,0 | D20.00 - H03.00 | 26.357,46 | 28.993,21 | 216.131,20 |
| 22 | SNS Holy Water Place 32,0 | D32.00 - H32.00 | 787.351,79 | 963.804,69 | 220.458,50 |
| 23 | Incense Stick 10,0 | D10.00 - H08.00 | 11.292,56 | 12.212,66 | 225.851,25 |
| 24 | Bird Motif Oil Burner 9,7 | D09,70 - H08.00 | 132.017,19 | 145.218,91 | 147.859,25 |
| 25 | Chili Motif Incense Holder 9,5 | D09.50 - H11.50 | 133.877,19 | 147.264,91 | 152.619,99 |
| 26 | Nicked Orchids Placed 18,5 | D18.50 - H02.50 | 148.040,45 | 162.844,49 | 156.922,88 |
| 27 | Green Cup Nail Leaf Pattern 10,0 | D10.00 - H06.00 | 22.305,92 | 24.536,51 | 223.059,16 |
| 28 | Binahong Leaf Plate 30,0 | D30.00 - H06.50 | 139.720,70 | 153.692,77 | 223.553,12 |
| 29 | DNSL Holy Water Place 26,0 | D26.00 - H26.00 | 640.512,90 | 704.564,19 | 179.343,61 |
| 30 | DNSL Holy Water Place 32,0 | D32.00 - H32.00 | 876.186,08 | 963.804,69 | 157.713,49 |
| 31 | DNSL Holy Water Place 23,0 | D23.00 - H23.00 | 492.343,75 | 541.578,12 | 177.243,75 |
| 32 | DNSL Holy Water Place 16,0 | D16.00 - H14.00 | 126.639,89 | 139.303,88 | 192.492,64 |
| 33 | Toreh Orchid Place 25,0 | D25.00 - H03.00 | 185.737,01 | 204.310,71 | 159.733,83 |
| 34 | Carver Lamp Holder 30,0 | D30.00 - H27.50 | 737.533,78 | 811.287,16 | 206.509,46 |
| 35 | Binahong Leaf Plate 25,0 | D25.00 - H05.50 | 116.025,64 | 127.628,21 | 204.205,13 |
| - | Total | - | - | - | **6.285.151,31** |

Source: Data Processing Result, 2021

Table 3 shows the cost of production of BTIKK ceramic creative products in 2021. The lowest cost of production is Incense Place (D10.0-H8.0) of IDR 11,292.56 per unit consisting of: raw material costs IDR 1,366.18, cost direct labor IDR 6160.62, factory overhead costs IDR 3,414.68, and fixed factory overhead costs IDR 351.08. The highest cost of production was DNSL Holy Water Place (D32.0-H32.0) of IDR 876,186.08 per unit consisting of: raw material costs IDR 85,765.76, direct labor costs IDR 611,312.87, variable factory overhead costs IDR 136,977.79, and fixed factory overhead costs IDR 42,129.67. The cost of good manufactured is used as the basis for determining the selling price of creative ceramic products in accordance with the concept of cost-plus pricing. Table 3 shows the selling price of BTIKK ceramic creative products in 2021 before taking into account the emergence of waste materials. The lowest selling price is Incense Place (D10.0-H8.0) of IDR 12,212.66 each unit consisting of: cost of good manufactured IDR 11,292.56, operating profit margin IDR 16.69, marketing expenses IDR 564.63, and general & administrative expenses IDR 338.78. The highest selling price was DNSL Holy Water Place (D32.0-H32.0) of IDR 963,804.69 each unit consisting of: cost of production IDR 876,186.08, operating profit margin IDR 17,523.72, marketing expenses IDR 43,809.30, and general & administrative expenses IDR 26,285.58. The estimated total operating profit of ceramic creative products at BTIKK in 2021 before taking into account the emergence of scrap materials is: IDR 6,285,151.31 which is based on the sales assumption that occurs according to Table 3. The lowest operating profit is achieved from sales of Holy Water Place (D17.5-H17.58) of IDR 131,958.47, while the highest operating profit was obtained from the sale of Incense Places (D10,5-H8.8) amounting to IDR 226,992.98. The average operating profit of 35 ceramic creative products is IDR 179,575.75.

