

## Increasing productivity and marketing of bamboo craftsmen

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**Abstract.** This service program is carried out in the context of lifting regional superior products, namely bamboo crafts from the villages of Brajan, Sendangagung, Minggir, Sleman. The main objectives of the research are improving the quality and quantity of products, increasing the level of comfort of facilities/facilities owned (production space, administration space and showroom), increasing marketing networks of partner small and medium enterprise (SME) products for the national level, and improving the function and role of cooperatives in the partner region. The method used is to formulate and carry out several activities that are solutions to problems faced by partners. The activity consists of two main activities, namely technology assistance in the form of production equipment (appropriate technology), construction of a showroom, website creation and enhancement of partners' capabilities by providing various training and mentoring. Technology equipment seconded to partners is drilling machines, sandpaper machines and drying ovens. While the training carried out was training in colouring and preserving bamboo products, training on the use of internet media as a marketing medium, administrative and bookkeeping training, and cooperative training. The results achieved were SME Prinx Mas production capacity increased 12.5%, revenue turnover increased 9.5%, assets increased 5.6%, and the addition of a workforce of 1 person in the production department. In addition, SME Pring Gedhe revenue turnover increased by 5% and assets increased by 7.8%.

### 1. Introduction

The obligation of a lecturer is not only to teach and research, but also carry out community service [1]. One of the superior handicraft products from Yogyakarta Special Region (DIY) is bamboo handicraft products. Bamboo crafts can be found in all regencies in the DIY region, including in Sleman regency. One of them is a bamboo handicraft centre, which is located in Brajan village, Sendangagung, Minggir, Sleman. In the village of Brajan as a large population earn a living as bamboo crafters. Initially, the type of craft produced was not much, only in the form of baskets and ceting or a place of rice. But over time the development of bamboo crafts has developed to date has produced more than 110 types of bamboo crafts. The quality of woven crafts is largely determined by the quality of raw materials, in the form of main materials and supplementary materials [2]. To make useful household appliances, bamboo needs to be processed first in order to obtain good, attractive, strong and durable results [3].



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Some of the parties who are partners in this dedication activity are the Cooperative Multipurpose Cooperative (CMC) Bambu Sejahtera Craftsman (Partner I), small and medium enterprise (SME) "Prinx Mas" (Partner II), and SME "Pring Gedhe" (Partner III). The three partners are in one area of the villages of Brajan, Sendangagung, Minggir, Sleman. Brajan SME products are very popular with many tourists both local and foreign because they have the advantage of high quality and art (high quality). The superiority of Brajan bamboo handicraft products is that it is always new and always follows the market trend. The product always follows the market and so it will confirm the new direction [4].

Partners II and III are SME craftsmen "Prinx Mas" and "Pring Gedhe". The raw materials used by these two SME are apus bamboo, petung bamboo, wulung bamboo, ampel bamboo and cendani bamboo. Bamboo raw materials can be obtained easily by partners from Sleman and surrounding areas. The quality of bamboo from this region is very good because the area is quite cool and the soil is sandy so it is very good for the growth of bamboo plants [5]. The availability of these raw materials has not been an obstacle for partners, because almost all people in Minggir Subdistrict have bamboo plants in their yard. As an alternative source, bamboo can be obtained from other regions such as the Bantul and Kulon Progo regions.

Production equipment owned by partners II and III is still very simple, consisting of equipment that is still manual. Partner II has an average production capacity of 800 units/ month. Mitra III has an average capacity of 500 units/ month. Because the equipment is still simple, the production capacity of the two partners is not maximal. The production processes run by partners II and III are almost the same, for the drying process of handicraft products is carried out manually by utilizing sunlight, so that during the rainy season the drying process becomes constrained which results in delayed production time and the products produced quickly mouldy because the dryness level is less than the maximum.

