

Green Economy Community-Led Transformation: Unleashing Economic Potential via Palm Frond Waste Artisanry in The Halal-Tourism of Eastern Aceh Ecosystem

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Abstract: Palm oil plantations in Eastern Aceh face a challenge: an excess of underutilized palm frond waste, creating environmental and economic burdens. To address this, a study explored empowering local communities to transform this waste into valuable handicrafts, promoting a green economic model. Despite the economic benefits of the palm oil industry, high unemployment persists, especially among the youth in palm-producing areas, with little awareness of the potential in palm frond waste. An apprenticeship program was implemented, providing hands-on training in crafting products like plates, handbags, and prayer mats. This training likely increased participants' confidence and curiosity. By equipping participants with skills before explaining the program's aim of waste-to-wealth transformation, a strong foundation was laid. The study highlighted participants' enthusiasm and success in producing handicrafts post-training. This community-led approach, focused initially on skill development, shows potential for green economic transformation in Eastern Aceh, reducing waste and creating new income streams, potentially aligning with the region's Halal-tourism sector.

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INTRODUCTION

In Aceh, one of the pivotal plantation crops is oil palm, which not only yields direct products like Crude Palm Oil (CPO) but also generates economic opportunities through the innovative utilization of waste materials. One such resource is palm frond waste, a byproduct of the oil palm industry plantation, which represents a substantial and underutilized asset in Eastern Aceh, Indonesia.

The palm frond waste is particularly significant considering the extensive scope of oil palm cultivation in the region. As of 2022, the oil palm plantations covered a vast land area of 535,000 hectares, with a noteworthy 44 percent, equivalent to 235,400 hectares, under individual or community ownership (BPS Aceh, 2021; Dinas Pertanian dan Perkebunan Aceh, 2020; Rosadi, 2022). These products, imbued with both aesthetic and economic value, held the potential to contribute to the local community's income and livelihood enhancement. Thus, this study highlighted the importance of community-based initiatives in promoting sustainable resource utilization and empowering local communities to benefit from the economic potential of their natural resources.

The production of Crude Palm Oil (CPO) as the primary product, the oil palm has the potential to be utilized comprehensively, including the conversion of palm waste into economic value for the broader community. The processing of one ton of oil palm generates waste in the form of shell waste

(6.5% or 65 kg), fiber waste (13% or 130 kg), palm sludge waste (4% or 40 kg), empty fruit bunch waste (EFB) at 23% or 230 kg, and kernel waste at 50% (Faisal et al., 2010; Fuadi, 2016; Haryanti et al., 2014). Moreover, palm frond waste is a byproduct of oil palm that is produced after the trimming and harvesting activities. On a 1-hectare area, palm frond waste can generate 10 tons per hectare per year. This waste is generally discarded or, in some cases, burned when it accumulates and dries out.

The study identified a significant untapped resource in the form of oil palm frond and rachis waste, highlighting the pressing need to exploit this resource for the economic advancement of local communities, especially those in proximity to plantations or Palm Oil Mills. Notably, the Eastern Aceh region, considered as halal tourism-hub in Aceh Province, the central to oil palm cultivation encompassing Aceh Timur District, Langsa City, and Aceh Tamiang District, contends with an enduring challenge of high poverty rates. Specifically, poverty rates persist at 14% in Aceh Timur, 13% in Aceh Tamiang, and 10% in Langsa. Furthermore, a critical gap emerges when examining age groups, as the study reveals the highest unemployment rates within the 15-30 age bracket. Remarkably, this age group represents the prime demographic for productive employment, vital for both personal self-sufficiency and supporting familial welfare.

Within this article, the writer addressed three gaps, i.e., (1) the mismanagement and underutilization of

oil palm frond and rachis waste, leading to environmental pollution and an unexplored economic resource; (2) the persistent issue of elevated unemployment rates, particularly among the youth residing in palm oil-producing regions, despite the substantial income potential of palm oil and its byproducts for the local populace; and (3) the prevalent lack of awareness within the community regarding the transformation of oil palm frond and rachis waste into economically valuable handicraft products. These challenges necessitate the identification and implementation of effective, efficient solutions. A promising avenue for exploration involves offering comprehensive training programs to empower the community to harness the abundant oil palm frond and rachis waste in the Eastern Aceh region. The concept of a community-led green economy within the Halal-tourism industry offers a unique and underexplored approach to sustainable development, with palm frond waste artisanship as a transformative force. The integration of palm frond waste utilization as an economic driver in the Halal-tourism sector is a groundbreaking notion that supports both local communities and the industry. The introduction of practical training initiatives empowers the community and promotes economic sustainability, while the emphasis on local empowerment and sustainable resource management contributes to a novel understanding of community engagement in environmental and economic initiatives.

In conclusion, the article projected the strived research to bridge these crucial gaps and make a substantial contribution to the fields of Green Economy, Sustainable Development, and Halal-Tourism, with a specific focus on the distinctive ecosystem of Eastern Aceh. The study's findings and discussions hold the potential to foster economic transformation and community-led sustainability, ultimately benefiting the local populace and enhancing the region's Halal-tourism industry.

