

# **ECOPRENEURSHIP: PRODUCTION COSTS AND BREAK-EVEN POINT ANALYSIS OF ECOPRENEUR IN SRAGEN, INDONESIA**

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## **ABSTRACT**

*The purpose of this study is to analyze the break-even point and production costs generated by entrepreneurs who run a business employing industrial waste residues. The location of this study is in Sragen Regency, Central Java, Indonesia with samples of 37 respondents. The study carries out the creative economy industry with the type of industrial waste utilization business aims to: 1) find out the average amount of costs incurred for production;(2) calculate total revenue, average revenue, total Profit, and average profit;(3) calculate the income ratio cost;(4) calculate the average break-even point of production and the break-even point of production prices. The results of the study show that: 1) Total cost of production costs is Rp.75,830,000/month. The average production cost of each respondent is Rp.2,049,459/month; 2) Total revenue from the industrial waste business is Rp.187,250,000/month. Average revenue received by each respondent is Rp.5,060,811/month; Total Profit received by the respondents is Rp.111,420,000/month. The average profit received by each respondent is Rp.3,011,351/month; 3) Average cost ratio of each respondent is 3.38 so that the overall business is declared efficient and profitable. (4) Average break-even point of the respondent is based on the production capacity of 149 units/month and average break-even point of the respondent is based on the price of Rp.843,675/month.*

**Keywords:** Production Cost, Break-Even Point, Micro-Entrepreneurs, Recycling.

## **INTRODUCTION**

The Indonesian Government's national stabilization targets in 2014 includes the improvement in the processing industry, international economic cooperation, cooperatives, and Micro Small Medium Enterprises (MSMEs). Based on data from the Statistics Indonesia (2016), MSMEs growth has increased by 2.4% in 2015, the number of MSMEs around 3.67 million MSMEs spread throughout Indonesia.

The upgrading of MSMEs must be improved with creativity and originality. Every entrepreneur has an advantage in business competition. According to Amir et al. (2018) individual factors, environmental factors, and entrepreneurial factors are factors that can improve business performance. MSMEs need creativity and innovation among entrepreneurs who can grow and compete with others in the market. MSMEs and the creative industry are two interconnected things. Most of the creative economy industries are the form of MSME business. Based on data obtained by the Central Bureau of Statistics (2015), creative economy contributed 7.8 percent of Indonesia's GDP during the period of 2010-2013. Based on data obtained in 2013,

the economy increased the added value of GDP by 5.76% with a value of 641.8 trillion Rupiah with a total creative business of 5.4 million and 11.000 million workers.

Based on data obtained from the Statistics Indonesia in 2016, the sector that dominates GRDP in Sragen Regency, Indonesia is the processing industry by 34.48% and wholesale and retail trade by 19.11%. The popular products of this processing industry are things made of wood or textiles. The high production of wood and batik produced by MSMEs provides positive benefits for the development of creative economy, which is part of the processing industry. Sragen Regency Government produces creative industries with basic materials of wood waste and textile products to reduce the impact of environmental pollution from the industrial waste. The results of this study are expected to provide information whether the Ecopreneurship business is feasible to develop.

## METHODOLOGY

The methods used in the study were interviews, observations, and filling out questionnaires. The data used are primary data and secondary data. Sampling was done with a saturated sample system with a total of 37 respondents. Characteristics of respondents are entrepreneurs who live in Sragen regency and have an industrial waste utilization business. Production cost is the cost between fixed costs and variable costs or non-fixed costs.

Production cost can be formulated as follows:

$$TC=FC+VC \quad (1)$$

TC is Total Cost or total cost of production unit (Rp), FC is Fixed Cost or fixed cost of production unit (Rp), and VC is Variable Cost or variable cost of production unit (Rp).

According to Riyanto (2001), the amount of revenue will be obtained from a production process by multiplying the amount of production with the price of the product which is valid at that time. The acceptance formula is as follows:

$$TR=P \times Q \quad (2)$$

TR is Total Revenue or total revenue on product unit costs (Rp), P is Price of Quantity or price per product unit costs (Rp), and Q is Quantity or number of products (Units).

Profits according to Donald E. Kieso et al. (2007) are the increase in business equity arising from all transactions as well as other events and situations affecting the company over a given period. Profit calculations can be calculated using the formula,  $\pi$  is Profit on a business unit (Rp), TR is Total Revenue, and TC is Total Cost:

$$\pi=TR-TC \quad (3)$$

R/C ratio (RCR) is an analytical method to measure business feasibility by using revenue ratio and cost. To know the business efficiency, used a formula as follows:

$$R/C \text{ Ratio}=TR/TC \quad (4)$$

R/C Ratio is Return cost of ratio, TR is Total Revenue or Gross Income (Rp/Process), and TC is Total Cost or production cost (Rp/Process). R/C Ratio consist of assessment criteria  $R/C > 1$  means the business is profitable,  $R/C = 1$  means effort is at the breakeven point, and  $R/C < 1$  means unprofitable business.

