



Implementation of Spinning Machine Technology for Purun Rope and Business Management Development for the "Nasti Purun" Weaving Group in Serdang Bedagai

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ABSTRACT

Community Service Activities for the Purun Weaving Group aim to enhance the quality of products and marketing for the "Nasti Purun" Purun Weaving Group in the Cinta Air Village, Perbaungan District, Serdang Bedagai Regency, as well as support the government's enterprise development program. Several production technologies within the "Nasti Purun" Purun Weaving Group in Serdang Bedagai are currently conducted manually, particularly the process of making Purun rope bags. The spinning of Purun rope still involves the use of hands and feet, causing discomfort, fatigue, and even injury to the workers' hands and feet. The "Nasti Purun" Purun Weaving Group in Serdang Bedagai is in dire need of a Purun rope spinning machine. The specific objective of this activity is the acquisition of a Purun rope spinning machine and providing appropriate marketing methods along with basic accounting. The implementation method is carried out comprehensively, beginning with the application of Purun rope spinning technology and proper business management development, expanding the market area using online marketing (digital marketing) as an effort towards achieving one of the SDGs objectives, Decent Work and Economic Growth. This aims to enhance inclusive and sustainable economic growth, as well as decent work for all. These activities can have a positive impact not only on the target community but also on the university.

Keyword: Purun Weaving, Spinning Machine, Digital Marketing, Basic Accounting

1. Introduction

Indonesia is a country rich in cultural diversity. One of the diverse cultural aspects it holds is the art of crafts. Each region has its distinctive characteristics in crafts, with specific rules, motifs, and colors symbolizing particular meanings from that area [1]. Crafts are also closely associated with the potential natural resources of a region. Crafts that carry regional characteristics and potential, like those produced by the 'Nasti Purun' Weaving Group in Cinta Air Village, Perbaungan Sub-District, Serdang Bedagai Regency, include items such as bags and baskets.

The 'Nasti Purun' Weaving Group in Cinta Air Village, Perbaungan Sub-District, is a community-based enterprise in Cinta Air Village, one of the 24 villages in the Perbaungan sub-district, Serdang Bedagai Regency. Bulrush, a type of wild plant, is commonly found in tidal swamp areas with acidic sulfate soil. This grass-like plant has short rhizomes with long, flat-ended stolons, ranging from brownish to blackish in color. The erect stem, unbranched, is glossy greenish-grey, measuring 50–200 cm in length and 2–8 mm thick. Bulrush leaves are where field mice nest, causing losses for farmers [2]. In Cinta Air Village, there's a creative business group known as the 'Nasti Purun' Weaving Group in Serdang Bedagai, consisting of 20 members. This group utilizes bulrush leaves, an adversary of farmers, by creatively processing them into high-value economic products such

as bags and baskets. These products contribute to improving the economy and welfare of the Cinta Air Village community in the Perbaungan Sub-District, Serdang Bedagai Regency.

Crafting items from bulrush leaves is a side job performed during leisure time. The initially crafted items were limited for personal use and not for sale. Hence, the quantity was restricted because there was no effort to increase production or expand product marketing. The primary material used in the 'Nasti Purun' Weaving Group's crafting is bulrush leaves, with no additional materials used, resulting in pure bulrush leaf products. Dyeing techniques have not been employed, rendering the produced items less appealing. In producing several units of woven bulrush bags, particularly in the process of making the bag straps, a considerable amount of time is required. This poses a challenge when the demand for woven bulrush products increases. For each unit, the process of making the bag straps involves manually twisting the bulrush stems using hands and feet, taking 20 (twenty) minutes per bag strap unit. Consequently, only 15 (fifteen) units of bag straps can be produced daily, taking a total of 300 minutes (5 hours) to create 15 (fifteen) bulrush bag straps. This impedes achieving the expected quality and quantity of products. Additionally, the manual twisting process of the bulrush stems leads to workers' hands and feet becoming sore, stiff, and often injured.

Furthermore, the 'Nasti Purun' Weaving Group in Serdang Bedagai does not possess effective business management, particularly in marketing management. Entrepreneurs still employ direct face-to-face marketing methods and lack of basic accounting. Consequently, their business stagnates and remains unable to elevate to an upgraded Micro, Small, and Medium Enterprise (UMKM).

Considering the complexity of the challenges faced by the 'Nasti Purun' Weaving Group and the limitations of the community service implementation team, priority is needed to address specific issues through this community service initiative. Based on the conducted needs analysis, the prioritized issues to be addressed through this community service initiative are implementing appropriate technology in the bulrush twining process using a bulrush twining machine. Additionally, it involves applying business management and basic accounting methods and adopting online marketing strategies (digital marketing) to expand the market area, leading to increased business turnover.

2. Implementation Method

The implementation of the community service program takes place in Cinta Air Village, Hamlet II, Cinta Air, Perbaungan Sub-district, Serdang Bedagai Regency, focusing on the target audience being the "Nasti Purun Weaving Group". This service initiative is executed from May to November 2023.

The method applied in this community service program involves several stages structured within a framework, as follows:

2.1. Preliminary Survey

The community service program starts with a preliminary survey. The initial survey results and interviews conducted with the residents of Cinta Air Village, Perbaungan Sub-district, revealed that the 'Nasti Purun' Weaving Group in Serdang Bedagai creates craft products from bulrush material using simple tools and lacks product variations besides bags and baskets.