*4.1.4 Recognition of Scrap Materials in the Creative Ceramic Product Production Process*

The value of the scrap material in the production process of BTIKK ceramic creative products according to their characteristics, all using the BL-1 body mass. The journal of charging costs and acknowledging the sales of the remaining BL-1 body mass material which is the raw material for all ceramic creative products is as follows (Table 4). Table 4 shows that at the time of charging creative ceramic product production costs, WIP-RMC debited IDR 37,826,873.56, WIP-DLC IDR 235,559,172.64, WIP-VMOC IDR 53,172,444.28, and WIP-FMOC IDR 15,113. 959.40, and credited with Raw Material Supplies IDR 37,826,873.56, Salary and Wage Costs IDR 235,559,172,64, Various VMOC Accounts IDR 53,172,444.28, and Various FMOC Accounts IDR 15,113,959.40. At the time of recognition of the proceeds from the sale of scrap materials, cash is debited IDR 5,258,753.99, and credited WIP-RMC IDR 5,258,753.99. At the time of recording the cost of finished products, finished product inventory was debited IDR 336,413,695.89., and credited WIP-RMC IDR 32,568,119.57, WIP-DLC IDR 235,559,172,64, WIP–VMOC IDR 53,172,444 ,28, and WIP–FMOC IDR 15,113,959.40.

**Table 4**
Journal of Costing Product and Recognition of Sales Results of Scrap Materials in BTIKK Ceramic Creative Product Production (Rp)

| Date | Description | Ref | Debit | Credit |
|---|---|---|---|---|
| - | Work In Process – Raw Material Cost | | 37,826,873.56 | |
| | Work In Process – Direct Labor Cost | | 235,559,172.64 | |
| | Work In Process – Variable Manufacturing Overhead Cost | | 53,172,444.28 | |
| | Work In Process – Fixed Manufacturing Overhead Cost | | 15,113,959.40 | |
| | Raw Material Inventory | | | 37,826,873.56 |
| | Salary and Wage | | | 235,559,172.64 |
| | Various Accounts of Variable Factory Overhead Costs on Credit | | | 53,172,444.28 |
| | Various Accounts of Fixed Factory Overhead Costs on Credit | | | 15,113,959.40 |
| | *(Record the loading of creative ceramic product production costs)* | | | |
| - | Cash | | 5,258,753.99 | |
| | Work In Process – Raw Material Cost | | | 5,258,753.99 |
| | *(Record the results of the sale of scrap material of the creative ceramic products)* | | | |
| - | Finished Good Inventory | | 336,413,695.89 | |
| | Work In Process – Raw Material Cost | | | 32,568,119.57 |
| | Work In Process – Direct Labor Cost | | | 235,559,172.64 |
| | Work In Process – Variable Manufacturing Overhead Cost | | | 53,172,444.28 |
| | Work In Process – Fixed Manufacturing Overhead Cost | | | 15,113,959.40 |
| | *(Record the cost of production has finished ceramic creative products)* | | | |

*4.1.5 Cost of Production, Selling Price, and Estimated Operating Profit of Ceramic Creative Products after Taking into Account Scrap Materials*

The results of calculating the cost of production of ceramic creative products at BTIKK in 2021 after taking into account the emergence of scrap materials are shown in Table 5.

**Table 5**
Cost of Production of Ceramic Creative Products at BTIKK-BRIN after Calculating the Scrap Materials (IDR/unit)