Break-even point is the point that if the calculation has been added up the profit and loss over a certain period, the company does not get a profit and, vice versa, does not suffer a loss. Break-even formula according to Keown (2005):

$$\text{BEP production} = \text{FC} / (\text{P} - \text{VC unit}) \text{ and } \text{BEP price} = \text{FC} / 1 - (\text{VC} / \text{TR}) \quad (5)$$

## RESULTS AND DISCUSSION

Sragen is a district in Central Java which is dominated by dry land by 57.48% of the total land. The commodities of Sragen Regency are agriculture, plantation, animal husbandry, manufacturing, and services, while the main commodities of export are textiles and furniture. The amount of furniture and batik industry is one of the causes of the high waste produced by both industries. Utilization of industrial waste is expected to be a creative economic potential and reduce environmental pollution and be able to increase the value of waste into goods that have the power of creativity.

Ecopreneurship can be considered as one of the typologies in the entrepreneurial domain and distinguishes themselves through business practices and values that are highly environmentally responsible (Wichramaratne et al., 2014). The data shows that there are five main types of a creative economy based on waste utilization in Sragen. These 5 businesses have the main materials of industrial waste and the reuse of unused industrial products. The largest number of businesses are entrepreneurs in traditional hair bun (in Indonesian language called "*konde*") business. Production capacity of 374.400 kg is worth 7 billion/year. Based on the data, the biggest investment in the production of buttons made from coconut shells, as much as 374 million rupiahs. In addition to these two materials of the production, the most widely used materials are waste of batik fabrics and woods.

The development of Ecopreneurship in Sragen can be identified through businessmen who become respondents in this research. The number of fulfilled samples in the study consisted of 37 respondents spread in several districts in Sragen. Each respondent represents a business cluster located in the area. Each cluster has a business specification that is different from other clusters. Respondents in this study were men with a percentage of 40.54% (15 respondents), and about 59.46% (22 respondents) were female. The majority of respondents' age in this study were 40-44 years old with a percentage of 24.32% number of 9 respondents. The age of the youngest respondents were in the range of 25-29 years old with a percentage of 8.11% of 3 respondents, while the age of the oldest respondents were in the age range of 55-59 years with a percentage of 5.41% for 2 respondents. The age of respondents is in the range of 30-34 years old were in a percentage of 10.81% of 4 respondents. The age of respondents is in the range of 35-39 years old were in a percentage of 21.62% of 8 respondents. The age of respondents is in the range of 45-49 years old were in a percentage of 13.51% of 5 respondents. The age of respondents is in the range of 50-54 years old were in a percentage of 16.22% of 6 respondents.

The educational background of most respondents in the study was Senior High School (SHS), in the largest number, as much as 51.35% with the number of 19 respondents. Elementary School (ES) graduates got the same proportion as bachelor degree graduate with 2 respondents

each with a percentage of 5.41% each. Junior high school (JHS) amounted to 21.62% with the number of 8 respondents. Diploma amounted to 16.22% with the number of 6 respondents.

Ecopreneurship in Sragen is still new and the embryo can be seen from the length of business that has been executed by the businessmen. The majority of ecopreneurship businesses that run only between 1-3 years are in a percentage of 37.84% with the number of respondents as many as 19 respondents. The longest perpetrator of the ecopreneurship businesses are during 19-21 years as many as 1 respondent with a percentage of 2.70%. Ecopreneurship businesses run in 4-6 years are in a percentage of 13.51% with the number of 5 respondents. Ecopreneurship businesses run in the range of 7-9 years and 10-12 years are in a percentage of 10.81% of 4 respondents, the range of 13-15 years with a percentage of 21.62% of 8 respondents, and the range of 16-18 years with a percentage of 2.7% of 1 respondent.

Based on the results of the study, all ecopreneurs don't have building costs and land rent as a fixed cost that must be paid every month. The majority of entrepreneurs don't have a cost burden on the purchase of production equipment because most of the previous ecopreneurs were entrepreneurs related to similar businesses, such as ecopreneurs with wood waste raw materials having the main business of furniture, ecopreneurs with patchy raw materials having the main business of garment. Therefore, the equipment used has been included in the main fixed costs of production outside of business activities to process waste into handicrafts.

Variable costs in the study include employee wage costs, raw material costs, transportation costs, packaging costs, and another costs. Raw material costs include in variable costs because they include costs that have an uncertain rate of change. With the increasing orders, it will increase raw material costs. The main raw materials are base components that must be used for production processes such as wood waste, sewing/patchwork, eggshells, etc. Additives are materials used as additives in the production process such as foam, zippers, hooks, threads for fabrics; nails, paint, plywood for wood-based waste business. Transportation costs and packaging costs are included in variable costs. Ecopreneurs with relatively high packaging costs are business of used bottle painting and handicrafts with eggshells because the packaging must be extra and cost of accommodation.