The products produced by these two SMEs include various lampshades, various tissue boxes, newspaper boxes, multipurpose boxes, bags, sandals, hats, rice containers, and various souvenirs. Besides providing self-designed products, the three SMEs also serve the demand for products in accordance with the designs of consumers. Mitra II is capable of producing an average of up to 800 units/ month, with a turnover of Rp 240,000,000 / year. Mitra III is capable of producing an average of up to 500 units/ month, with a turnover of Rp 192,000,000 / year. Potential markets include Jogja, Magelang, Semarang, Solo, Purwokerto, Bandung, Jakarta, Bali, Sumatra and Kalimantan.

Bookkeeping is still very simple, only covering the components of purchasing materials, employee salaries, and income from sales. Therefore it is necessary to reform the administration and bookkeeping system. The marketing techniques pursued by the two SMEs include exhibitions, word of mouth information, taken by middlemen, displayed in the showroom and through the Sleman Regency website. Both SMEs really need marketing capabilities through the internet, so that the marketing network can be expanded.

There are not many direct human resource (HR) working at partner SMEs. Partner II has 5 people HR and partner III has 4 people HR. Nevertheless, these two SMEs also involve almost all Brajan villagers as freelance workers. This system is considered mutually beneficial between the two so that the existence of these two SMEs is very instrumental in empowering the Brajan village community. Based on an analysis of the needs of each partner and the agreement between the service team and the three partners, the priority issues to be addressed this year are as follows:

#### *1.1. Problems of the Prosperous Bamboo Crafters cooperative*

- Office furniture needs to be equipped.
- Need further understanding related to cooperative legal entities
- Do not have the ability to make drafting contracts.

#### *1.2. Problems related to production technology and product quality*

- Most of the equipment that is owned is still manual, so it needs to procure several types of machinery and supporting equipment.

- The product drying process is still dependent on sunlight, so it is very constrained when the rainy season arrives.
- Need to understand safe colouring and preservation methods.

### 1.3. Problems related to management and HR:

- Administration and bookkeeping are still very simple.

### 1.4. Problems related to partner facilities

- The production room is not organized so it needs to be reorganized.
- Administrative and administrative room and showroom are needed.

### 1.5. Problems related to the marketing efforts of partners

- The ability to use the internet as a marketing medium is still lacking.

## 2. Method

Based on the problems that have been determined to be resolved, then the details of the service activities that have been carried out with partners can be seen in table 1.

**Table 1.** List of activities that have been carried out

| Partner | Activities  |
|---------|---|
| I       | <ol style="list-style-type: none"> <li>1. Procurement of office furniture</li> <li>2. Counselling of cooperative legal entities</li> <li>3. Training on drafting contract preparation</li> </ol>  |
| II      | <ol style="list-style-type: none"> <li>1. Making oven dryer for bamboo handicraft products</li> <li>2. Procurement of several production equipment</li> <li>3. Arrangement of production space</li> <li>4. Training in colouring methods</li> <li>5. Training of preservation methods</li> <li>6. Website Creation</li> <li>7. Administration and bookkeeping training</li> </ol> |
| III     | <ol style="list-style-type: none"> <li>1. Construction of administration rooms and showrooms</li> <li>2. Procurement of showroom furniture</li> <li>3. Website Creation</li> <li>4. Making video publications</li> <li>5. Making brochures and catalogues</li> <li>6. Internet training</li> <li>7. Administration and bookkeeping training</li> </ol>                            |

The method of implementation that was applied can be explained as follows:

### 2.1. Training and assistance

Training and mentoring methods are used for knowledge transfer activities to partners. This activity is carried out using lecture, discussion, simulation and direct practice methods so that the material delivered will be more easily understood by partners. The steps/work procedures for conducting training and assistance, as follows:

- Formulate relevant training material
- Create training schedules with partners
- Prepare training tools and materials
- Division of Instructor tasks
- Implementation of training
- Carry out evaluation

### 2.2. Procurement of machinery and other equipment

This procurement method is pursued by buying machines that are already on the market and ordering/printing some of the equipment needed. Some of the machinery and equipment are drilling machines, dynamos / electric motors and oven supporting equipment, as well as other tools needed as a cooperative office, production room, administration room and showroom while the completeness that must be ordered/printed are brochures and product catalogues.