| No | Creative Ceramic Products | Size | Cost of Good Manufactured | Selling Price | Total of Estimated Operating Profit |
|---|---|---|---|---|---|
| 1 | Holy Water Place 17,5 | D17.50 - H17.50 | 261.639,97 | 287.803,97 | 193.436,50 |
| 2 | Elephant Motif Oil Burner 11,5 | D11.50 - H11.00 | 168.703,96 | 185.574,36 | 174.202,80 |
| 3 | Frog Motif Oil Burner 11,5 | D11.50 - H09.50 | 140.533,53 | 154.586,88 | 181.653,50 |
| 4 | Ceramic Tray 35,0 | D35.00 - H21.50 | 389.044,28 | 427.948,71 | 381.037,40 |
| 5 | Flower Vase 37,0 | D37,00 - H08,70 | 263.440,01 | 289.784,01 | 476.246,40 |
| 6 | Holy Water Place 14,0 | D14.00 - H14.00 | 161.135,25 | 177.248,78 | 215.465,40 |
| 7 | Teapot 09,7 | D09,70 - H14,70 | 122.189,18 | 134.408,10 | 216.757,80 |
| 8 | Holy Water Place 26,0 | D26.00 - H26.00 | 539.061,70 | 592.967,87 | 311.998,35 |
| 9 | Holy Water Place 5,8 | D05,80 - H07,00 | 11.917,95 | 13.109,75 | 485.028,00 |
| 10 | Holy Water Place 10,0 | D10.00 - H10.00 | 82.981,83 | 91.280,02 | 198.207,90 |
| 11 | Teapot 13,0 | D13.00 - H22.00 | 211.137,57 | 232.251,33 | 207.868,52 |
| 12 | Holy Water Place 8,12 | D08,12 - H06,38 | 14.778,85 | 16.256,73 | 462.601,00 |
| 13 | Holy Water Place 12,76 | D12.76 - H10.50 | 40.773,65 | 44.851,01 | 474.065,40 |
| 14 | Holy Water Place 10,44 | D10,44 - H08,12 | 21.571,02 | 23.728,12 | 474.596,25 |
| 15 | Holy Water Place 10,5 | D10.50 - H11.60 | 121.770,75 | 133.947,83 | 221.265,00 |
| 16 | Oil Burner 9,3 | D09,30 - H12,80 | 182.983,85 | 201.282,23 | 206.655,12 |
| 17 | Patra Ganggang Motif Cup 9,3 | D09,30 - H07,50 | 72.194,90 | 79.414,40 | 194.965,86 |
| 18 | Patra Ganggang Motif Cup14,0 | D14.00 - H18.50 | 272.125,75 | 299.338,32 | 234.209,36 |
| 19 | Saucer 15,5 | D15.50 - H02.50 | 21.365,58 | 23.502,14 | 479.620,80 |
| 20 | Incense Holder 10,5 | D10,50 - H08,80 | 12.127,85 | 13.340,64 | 434.378,00 |
| 21 | Saucer 20,0 | D20.00 - H03.00 | 25.693,35 | 28.262,68 | 510.199,90 |
| 22 | SNS Holy Water Place 32,0 | D32.00 - H32.00 | 775.966,96 | 853.563,65 | 392.597,24 |
| 23 | Incense Stick 10,0 | D10.00 - H08.00 | 11.102,82 | 12.007,35 | 221.620,00 |
| 24 | Bird Motif Oil Burner 9,7 | D09,70 - H08.00 | 131.258,20 | 144.384,02 | 193.763,36 |
| 25 | Chili Motif Incense Holder 9,5 | D09.50 - H11.50 | 133.099,22 | 146.409,15 | 200.511,75 |
| 26 | Nicked Orchids Placed 18,5 | D18.50 - H02.50 | 147.186,59 | 161.905,24 | 205.797,94 |
| 27 | Green Cup Nail Leaf Pattern 10,0 | D10.00 - H06.00 | 21.698,72 | 23.868,60 | 550.945,00 |
| 28 | Binahong Leaf Plate 30,0 | D30.00 - H06.50 | 136.134,48 | 149.747,93 | 533.402,40 |
| 29 | DNSL Holy Water Place 26,0 | D26.00 - H26.00 | 632.164,02 | 695.380,42 | 305.578,70 |
| 30 | DNSL Holy Water Place 32,0 | D32.00 - H32.00 | 864.421,75 | 950.863,93 | 272.062,80 |
| 31 | DNSL Holy Water Place 23,0 | D23.00 - H23.00 | 485.512,85 | 534.064,13 | 310.036,32 |
| 32 | DNSL Holy Water Place 16,0 | D16.00 - H14.00 | 125.216,79 | 137.738,47 | 309.301,00 |
| 33 | Toreh Orchid Place 25,0 | D25.00 - H03.00 | 184.693,40 | 203.162,74 | 208.199,12 |
| 34 | Carver Lamp Holder 30,0 | D30.00 - H27.50 | 726.907,94 | 799.598,73 | 367.172,26 |
| 35 | Binahong Leaf Plate 25,0 | D25.00 - H05.50 | 112.989,69 | 124.288,65 | 492.742,80 |
| - | Total | - | - | - | **11.298.189,95** |

