



## SME's EMPOWERMENT THROUGH INDEPENDENT FISH FEEDING DEVELOPMENT IN PLALANGAN VILLAGE SEMARANG

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### *Abstract*

The COVID-19 pandemic gives an impression to the Small and Medium Enterprises (SMEs) in Semarang City. 1538 SMEs experienced losses of up to 75% and even went bankrupt. It is caused by changes in purchasing priorities from the market, so SMEs must be able to think innovatively to maintain their business. Innovation will be attached to SME products that guarantee business survival. One of them is a catfish nugget product from Atmajaya Pond. Atmajaya Pond is an SME community service program partner that can sell as many as 280 packs monthly, producing 70 kg of fish for nuggets. This figure is relatively high for a home-scale business. The raw material for nuggets is obtained from cultivation through aquaculture, which occupies a limited area beside the house. The products were distributed in Semarang and surrounding areas. Currently, the high-cost burden in the production process is feeding, so making fish feed yourself is a strategic activity to reduce production costs. SME partner now has three root problems: (1) Fails in developing fish feed products because it cannot float. (2) The products need to be more competitive because they are still modest and less eye-catching, and the packaging is not represented as iconic. (3) Processed products owned by partners cannot last long. Thus, the direction of this program will build solutions that solve these problems, such as improving fish feed production, recreating the packaging design, and adding new processed fish products. This strategic program impacts increasing skill by 89.58%, increasing knowledge by 95.83%, and strengthening production by 20%.

**Keywords:** iconic products, production, packaging, strengthening, processed fish.

### INTRODUCTION

Small and medium enterprises (SMEs) have a significant role in contributing to the Gross Domestic Product in every country, such as Indonesia (Bamford, 2010), which accounts for 59% (Kusnindar, 2018). Besides, SMEs are also one of the sectors that contribute significantly to Indonesia's economic growth because the absorption of SMEs to labor (Darwansah, 2010; Sripoku, 2010) is relatively high, about 97% (Isa & Cahyaningsih, 2021). It shows that SMEs are the dominant business unit in Indonesia, especially in the city of Semarang (Kuncoro & Solichin, 2013). According to the Head of the Semarang City Cooperatives and SMEs Service, the growth of SMEs is rapid, with an increasing number of 2,000 SMEs per annum in Semarang City (Arifin, 2018). In 2020, the number of SMEs in Semarang City reached 17,567 (Semarang, 2020).

Atmajaya Pond is one of the SMEs in Semarang city, the pioneer of fish-based food innovation. In the community service program, Atmajaya Pond has a role in these community service activities, such as accommodation support and measuring the success of improving fish feed production. The Atmajaya Pond Business focuses on aquaculture cultivation which utilizes unused yard space to support the productivity of processed fish food products, such as fish floss, soft bone milkfish, and fish nuggets. These products support the iconic ecotourism product enrichment program in Semarang. Atmajaya Pond continues to develop its business through products such as fish feed. SMEs have several problems that must be resolved appropriately, especially regarding fish feed

production, packaging, and saturated products.



Figure 1: The problem of fish feed that can't float



Figure 2: Perishable foods

The first problem is the fish feed production that needs to be up to standard. It is crucial to consider that implementing an independent fish feed program initiated by partners can reduce production costs, increasing SME partners' profits (djpb1, 2019). The fact is that currently, partner fish feed products cannot float on the surface of the water. This condition indicates that the product has not met market needs. Fish feed that doesn't float creates a residue that clouds pond water.

The second problem is product packaging which is still simple. Currently, SMEs need representative packaging to encourage brand image strengthening. The product is packed with plastic, and more information about the product needs to be provided. The last problem is that partner SME products such as fish floss, soft bone milkfish, and fish nuggets are starting to enter a saturation period in the product life cycle (LFC), even though these dominate partners' income for business sustainability.

This community service activity aims to strengthen SMEs in improving fish feed production, which inspires business venture establishment, packaging improvements, and new product creation that represent contemporary fish-based food. Partner SMEs can help develop the resilience of the micro industry by enriching the variety of contemporary food in Semarang city so that partner SMEs have the potential to develop.