### 2.3. Manufacture of machinery and equipment

This method is used for manufacturing machinery and equipment that require certain specifications in accordance with the conditions and needs of partners. Some of this equipment is sandpaper machines and drying ovens. The steps/work procedures in the process of making machinery and equipment are:

- Need analysis (function and capacity)
- Make a working picture of the machine
- Make a work schedule
- Prepare materials for manufacturing machines
- Making machine parts
- Assemble engine parts
- Test and perfect the machine
- Measuring machine performance in terms of ease, safety and speed of the production process according to function.

## 3. Result and Discussion

Based on the problems that are prioritized to be overcome, the activities that have been carried out and the results that have been obtained are as follows:

**Table 2.** Activities and results achieved

| Partner | Activities  | Results   |
|---------|---|---|
| I       | 1. Procurement of office furniture                    | Cooperative office furniture                          |
|         | 2. Counselling of cooperative legal entities          | Cooperative Legal Entity Knowledge                    |
|         | 3. Training on drafting contract preparation          | Ability to draft drafting contracts                   |
| II      | 1. Making oven dryer for bamboo handicraft products   | 1 unit of product dryer oven                          |
|         | 2. Procurement of several production equipments       | 1 unit of drilling machine, 1 unit of sanding machine |
|         | 3. Arrangement of production space                    | Production space is more organized & systematic       |
|         | 4. Training in colouring methods                      | Colouring ability                                     |
|         | 5. Training of preservation methods                   | Preservation ability                                  |
|         | 6. Website Creation                                   | The website   |
|         | 7. Administration & bookkeeping training              | Administration & bookkeeping system                   |
| III     | 1. Construction of administration rooms and showrooms | Building administration & showroom                    |
|         | 2. Procurement of showroom furniture                  | Showroom furniture                                    |
|         | 3. Website Creation                                   | Website   |
|         | 4. Making video publications                          | The ability to use the internet                       |
|         | 5. Making brochures and catalogues                    | A marketing brochure and product catalogue            |
|         | 6. Internet training                                  | The ability to use the internet as a marketing medium |
|         | 7. Administration & bookkeeping training              | Administration & bookkeeping system                   |

Based on the results of the activities that have been achieved as mentioned above, the partners have also experienced developments in several ways. Developments experienced by partners, as follows:

### *3.1 Prinx Mas SME*

For these SMEs, the focus of activities is more on efforts to solve the problem of increasing production capacity. The effort is realized by providing assistance in some production equipment that is really needed by partners. The equipment consists of 1 unit of product drying oven, 1 unit of drilling machine, 1 unit of sanding machine and a tool to grip the work piece (vice).

#### *3.1.1 Oven dryer products*

The transferred oven was designed and made in the machining workshop of the Department of Mechanical Engineering Education, Yogyakarta State University, involving technicians and 3 students. For students, this work becomes their final project which is very helpful in their graduation process. This tool has a size of 120 x 60 x 200 cm and is designed using a frame material of rectangular pipes and walls of eyser plate with a thickness of 1.8 mm. This tool uses LPG fuel gas so that the problem of air pollution/pollution can be avoided, and using a stove 1 stove.

On the entire inside of the oven wall, coated with heat-resistant foam so that the heat flowed into the oven chamber will not spread to the oven wall. This causes the heat inside the oven chamber to be very efficient and maximal. Automatically achieving the ideal temperature for drying bamboo products can be achieved in a relatively short time. The average temperature used to dry bamboo products is around 40-500C. From observations that have been carried out, for one time the process of oven bamboo craft products with a temperature range between 40-500C obtained an ideal dry product within 3-4 hours. However, if drying is done manually in the hot sun must be dried for at least 2 days. In addition to LPG gas consumption for the drying process, for 1 tube of 3 kg can be used for curing up to 8 times (assuming each covenant takes an average of 4 hours).

The current price of a 3 kg gas cylinder is Rp 36,000 so that this will not burden the financing. This tool because of its relatively small size, it is not equipped with a blower to drive hot steam, because it is feared that hot steam will disappear faster when blown using a blower. Based on this, it is clear that the reason for using this oven is a matter of time efficiency. Especially when the rainy season comes, the existence of this tool is needed, because, for products that are not optimal the level of drought, the product will be easy to mould.