Source: Data Processing Result, 2021

Table 5 shows the cost of production of BTIKK ceramic creative products in 2021 after taking into account the emergence of scrap materials. The lowest cost of production is Incense Place (D10.0-H8.0) of IDR 11,102.82 each unit consisting of: raw material costs IDR 1,176.43, direct labor cost IDR 6.160.62, variable factory overhead costs IDR 3,414.68, and fixed factory overhead costs Rp 351.08. The highest cost of production was DNSL Holy Water Place (D32.0-T32.0) of IDR 864,421.75

each unit consisting of: raw material costs IDR 74,001.43, direct labor costs IDR 611,312.87, variable factory overhead costs IDR 136,977.79, and fixed factory overhead costs IDR 42,129.67.

Based on the calculation of the cost of production of creative ceramic products that has taken into account the treatment of scrap materials, the selling price of the product can be determined as a result of applying the cost-plus pricing method. The results of calculating the selling price of ceramic creative products after taking into account the scrap materials can be seen in Table 5. The lowest selling price is Incense Place (D10.0-H8.0) of IDR 12,007.35 each unit consisting of: cost of production IDR 11,102.82, operating profit margin is IDR 16.31, marketing expenses are IDR 555.14, and general & administrative expenses are IDR 333.08. The highest selling price was DNSL Holy Water Place (D32.0-T32.0) of IDR 950,863.93 per unit consisting of: cost of production IDR 864,421.75, operating profit margin IDR 17,288.44, marketing expenses IDR 43,221.09, and general & administrative expenses IDR 25,932.65.

The results of calculating the estimated operating profit of ceramic creative products at BTIKK in 2021 after taking into account the emergence of scrap materials are shown in Table 5. The estimated total operating profit for ceramic creative products at BTIKK in 2021 after taking into account waste materials is: IDR 11,298,189.95 which is based on the assumption that units are sold in accordance with Table 5 and the selling price uses the original value before treatment of scrap materials. The lowest operating profit was achieved from the sale of the Elephant Motif Oil Burner (D11,5-T11,0) amounting to IDR 174,202.80, while the highest operating profit was obtained from the sale of the Leaf Paku Motif Green Cup (D10.0-T06,0) amounting to IDR 550,945, 00. The average operating profit of 35 ceramic creative products is IDR 322,805.43.

#### *4.1.6 The Role of Accounting for Environmental Conservation*

Environmental accounting is better known as Environmental Accounting. This branch of accounting is a combination of accounting science with the environment. Technically, it can be said that this science is environmental-based accounting (Wandira, 2022). In practice, environmental costs are included in the accounting reports of companies or government agencies. The purpose of environmental costs is costs incurred as a result of the company's production, distribution and consumption activities that affect the quality of the surrounding environment. These costs are in the form of financial and non-financial impacts. In this case, the company usually invites environmental engineering analysts or companies in the field of waste treatment and sanitation to overcome this.

Environmental Accounting aims to increase company awareness and attention to the impact of company activities on the environment. This concept is growing and many practitioners and experts are researching this subject. As a result, there is more and more information about environmental-based accounting so that it adds insight for companies so that they can be applied in their companies. Environmental-based accounting can bridge the relationship between companies and non-profit organizations engaged in the environmental field. The goal is clearly to invite companies to set aside some of the profits earned for the benefit of the environment, such as: environmental conservation efforts, empowerment of the environment and communities around the company's area, and other activities. These activities have been planned in detail and in detail in the CSR (Corporate Social Responsibility) program carried out by the company's management team. Basically, the use and application of environmental-based accounting is used to minimize and reduce the impact of company activities on the surrounding environment. The goal is to optimize and improve performance efficiency both cost and consequently based on activities that have an impact on the surrounding environment.