METHOD

The article projected community-based research that selected apprenticeship approach to design and illustrate a community engagement initiative was designed to equip a carefully selected group of participants, with a primary focus on women and young individuals hailing from the Eastern Aceh region, encompassing Aceh Timur District, Langsa City, and Aceh Tamiang District. The primary objective of the program was to harness the potential of oil palm rachis waste for the creation of a diverse range of handicraft products, including but not limited to plates, decorative lamps, bags, tissue boxes, prayer mats, and hats. The implementation strategy of this engagement initiative hinged on the apprenticeship method, which entailed providing guidance and involving the participants directly in the practical, hands-on process of crafting these products.

The training activities were executed at three distinct locations, each with its

own set of dates, hosting three-day training sessions. The initial phase of the program took place from October 13 to 15, 2022, in Pondok Pabrek Village, situated in the Langsa Lama Sub-district of Langsa City. This was succeeded by subsequent activities held in Matang Gleum Village, located in the Peureulak Sub-district, from October 17 to 19, 2022. The final phase of the training was carried out in Paya Bedi Village, within the Rantau Sub-district of Aceh Tamiang District. Each of these locations accommodated a cohort of 40 participants, culminating in a total of 120 participants who partook in the training across these three distinct locations.

The initiative commenced with the delivery of a comprehensive presentation on the potential of oil palm waste and an introduction to various craft products derived from oil palm rachis waste. Once the participants had gained a fundamental understanding of the oil palm's potential, the next phase of the activity involved providing the participants with extensive training on the methods and techniques for utilizing oil palm rachis waste to create various high-value craft products. Following this, the engagement team prepared the tools and materials to be used in the training, with oil palm rachis waste serving as the primary material, complemented by supporting equipment such as scissors, plastic strings, a cutter knife, brushes, dyes, glue, and varnish. Recognizing the participants' varying abilities to grasp the material and practical aspects swiftly, the decision was made to divide them into three groups, each consisting of 13 individuals. Each

group was overseen by one instructor and two assistants.

Prior to the commencement of the training activities, 24 participants, representing approximately 20% of the total attendees, were selected at random to participate in interviews. The primary objective of these interviews was to evaluate their initial proficiency and skills related to crafting products from oil palm waste. Following the training sessions, additional interviews were conducted to assess the participants' advancements in both knowledge and creative abilities. These assessments, commonly known as pre-tests and post-tests, offered valuable insights into the participants' progress before and after their participation in the training program.

RESULT AND DISCUSSION

The training and community involvement initiative directed at realizing the economic potential of palm frond waste in the Eastern Aceh ecosystem, this research has brought to light a multitude of substantial findings and valuable perspectives.

The Apprentice Activity

The training activities were held for three days at each location. On the first day, participants were trained to make various handicrafts from palm oil fronds, including plates, handbags, decorative lamp holders, prayer mats, and even hats. On the second day, participants were trained to make tissue boxes, and on the third day, participants were trained to make decorative brooms. The training sessions, spanning three days at each location, were meticulously structured to

impart diverse craft-making skills utilizing palm oil fronds. The initial day focused on instructing participants in crafting an array of items, such as plates, handbags, decorative lamp holders, prayer mats, and hats, all derived from palm oil fronds. The subsequent day's training centered on crafting tissue boxes, and the final day was dedicated to teaching participants how to create decorative brooms. The most common and easy to sell is the palm oil frond plate. The phases were implanted as following:

1. The Base-craft Embroidery Stage

- a. Place the fronds inside a bucket, then grasp the longest end, shake the fronds to allow the shorter ones to fall to the bottom, and collect the fronds held in your grip. Then, separate the fronds according to their sizes.
- b. Next, take two thick and sturdy fronds. Position them facing each other, then twist them tightly and form a circle as desired, and securely tie the end of the formed loop.
- c. Then, insert 16 fronds of the same length into the loop.
- d. Take another set of 16 fronds of the same length to be inserted into the loop and overlap them with the previous fronds in a crossed position.
- e. Take 16 fronds of the same length for the third set, then insert them into the gap at the base of the crossed fronds, push them underneath the first group of fronds, then turn towards the

second set of fronds and overlap the end of the second set of fronds before inserting them into the loop, thus creating a configuration where the third set of fronds crosses and locks with the loop.

- f. Take the initial 4 fronds in one of the frond rows at the base, then pull and slip them into the row above. Repeat the same step for each set of four fronds per group of four fronds.

The processes involved sorting palm fronds by size and then weaving them into a circular pattern. Initially, the fronds are collected and separated. The weaving is continued row by row with groups of four fronds until the desired size is achieved.

Among the spectrum of products crafted from palm oil fronds, the palm oil frond plate emerged as the most prevalent and marketable item due to its widespread demand and ease of sale.

2. The Upper Embroidery Stage

The second stage confirmed the stages, as follow:

- a. Begin the weaving process once you have ensured that the initial stage is neat and well-prepared.
- b. Take four fronds in a row and cross them using a technique of two over and two under with the adjacent row of fronds. The crossing is done in the same direction as the row of fronds, and it should be done carefully.
- c. Continue row by row to create a floral pattern.
- d. Continue weaving until the last row forms a circular floral pattern.