#### *3.1.2 Drilling Machines*

In accordance with the needs of partners, the drilling machine that is transferred to partners has a maximum diameter of a drill bit of 13 mm. With the addition of this drilling machine, the process of making holes in bamboo handicraft products can be done quickly. This machine uses a drive motor that has ½ PK power with a rotation of 1400 rpm. So that the use of this drilling machine, will not burden partners, especially in financing the electricity used.

#### *3.1.3 Sanding Machine*

Sandpaper construction is made simple, with the aim that it is easy to operate and easy in the maintenance process. Globally, this engine consists of a motor drive, shaft holder and sandpaper holder. In accordance with the needs of partners, the sanding machine is designed using an electric dynamo drive motor with a power capacity of ½ PK and with a rotation of 1400 rpm. So that the use of this sanding machine is able to increase partner productivity without burdening production costs, especially related to electric power costs.

#### *3.1.4 Vise*

A vise is a gripping tool or clamp of a work piece. Especially for partners, this tool can be used to grip the bamboo to be cut using a saw. So that with this grip tool will facilitate the process of cutting

bamboo. And by itself will be able to improve the quality of neatness of the results of cutting and ultimately be able to increase partner productivity.

From the production equipment transfer activities that have been carried out, then the development of partner productivity is observed. After going through the observation of the development of its special partners for Prinx Mas SME until the middle of October 2018, the following data were obtained:

- Production capacity increased by 12.5% (from 800 to 900 units / month)
- Turnover increased 9.5% (from 20M to 21.9M / Month)
- Assets increased by 5.6% (from 625 million to 660 million)
- Increasing the workforce of 1 person in the production department

### 3.2 Prinx Gedhe SME)

The activities for Prinx Gede SME are focused on marketing efforts. The activity consisted of building a showroom, making a display rack, making a brochure and product catalogue, making a SME website, and making a video of the production process. In accordance with the characteristics of handicraft products produced in the form of bamboo handicraft products, the main material used to build a showroom is to use the main raw material of bamboo, namely from petung bamboo. The showroom that has been built has a size of 6 x 6 m. Besides that, craft product display racks are also made to complement the showroom equipment, a total of 6 units.

Then to complete the marketing business especially as showroom equipment, marketing brochures and product catalogues are also made. Brochures were printed in 5 reams, while catalogs were printed in 50 copies. Then to support the marketing efforts, a SME website was created. The website address for Prinx Gedhe is [pringedhe.com](http://pringedhe.com). This is done in order to carry out online product marketing efforts. Online product marketing business is a necessity, which has now entered the all-round online world. With online marketing, the products offered can be seen by all citizens in the world. Online marketing is very possible between prospective customers and sellers, in this case, craftsmen to be able to relate and communicate directly. So that with the hope that profits can be obtained optimally by the craftsmen. Then besides as a marketing effort but also as a media publication, then in this activity also made a video production process that is uploaded to the website that has been created and also uploaded to [youtube.com](http://youtube.com).

From the activities that have been carried out, particularly in supporting the marketing process, it can be observed the development of partners related to the turnover obtained, namely:

- Turnover increased by 5% (from 16 million to 16.8 million / month)
- Assets increased by 7.8% (from 575 million to 620 million)

## 4. Conclusion

Based on the activities that have been carried out and the results that have been achieved, a number of conclusions can be drawn, as follows:

### 4.1. The developments experienced by Prinx Mas SME are:

- Production capacity increased by 12.5% (from 800 to 900 units / month)
- Turnover increased 9.5% (from 20M to 21.9M / Month)
- Assets increased by 5.6% (from 625 million to 660 million)
- Increasing the workforce of 1 person in the production department

### 4.2. The development experienced by Prinx Gedhe Smal Medium Enterprises are:

- Turnover increased by 5% (from 16 million to 16.8 million / month)
- Assets increased by 7.8% (from 575 million to 620 million)

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