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COMMUNITY EMPOWERMENT IN CIJOGED VILLAGE THROUGH THE UTILIZATION OF PINEAPPLE LEAF WASTE AS LOCAL RAW MATERIAL FOR INNOVATIVE HANDICRAFT PRODUCTS

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Abstract

Cijoged village in Subang regency generates large quantities of pineapple leaf waste during every harvest season. However, this agricultural waste has not been optimally utilized by the local community, failing to yield significant economic value. A community service initiative carried out through the “Program Inovasi Seni Nusantara” (PISN) was designed to enhance the community's knowledge and skills in transforming pineapple leaf waste into economically valuable handicrafts, while simultaneously fostering business development based on local potential. The initial phase of the program included field observations, community outreach, educational sessions, packaging training, and the provision of a decorticator machine. The activity took place over a single day and involved approximately 30 participants. Participants learned the process of converting pineapple leaves into cellulose fiber using the decorticator machine, followed by cleaning, washing, and drying stages. The resulting pineapple leaf fibers were then softened using a carding machine to separate them into individual strands. A portion of the softened fibers underwent alkali treatment to improve their mechanical properties. The activity demonstrated that participants gained a better understanding of the potential of pineapple leaf waste as a primary raw material for handicrafts, as well as the importance of product and packaging innovation in enhancing market value. Throughout the event, participants showed great enthusiasm for both the training stages and the activity as a whole. This program is expected to serve as a starting point to encourage the community to utilize pineapple leaf waste more effectively, create value-added products, and sustainably boost the local economy.

Keywords: Pineapple Fiber, Treatment, Decorticator, Green Economy, Handicraft Products

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INTRODUCTION

Subang Regency, West Java, is one of the largest pineapple-producing regions in the province. The high annual pineapple production generates a substantial amount of pineapple leaf waste that has not been optimally utilized. In particular, in Cijoged Village, Subang Regency, pineapple leaves are often left to accumulate and decompose, contributing to environmental pollution while representing an underutilized economic resource. In fact, pineapple leaves contain natural fibers that can be processed into a variety of handicraft products, such as bags, wallets, wall decorations, and other accessories with high commercial value.

Based on the initial observations conducted by the Community Service Program (PkM) team under the Program Inovasi Seni Nusantara (PISN), it was found that most community members lacked knowledge of how to process pineapple leaves into raw materials for handicraft production and had limited awareness of the business opportunities associated with these resources. The community also faced constraints in pineapple leaf waste processing, product design innovation, and packaging techniques. Furthermore, there had been no comprehensive assistance integrating pineapple leaf fiber processing, product development, packaging, and marketing in Cijoged Village.

Figure 1. The Workshop Section on Pineapple Leaf Waste Processing

To address these challenges, the Community Service Program (PkM) team through the Program Inovasi Seni Nusantara (PISN) conducted field observations and community outreach activities focusing on the utilization of pineapple leaf waste using a decorticator machine, product innovation, and education on packaging and marketing. The program involved approximately 30 participants and was conducted over one day. The initial evaluation indicated that participants developed a better understanding of the economic potential of pineapple leaf waste and showed strong enthusiasm for participating in the subsequent training sessions in shown **Figure 1**. Through the Program Inovasi Seni Nusantara (PISN), this activity aims to enhance community knowledge and skills in creatively transforming pineapple leaves into high-value handicraft products, promote the development of local potential-based creative enterprises, and support the sustainable management of agricultural waste.

IMPLEMENTATION METHOD

The Community Service Program (PkM) was implemented collaboratively by involving the residents of Cijoged Village, Subang Regency, as the program partners. The initial stage of the activity began with field observations to identify the characteristics and availability of pineapple leaf waste. This was followed by discussions with the head of the local farmer group to assess the community's needs. This stage aimed to understand the existing conditions, the availability of raw materials, and the community's readiness to adopt pineapple leaf fiber processing technology using a decorticator machine.