The use of raw materials in the form of BL-1 body mass in the manufacture of ceramic creative products at BTIKK produces scrap material as the remaining materials when forming the ceramic body using either a rotary system or a printing system. Based on a sample of 35 ceramic products at BTIKK, it was found that the average generation of scrap material due to the manufacture of ceramic objects reached 28.00% each product unit. Scrap material in the manufacture of ceramics generally appears during the processing. The delivery process is intended as an effort to form a ceramic body structure that is in accordance with the design and size designed, because the raw materials used in the product manufacturing process will not entirely become part of the finished product, so some parts of the material will be wasted because they are not attached to the ceramic body. . If the scrap material of the BL-1 body mass that is wasted is not handled properly, it will cause serious environmental problems for all ceramic companies in Bali in particular and Indonesia in general that use a material composition similar to BL-1. The results of the research on BTIKK show that from a sample of 35 ceramic products, it is estimated that the average waste material per year reaches 1,385.73 kg or IDR 10,517,507.98. The quality of the scrap material resulting from the formation of ceramic products is greatly reduced because it is sensitive to the reaction of air, heat, water, and dust around the place where the ceramic is formed. The sale of scrap materials whose quality has declined is still possible to be sold at a price of half the selling price of ordinary materials.

### *4.2 Discussion*

#### *4.2.1 The Influence of Product Size and Material Used to Scrap Material*

The production process of ceramic creative products with certain characteristics often results in scrap materials. In a study that used two independent variables, namely the size of the product and the use of materials, it was found that with the F test,

both variables simultaneously affected the emergence of ceramic product residues with a coefficient of determination reaching 99.99%. This shows that the larger the size, the more raw materials will be consumed, of course accompanied by a higher level of difficulty or risk. The workmanship of the larger product with the use of more and more materials requires a longer processing time. This condition will trigger the emergence of more waste or scrap material, especially the process of making ceramic products, mostly with rotary techniques, which is very dependent on the harmony between hand skills and feelings. However, after the t-test was carried out, only the material usage variable had a positive and significant effect on the emergence of scrap materials in the process of making ceramic creative products. This shows that the raw materials used are actually attached to the ceramic body. The more raw materials used tend to cause more scrap materials, because in realizing ceramic objects according to the desired design, especially with the rotary system in the receiving process and decoration techniques in the decoration process, of course there will be more and more waste or scrap materials also.

*4.2.2 Accounting Treatment of Scrap Material*

The body mass of the BL-1 is the scrap material for making ceramic creative products. Scrap material can be ignored in the calculation of financial variables, but will have consequences on the inaccuracy of the calculation results obtained, which will ultimately affect management decision making. The cost of production of three small, medium, and large ceramic creative products from thirty-five ceramic creative products before and after taking into account the accounting treatment of scrap materials are: IDR 12,191.19 and IDR 11,917.95 each unit for holy water place (d5, 8-h7.0), IDR 269,473.97 and IDR 263,440.01 each unit for flower vases (d37.0-t8.7), and IDR 876,186.08 and IDR 864,421.75 each unit for DNSL holy water place (d32.0-h32,2). This shows that the accounting treatment of scrap materials can reduce the cost of production which in this case is taken three products according to size (small, medium, and large) by IDR 273.24 each unit for holy water place (d5,8-h7,0), IDR 6,033.96 each unit for flower vases (d37.0-h8.7), and IDR 11,764.33 each unit for DNSL holy water place (d32.0-h32,2). The accounting treatment for scrap materials also applies to other ceramic creative products.