## METHOD AND PROCEDURES

The solutions offered to partner SMEs are aspects built on the need for problems that arise. The solution will include developing the entrepreneurial factor to increase partner SME productivity.

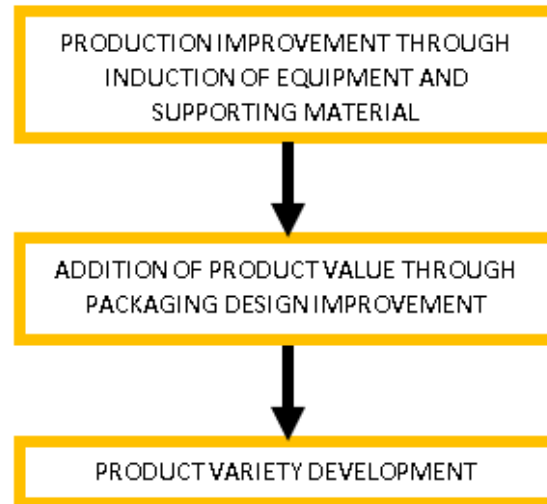


Figure 3: Implementation Method

The method applied to community service is oriented towards improving production, packaging, and developing product variants to strengthen the iconic product of the Plalangan village. After these steps were taken, the success rate of the activity was measured using a questionnaire distributed to the participants. The following indicators are used as measurement material:

Table 1: Questionnaire indicators

No	Indicator
1	This service program activity increases knowledge
2	The material provided is easy to understand
3	This training is useful
4	This program overcomes today's business challenges
5	This knowledge induction can be put into practice

Indicators on the questionnaire are assessed on a Likert scale of 1(Strongly disagree )-6 (Strongly agree) (Joshi et al., 2015). Data from questionnaires were collected and analyzed descriptively with index values. The index value results are used to describe the perception of service participants. The index value is 100 and grouped by the three-box or (three-box-method) criteria (Ferdinand, 2006). The ranges obtained in this method are:

Range 1	16,67%-44,44%	Low
Range 2	44,45%-72,23%	Medium
Range 3	72,24%-100%	High

The resulting percentage determines the activity's success level based on the above range.

## RESULTS

The discussion of the implementation of community service at Atmajaya Pond is as follows:

### a. Improvement of Fish Feed Production

The first problem is that fish feed products that cannot float will create dirt residue, which causes the water in aquaculture to become cloudy quickly. Fish feed that doesn't float makes it difficult to ensure that the fish eat all the feed given. Sinking fish feed will speed up the water in aquaculture to become dirty. It can be an obstacle to fish development because the water's oxygen level becomes low (Romansyah, 2016). It is necessary to improve feed production, from selecting ingredients and ensuring nutritional content to a good production process. The indication that will be achieved is that fish feed can float for some time and sink. Floatability uses an oven approach to reduce the moisture content and achieve adequate drying. Knowledge induction from the service team will be attached to the need for tools to make good fish feed, such as feed molding machines, ovens, chopping knives, stoves, gas cylinders, pans, and boilers. In addition, other prepared ingredients, such as trash fish and bran, as shown in Figure 4. (Inayah et al., 2022).



Figure 4: Fish Feed Production Equipment

The key to this production is the drying rate. A reasonable drying rate ensures that essential nutrients are not wasted and the feed floats on the water's surface. The lighter feed period will cause the product to float. The use of tapioca flour to attach the feed dough particles cohesively so that the feed retains its shape but with a light mass. Below are the steps in making fish feed:





Figure 5: Fish Feed Production

Production of fish feed departs from fish crushing (1a). The crushed fish is then boiled to a temperature of 100 degrees Celsius (1b) and mixed with rice bran (1c). 15kg of tapioca flour mixed with 1 liter of water and heated until thickened (1d). Papaya leaves are boiled for 3 minutes (1e). All ingredients processed in 1a, 1b, 1c, and 1d are mixed into a non-sticky dough (2). The dough formed is then put in a jar to be fermented for two weeks (3). The finished dough is fed into the feed molding machine (4). The fish feed granules from the printing machine are then baked in the oven to reduce the water content (5). Fish feed tested on aquaculture.