<b>Description</b>	<b>Amount (Rupiah)</b>	<b>Additional Description</b>
Highest Revenue	Rp.56,000,000	Traditional hair bun
Lower Revenue	Rp.450,000	Handmade rags
Total Revenue	Rp.187,250,000	
Average Revenue	Rp.5,060,811	

Source: Primary Data.

Based on the Table 1, total acceptance of ecopreneur is Rp.187,250,000, and the average revenue of Rp.5,060,811 with the highest receipt of Rp.56,000,000 which came from the factory revenue with the raw material of hair waste, while the lowest revenue of Rp.450,000 which come from a micro business with the type of business of making a rag mat.

<b>Description</b>	<b>Amount (Rupiah)</b>	<b>Additional Description</b>
Highest Profit	Rp.33,000,00	Traditional hair bun
Lowest Profit	Rp.250,000	Handicraft wallet
Total Profit	Rp.111,420,000	
Average Profit	Rp.3,011,351	

Source: Primary Data.

Average profit of Ecopreneur is Rp.3,011,351. The largest proportion of profits from business in “*konde*” with the profit of Rp.33,000,000/month.

Description	Amount (Rupiah)	Additional Description
Highest R/C Ratio	Rp.6.09	business of used bottle painting
Lowest R/C Ratio	Rp.1.56	Handicraft wallet
Average of R/C Ratio	Rp.3.38	

Source: Primary Data.

The R/C Ratio of the total business in Sragen is feasible to be developed the overall average R/C Ratio for ecopreneurship business in Sragen is 3.38. Based on the acquisition of R/C Ratio, the average of the entire business is feasible to develop.

Based on the observations in the fields and the results of interviews with respondents, the community has realized the importance of using waste. However, this has barriers, that the difficulty of the gaining market share is that it is processed by waste production and form waste into goods that are worth selling. Synergy between the community and the government is needed in developing good and correct waste management. One step taken by Sragen regency government is by making laws related to waste management as a form of commodity that can be utilized. Sragen Regency Regional Regulation Number 3 of 2014 concerning waste management. Production waste is a form of waste that can be used as an economic value item. In line with these regional regulations, productive activities were formed which were carried out with the purpose and purpose of community empowerment in terms of waste management. One of the productive organizations that are joint organizations and business groups in terms of mentoring and socio-economic learning. Learning and mentoring are realized through group discussions, training, and assistance in business activities in terms of increasing creativity and capital. Government support can be an opportunity for green businesses and ecopreneurs. The findings of this study are consistent with previous research (Yeter Demir Uslu & Erol Demira, 2015) regarding the importance of nature and the environment in starting a business.

In addition to innovations that arise from each ecopreneur, the role of training and mentoring from local governments also plays a role in increasing motivation and innovation.

Cooperative and MSMEs service of Central Java's Government and the Tourism service have many programs to increase green business and utilization of industrial waste. in addition to local government regulations regarding the utilization of waste. Solo Raya Tourism Forum (SRTF) program in manufacturing focusing on environmental issues. SRTF was initially engaged in the promotion of joint tourism between districts in Central Java, and was developed into promotion and creative economy tourism. SRTF is a place to develop the creative economy, so that it can be an attraction for both local and foreign tourists.

Eco-friendly entrepreneurship appears as a joint product of the environment and entrepreneurship. It aims to provide positive environmental results when producing goods and services. According to Anderson & Leal (1997), which is the state that improves the environmental conditions and preserving natural life has a direct relationship between eco-friendly entrepreneurship and green entrepreneurship. The reality of the socio-economic behavior of people who are not confident in starting an ecopreneurship business is that it can spur community innovation and creativity in creating unique and economically valuable products.

## CONCLUSION

Development of MSMEs in Indonesia experienced a fairly significant growth. The use of local raw materials for production is one of the positive sides for the development of MSMEs. The use of locally produced materials can reduce costs arising from the purchase of imported materials. Ecopreneur utilizes cheap and even free local raw materials to create new products that are efficient and can make money.

Based on the results of the analysis, stated that production activities by utilizing waste materials in Sragen Regency, Central Java, Indonesia are feasible and profitable to develop. Additional production capacity can be an alternative for Ecopreneur to increase profits. The addition of production capacity supported by adequate experience and training can be an added value for entrepreneurs to face competition with other products. The government can act as a facilitator and pro-environment policy maker so that ecopreneurship activities can develop. Monitoring and evaluation by both ecopreneurs and government need to be done to measure how successful the entrepreneurship program is for entrepreneurship competency for MSMEs.

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