The selling price of ceramic creative products at BTIKK for the same three sizes and types of products before and after taking into account the accounting treatment of scrap materials are: IDR 13,410,31 and IDR 13,109.75 each unit for holy water place (d5,8-h7,0), IDR 296,421.37 and IDR 289,784.01 each unit for flower vases (d37,0-h8.7), and IDR 963,804.69 and IDR 950,863.93 each unit for DNSL holy water place (d32.0-h32.2) . This shows that the accounting treatment of scrap materials can reduce the selling price which in this case is taken three products according to size (small, medium, and large) by IDR 300.56 each unit for holy water place (d5,8-h7,0), IDR 6,637.36 per unit for flower vases (d37.0-h8.7), and IDR 12,940.76 each unit for DNSL holy water place (d32.0-h32,2). The accounting treatment for scrap materials also applies to other ceramic creative products.

The estimated operating profit on the sale of 35 samples of ceramic creative products in 2021 can use two selling price assumptions, namely the original selling price (before the calculation of the scrap material) and the selling price after the calculation of the scrap material. Assumption 1 uses the selling price before calculating the scrap material, then the estimated operating profit before and after taking into account the accounting treatment for scrap materials is IDR 6,285,151.31 and IDR 11,298,189.95 from sales of 6,843 units. This shows that the accounting treatment of scrap materials using the original selling price can increase the operating profit of ceramic creative products by IDR 5,013,038.64. Assumption 2 uses the selling price after calculating the scrap material, so the estimated operating profit before and after taking into account the accounting treatment for scrap materials is IDR 6,285,151.31 and IDR 5,982,697.11 from sales of 6,843 units. This shows that the accounting treatment of scrap materials by using the selling price after the accounting treatment of scrap materials can reduce the operating profit of ceramic creative products by IDR 1,272,112.67. The cost of production, selling price, and operating profit of ceramic creative products in this condition indicate conditions that are not as they should be, because the scrap material in the form of BL-1 body mass arises due to the nature of the order (product) produced, the remaining material is sold, and there is no need for destruction costs, so the consequence is that the sale of scrap materials will reduce the cost of raw materials for creative ceramic products.

Accounting for the remaining body mass of BL-1 is done by debiting Cash IDR 5,258,753.99 and crediting Work in Process-Raw Material Cost IDR 5,258,753.99. Recognition of the proceeds from the sale of these scrap materials will affect the raw materials, cost of production, selling prices, and the estimated operating profit of ceramic creative products. Work in Process-Raw Material Cost credit reduces the use of raw materials for creative ceramic products from IDR 37,826,873.56 to IDR 32,568,119.57, so that the cost of production will decrease by the same amount. The reduced use of raw materials due to the accounting treatment of the sale of the remaining body mass of BL-1 will reduce the cost of production of each product.

*4.2.3 The Role of Accounting in Creating a Clean Environment*

The emergence of scrap material in the form of BL-1 body mass which is often wasted in the ceramic production process causes environmental problems. Scrap materials need space (space), pollute the environment, interfere with work activities, require destruction costs, spoil the view, interfere with health, damage comfort, and other influences. The mass of the BL-1 body as a scrap material for making creative ceramic products which averages 28.00% of each product if not handled properly

can have an impact on the environment, especially the area around where the production site is located. Ceramic MSMEs are spread in every district/city in Bali, including Indonesia. Each district/city and even provincial environment will be disturbed by the emergence of ceramic scrap materials that are not handled properly by ceramic producers. For this reason, it is necessary to properly handle the scrap material produced by each ceramic producer. In this study, the handling of scrap materials is more focused on the environmental accounting side. The easiest way to do this is to remove the scrap material from its place so that it is clean and does not disturb and pollute the surrounding environment. The scrap material of the BL-1 body mass has decreased by standard quality and if you want to use it, it must be reprocessed to produce standard ceramic products with certain processing costs. The scrap material of the BL-1 body mass is still sold at half the standard selling price. This study tries to overcome the presence of scrap material in the BL-1 body mass by selling it immediately at half the standard selling price. The proceeds from the sale are treated as a deduction from the cost of raw materials in an account in the Work in Process-Raw Materials Cost credit. Reducing the cost of raw materials which is one of the elements of production costs automatically reduces the cost of production of ceramic products.