Subsequently, community outreach and educational sessions were conducted to introduce the economic potential of pineapple leaf waste, explain the operating principles of the decorticator machine, and highlight the benefits of pineapple leaf fiber as a raw material for value-added products. The educational activities were delivered through presentations, interactive discussions, and live demonstrations, enabling participants to gain a comprehensive understanding of the processing concept before applying it independently (Adinugraha et al., 2020; Ministry of Agriculture, 2022).

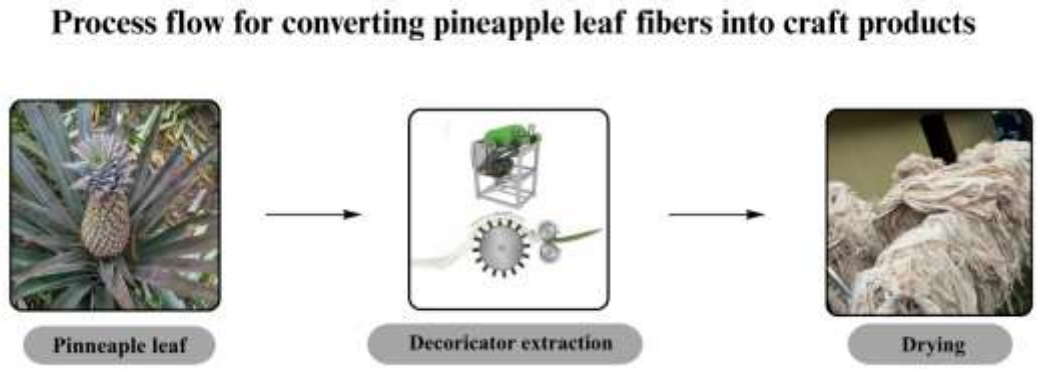

Figure 2. Implementation of Stages of Processing Flow of Pineapple Leaf Waste into Cellulose Fiber

The implementation stage began with the collection of pineapple leaf waste obtained from the harvest. Fresh leaves were selected to ensure the production of stronger and higher-quality fibers, after which they were washed to remove dirt and impurities. The cleaned leaves were then fed into a decorticator machine, a mechanical device used to separate cellulose fibers from non-fibrous plant tissues. The decorticator machine was selected because it improves the efficiency of the fiber extraction process, produces more uniform and higher-quality fibers, and reduces processing time compared with manual extraction methods (Kengkhetkit & Amornsakchai, 2012). During the process, the operator ensured that the machine operated at a stable speed and pressure to prevent fiber breakage in shown **Figure 2**.

Figure 3. Washing and Drying of Pineapple Leaf Fibers

The fibers extracted from the decorticator machine were subsequently washed with clean water to remove any remaining mucilage and residual leaf tissues. After washing, the fibers were evenly arranged and sun-dried until their moisture content was significantly reduced. The drying process was continued until the fibers were completely dry to prevent fungal growth and preserve fiber quality for storage or further processing. The dried pineapple leaf fibers were then collected as semi-finished materials that could be utilized as raw materials for various handicraft or textile products based on natural fibers.

Overall, the complete process of converting pineapple leaf waste into finished products consists of five stages. However, the first Community Service Program (PkM) meeting focused on the initial three stages: (1) collecting pineapple leaf waste, (2) extracting cellulose fibers using a decorticator machine, and (3) washing, drying, and dehydrating the fibers until they were ready for subsequent processing in shown **Figure 3**. These stages were designed to be easily understood and implemented by the local community through the utilization of locally available natural resources and simple technology capable of producing high-quality fibers. The implementation of this method is expected to improve the community's understanding of pineapple leaf waste utilization and enable them to produce value-added fibers, thereby supporting local economic development while contributing to the sustainable management of agricultural waste**.**

RESULTS AND DISCUSSION

The activity began with a presentation on the utilization of pineapple leaf waste as a natural fiber that can be processed into value-added products. The presentation covered the potential of pineapple leaf fiber, the fiber extraction process using a decorticator machine, and the stages of fiber processing. The material was delivered through a presentation followed by an interactive discussion with the participants.