- e. Once the floral pattern is complete, tidy up and tighten each row of fronds to make it compact.
3. First Stage Tail Embroidery
 - a. After forming the plate, continue weaving the remaining fronds at the bottom, which serve as the plate's base.
 - b. The weaving technique involves randomly crossing two rows upward, then crossing them downward with the following two rows, and repeating this process with the next two rows and so on.
- c. Neaten and tighten the weave once more.
4. Final Embroidery
 - a. Next, weave the remaining fronds like creating a hair braid.
 - b. After completing the weaving, a braided pattern will emerge.
 - c. In the final step, tidy up the weave or trim it to refine the pattern.







Image 1 to 6. *Training Process for Creating Various Products from Oil Palm Frond Waste*

The process of making plates from oil palm fronds described above is just one of the steps in creating various economically valuable products as part of the training program. It is important to

note that the process for making other products such as bags, hats, and so on cannot be detailed individually in this article. However, it is crucial to highlight that throughout the training program,

participants were highly enthusiastic and actively engaged, even asking questions to the instructors when they encountered unfamiliar aspects of the product-making process.

1. *The Apprentice Engagement*

The results of the pre-test conducted, it was evident that the participants, hailing from the Langsa, Aceh Timur District, and Aceh Tamiang regions, had limited knowledge about how to create various products using the abundant oil palm fronds waste in their vicinity. Until that point, their awareness was confined to the fact that oil palm frond waste could only be used for making brooms or sold in bulk at the market. Consequently, oil palm frond waste was not considered a raw material that could significantly boost their family income. Nonetheless, the participants were enthusiastic about attending the training to learn how to transform oil palm frond waste into economically valuable products. Subsequently, after participating in the training, the participants grasped what the practice team demonstrated, and they successfully produced the training's output. This was evident from the post-test results, where each group managed to create products as per the given time frame. It's worth noting that further practice is required to improve the neatness and quality of the products. Nevertheless, the most important aspect is that the participants are motivated to continue learning and practicing at their respective homes.

To self-practice, all involved parties in this initiative must undertake several essential steps. Firstly, environmental

observation is crucial to understand the market conditions, consumer preferences, and to plan further innovations in developing products from oil palm frond waste. Secondly, strategic and safe marketing locations need to be identified and established to promote the products. Field observations revealed that the creative results from oil palm frond waste artisans lack technological development and marketing improvement. The technological development can be facilitated through skills training for entrepreneurs, emphasizing increasing community knowledge and skills in harnessing the natural potential, especially oil palm frond waste, which can be utilized to enhance the quality and marketability of ready-to-use products. This, in turn, can significantly contribute to the community's economic well-being.

According to W. Y. Stanton, Marketing Strategy encompasses an entire system and is related to the objectives of planning and determining prices, promoting, and distributing goods and services that can satisfy the needs of both actual and potential buyers. According to Philip and Gary A. (2008), there are four Marketing Mix elements to influence the demand for a product, including:

1. **Product:** This refers to a range of goods and services offered by a company to its target market. It includes aspects such as variety, quality, design, features, brand name, and packaging.
2. **Price:** Price represents the amount of money customers must pay to acquire the desired product. This

encompasses factors such as pricing lists, discounts, payment terms, and credit conditions.

3. **Place:** Place pertains to the venue where a company conducts its operations to create products for its target customers. This includes considerations like location, distribution channels, inventory, transportation, and logistics.
4. **Promotion:** Promotion involves a company's activities to convey the benefits and advantages of its products and persuade customers to make a purchase. This includes advertising and sales promotions.

The marketing development was achieved by conducting strategic location research for selling, along with arranging merchandise in an appealing manner to attract consumers and showcase the products made from oil palm frond waste. Craftsmen should also consider venturing into online businesses as an alternative means to expand the sales of their crafts. Utilizing social media platforms can also effectively promote the products for sale, attracting a wider and more diverse consumer base and increasing the sales value of products made from oil palm frond waste.

CONCLUSION

This study has shown that palm frond waste has untapped economic potential in the Eastern Aceh ecosystem. Local residents have been trained to make handicrafts from this waste, which has empowered them and reduced unemployment. The study also introduces new concepts for sustainable

development in the region, such as a community-led green economy and the integration of palm frond waste utilization into the Halal-tourism sector. The successful implementation of the training activities demonstrates the enthusiasm and adaptability of the participants in acquiring new knowledge and skills. However, the study also highlights the need for continuous practice and the development of technologies and marketing strategies to further enhance the economic impact of palm frond waste artisanhip. Considering the positive outcomes and the commitment of the local community, there is a strong foundation for the sustainable development of the Halal-tourism industry and the economic upliftment of the people in Eastern Aceh. This study serves as a steppingstone towards a brighter, more sustainable future, demonstrating the potential of community-led transformations in fostering economic growth while preserving the environment.

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