## 5. Conclusion and Suggestion

### *5.1 Conclusion*

Based on the results and discussion, conclusions can be made as follows: (1) The size of the product and the use of materials together (F test) affect the scrap material of ceramic products with a coefficient of determination reaching 99.99%. This shows that the larger the size, the more raw materials will be consumed, of course accompanied by a higher level of difficulty or risk. Partial testing (t test) shows that only the use of materials has a positive and significant effect on the emergence of scrap materials in the process of making ceramic creative products. This shows that the raw materials used are actually attached to the ceramic body. The more raw materials used tend to cause more scrap materials; (2) The concept of management accounting plays a role in treating scrap material of ceramic product. The accounting treatment for the BL-1 body mass was carried out by debiting Cash IDR 5,258,753.99 and crediting Work in Process-Raw Material Cost IDR 5,258,753.99. Work in Process-Raw Material Costs credit reduces the use of raw materials for ceramic creative products from IDR 37,826,873.56 to IDR 32,568,119.57, so that the cost of production will be reduced by the same amount. Recognition of the proceeds from the sale of these scrap materials will affect the raw materials, cost of production, selling prices, and the estimated operating profit of ceramic creative products; (3) The cost of production of three small, medium, and large ceramic products from thirty-five ceramic creative products before and after the accounting treatment of scrap materials are: IDR 12,191.19 and IDR 11,917.95, a decrease of IDR 273.24 each unit for holy water place (d5,8-h7,0), IDR 269,473.97 and IDR 263,440.01 decreased by IDR 6,033.96 each unit for flower vases (d37.0-h8.7), and IDR 876,186.08 and IDR 864,421,75 decreased by IDR 11,764.33 each unit for DNSL holy water place (d32.0-h32,2). This also applies to the cost of production of other ceramic creative products; (4) The selling price of ceramic creative products for the three sizes and the same types of products before and after the accounting treatment of scrap materials are: IDR 13,410,31 and IDR 13,109.75, down by IDR 300.56 each unit for holy water place (d5,8-h7,0), IDR 296,421.37 and IDR 289,784.01 decreased by IDR 6,637.36 each unit for flower vases (d37.0-h8.7), and IDR 963,804.69 and IDR 950,863.93 decreased by IDR 12,940.76 each unit for DNSL holy water place (d32,0-h32,2); (5) The estimated operating profit on the sale of creative ceramic products before and after accounting treatment for scrap materials with the assumptions: a) using the original selling price of IDR 6,285,151.31 and IDR 11,298,189.95 from sales of 6,843 units, thus increasing by IDR 5,013,038.64; and b) using the selling price after the treatment of scrap material is IDR 6,285,151.31 and IDR 5,982,697.11 from sales of 6,843 units, so that it decreases by IDR 1,272,112.67; and (6) The emergence of scrap material from the BL-1 body mass which is often wasted in the ceramic production process causes environmental problems, such as: needing space, polluting the environment, disturbing work activities, requiring destruction costs, spoiling the view, disturbing health, damaging comfort, and affecting the environment. other. Environmental accounting overcomes this by removing the scrap material from its place so that it is clean and does not disturb the surrounding environment. The transfer is done by selling at a price of half the standard price because technically it can still be used even though the quality has decreased. The proceeds from the sale are treated as a deduction from the cost of raw materials in an account in the Work in Process-Raw Materials Cost credit. Reducing the cost of raw materials which is one of the elements of production costs automatically reduces the cost of production of ceramic products.

### *5.2 Suggestion*

Based on the conclusion, it can be suggested as follows: (1) To BTIKK-BRIN, to immediately take into account the emergence of scrap materials in the production of ceramic creative products in accordance with the proper accounting treatment, because it will affect the cost of production, selling price, and income; (2) To ceramic craftsmen or entrepreneurs, in order to increase the efficiency and effectiveness of the production process of ceramic creative products by minimizing the emergence of scrap materials; and (3) To researchers, engineering technicians, engineers, academics, and other parties (continued), to apply the accounting treatment of scrap materials to other relevant ceramic creative products.

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