Figure 4. Community Enthusiasm During the Educational Session on Pineapple Leaf Waste

During the discussion session, the participants demonstrated active involvement and strong enthusiasm toward the topics presented. This positive response indicated that the community had begun to recognize pineapple leaf waste as a valuable resource that could be transformed into products with economic value. Through the presentation and discussion, participants gained a fundamental understanding of pineapple leaf waste utilization before proceeding to the practical training stage.

Figure 5. Participants Feedback and Appreciation

As shown in **Figure 4** and **Figure 5**, the discussion session was conducted interactively, involving both community members and the implementation partners. The

head of the Alfiber Farmer Group, who served as the program partner, shared his perspectives on the potential development of pineapple leaf fiber in Cijoged Village based on local conditions and practical experience. His presentation provided participants with valuable insights into the opportunities for utilizing pineapple leaf waste as a value-added product capable of improving the local economy.

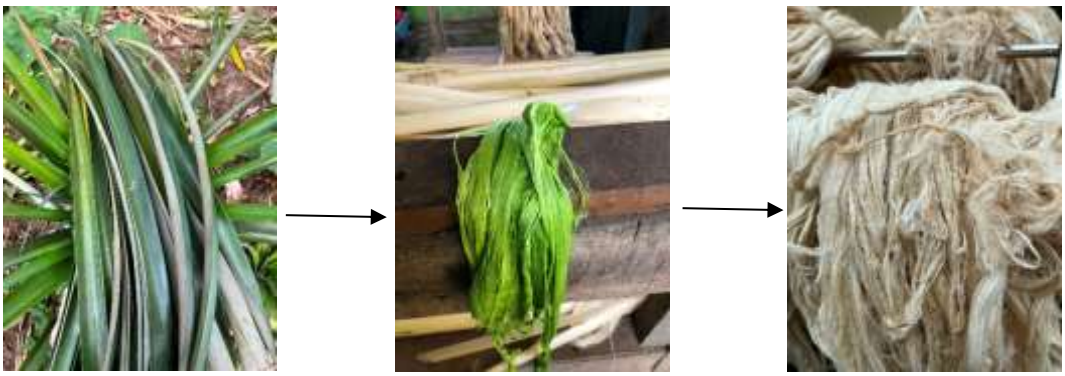

Figure 6. The Stages of Pineapple Leaf Fiber Processing

For the **Figure 6** illustrates the primary raw material used in the processing of pineapple leaf waste into natural fiber, as well as several processing outcomes. The process began with pineapple leaves as the raw material, followed by fiber extraction using a decorticator machine, which produced green-colored fibers. This green coloration resulted from the moisture content and residual leaf tissues that remained attached to the fibers after extraction. Following the washing and sun-drying processes, the fibers became lighter in color as their moisture content decreased. This change indicates that the fibers had reached a more stable condition, making them suitable for subsequent processing into value-added products.

CONCLUSION

The Community Service Program (PkM) conducted through the Nusantara Arts Innovation Program (PISN) in Cijoged Village, Subang Regency, aimed to provide the community with initial knowledge and practical experience in utilizing pineapple leaf waste as a natural fiber with economic value. During the workshop section, the initial three of the five implementation stages were successfully completed, including the collection of pineapple leaves, fiber extraction using a decorticator machine, and the washing, drying, and dehydration of the extracted fibers. The results of the program demonstrated that the participants showed strong enthusiasm during both the educational sessions and the fiber processing activities. Furthermore, the community gained a better understanding that pineapple leaf waste can be utilized as a raw material for handicraft products, with the potential to increase the added value of agricultural waste while promoting sustainable community economic development.

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