#### b. Packaging Design Improvements

The service team creates attractive product packaging designs to increase aesthetic value to increase the product selling value. The existing packaging is an aesthetic medium to place the previously produced fish feed products. It provides strengthens the brand image. This packaging design aims to induce knowledge about examples of packaging designs discussed with partner SMEs. It is intended to partner with SMEs who can independently

make better packaging for other products to strengthen local iconic products and be more representative. The following is figure 6, which explains the packaging design of partner products:



Figure 6: Fish Feed Product Packaging

The packaging design includes the shape of a bottle, with two size variants: 100 grams and 125 grams. Stickers are adjusted to the logo, positioning tag, and product information (fish feed) and are complete with the ingredients used in the product.

c. Adding new product variants from fish (*Baso Ikan Goreng/Basreng*)

It solves partner SME problems regarding saturate products in the fish nugget product life cycle (PLC). It needs to create product redesigns and new products for other processed fish food as a form of horizontal diversification. The implementation partners are given knowledge induction from various contemporary foods with viral potential. one of its applications is that partners are trained to make processed fish products in the form of basreng. Other completeness needs in this community service are also carried out in packaging designs for new product variants being developed. The following is figure 7, induction of knowledge through training in making contemporary food for partner SMEs that has the potential to go viral.



Figure 7: Training on Making Processed Fish Products (Fried Fish Balls)



Figure 8: Processed Fish Product Packaging (Baso Ikan Goreng)

The practice of making fish basreng is the solution to the third problem in community service. Then to measure the activity's success, the service team gave questionnaires to the training participants. Based on the measurement results, it is found that success indicators of community service activities are as follows:

a. Knowledge enhancement

The community service increased the knowledge of participants. This fact is in line with the indicator value of 95.83% in the measurement "This training adds to my knowledge" through the three-box method, which means that the success rate for this indicator is high.

b. Ease of delivering material

The second indicator measurement, "The material provided is easy to understand," gets a percentage result of 89.58%. Based on the three-box method, it is included in the range with a high success rate. Participants can easily understand the explanation of the material provided. It means that the material given to the participants has used an effective presentation method.

c. Benefit Value

The community service activities have beneficial value for participants in product diversification training. This success can be concluded with the high percentage of indicators accounting for 100%, with the indicator "This training is useful for me," The participants feel that they are benefiting from the training.

d. Overcome today's business challenges.

Training in community service activities provides ideas for new product development. So, they can answer current business challenges such as saturated products in the market. This success indicator is measured by "This program answers current business challenges" and obtained a result of 89.58%, which means that the participants felt they had a solution to survive and achieve business sustainability.

e. Skill upgrade

The training successfully increased participants' skills that reinforced human capital. It is revealed by the high score accounting for 89.58% of the indicator entitled "This knowledge

induction can be put into practice," It means that participants have ideas for planning in the future.

f. Brand image strengthening

Brand image can be strengthened through improved product packaging designs. This training provides directions for participants regarding how to add product value through the aesthetic side of the packaging. Trendy and informative packaging can attract consumers and expand the market.

g. Increased production capacity

The use of support equipment accelerates the production process by up to 20%. At first, the production is done manually. Then it switches to machines for larger quantities in a shorter time.

## CONCLUSION

This community service program is carried out to be able to develop better business continuity in the future and increase public interest in the field of entrepreneurship by emphasizing the production aspect; conclusions can be drawn with the implementation of the program:

- a. Improvement of fish quality production at Atmajaya Pond was developed by manufacturing floating fish feed. This community service reinforces independent fish feed development, which is also ready for commercialization. Besides, the community service provides training on product packaging design.
- b. The extensification of business capacity through production equipment: stoves, gas cylinders, ovens, baking sheets, cookers, knives, and production materials. Improvements in production encourage the strengthening of business capacity by 20%.
- c. The development of contemporary food product variants has become a complementary variant of the iconic fish nugget, the flagship product in the Plalangan village.
- d. The community service is successfully conducted with high success indicators based on the three-box method: knowledge enhancement, ease of delivering material, benefit value, overcoming today's business challenges, skills upgrade, brand image strengthening, and increased production capacity of partner SMEs.

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