Figure 1. Manual Bulrush String Spinning Process



Figure 2. Variety of Bag and Basket Products

2.2. Technology Needs Identification

The initial step in the technological approach is the identification of technological needs among artisans/partners [3]. The outcomes of this technological needs identification are focused on improving production techniques through the design and procurement of machines, tools, additional materials, and accessories. This identification is expected to boost the artisans' interest and motivation to enhance the quality of crafted products.

2.3. Procurement of Materials, Equipment, and Machinery for Production Activities

The acquisition of a Purun Rope Spinning Machine is aimed at streamlining the process of twining ropes from the Purun stem.

2.4. Development of Basic Accounting and Digital Marketing Management

This training is intended for 20 members of the "Nasti Purun" Weaving Group in Serdang Berdagai. The training material covers the usage techniques of the Purun leaf artisans' machinery in accordance with their needs. Additionally, it involves training in business management development such as basic accounting and digital marketing (online marketing).

2.5. Partner Participation

The "Nasti Purun" Weaving Group from Cinta Air Village, Dusun II, Cinta Air, Perbaungan Sub-district, Serdang Berdagai Regency contributes by preparing the community service site, the production venue used for appropriate technology application, the business management training location, and arranging the training participants comprising 20 members of the "Nasti Purun" Weaving Group.

2.6. Program Implementation Evaluation

The evaluation is conducted on the enhancement of the Purun leaf crafting quality and the skills of the "Nasti Purun" Weaving Group members in using tools/machines and implementing marketing management. Evaluation materials are gathered by conducting field observations and measurements, collecting opinions, feedback, and suggestions from partners [4].

2.7. Report Writing

The report of the community service aims to be accountable for the service provided to the community. The report comprises the outcomes of the community service, such as scientific articles, media publications, and other outputs.

3. Results and Discussion

Information regarding the challenges faced by the Purun leaf crafting group "Nasti Purun" needs prompt resolution as part of the Purun Crafters' Group development solution. The proposing team, as part of the academic community, is committed to helping provide solutions to the issues faced by the "Nasti Purun" Weaving Group. The team offers a solution to the ongoing issues experienced by the "Nasti Purun" Weaving Group through the utilization of appropriate technology. This primarily involves the application of appropriate technology in the Purun craft production process, thus allowing for the creation of high-quality and diverse

products through the design and acquisition of a Purun rope spinning machine, an automated machine used to twine Purun stems into ropes.



Figure 3. Spinning Wheel

Manual process of spinning the Purun rope used to cause discomfort, pain, and even injuries to the hands and feet. With the assistance of this spinning machine, the resulting product will be neater and the spinning process will be more effective, without causing discomfort, pain, or injuries to the hands and feet. Additionally, the spinning process of the Purun rope will be shorter. The dimensions of this spinning machine are 600 mm x 500 mm x 400 mm, made of angle iron and steel, and operated by a dynamo/motor. The benefits obtained from acquiring this spinning machine are simplifying and speeding up the creation of Purun bags by using this machine to spin the Purun stems into ropes. This increases productivity and improves the quality of the crafted products, leading to a more varied production.



Figure 4. Transfer Equipment and Equipment Trial

Marketing is a critical factor. The problem faced by the partners is the inability to penetrate a larger market besides local marketing. The outreach team offers a solution to the partner's issue by leveraging social media for broader, regional, national, and even international product marketing. To achieve this, it is necessary to implement marketing management and strategies for the partners and their members. Some proposed future marketing techniques include:

- a. Participation in regional and national government-organized exhibitions.
- b. Collaboration with souvenir or handicraft stores.
- c. Utilization of existing Village-Owned Enterprises (Badan Usaha Milik Desa).
- d. Utilizing social media platforms such as Instagram, Youtube, Facebook, TikTok, Twitter, or even personally through Whatsapp, among others.

The benefits derived from digital marketing include increased revenue for the "Nasti Purun" Weaving Group due to market expansion and improved financial recording of the business. The training on using the Purun rope spinning machine for the "Nasti Purun" Weaving Group is aimed at 20 group members. The training

includes techniques tailored to the Purun leaf craftspeople's needs. Additionally, there is training on business management, including basic accounting and digital marketing (online marketing). The steps involved in implementing this training include:

- a. Formulating training materials understandable by the craftspeople.
- b. Creating training modules on using the Purun rope spinning machine and business management along with digital marketing.
- c. Training the "Nasti Purun" Weaving Group members to use the machinery and to understand business management and digital marketing, enhancing their marketing capabilities and product sales.

4. Conclusion

Through the implemented program, it can be concluded that the program proceeded smoothly with high enthusiasm from partners and their members. Purun weaving products have significant potential as local wisdom-based regional flagship products. Thus, it's important to improve quality by procuring the spinning machine to shorten production time, reduce the risk of injury to craftspeople, and increase product variety and quantity. Digital marketing is crucial to expanding the market, enhancing branding for local products, and increasing sales revenue. Through this outreach program, further guidance is needed for the partners and "Nasti Purun" members to generate more varied products.

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