

# THE DEVELOPMENT OF NUCIFERA CREATIVE COTTAGE AS AN INTEGRATED COCONUT PROCESSING CENTER IN MUNTE VILLAGE, WEST LIKUPANG DISTRICT, NORTH MINAHASA REGENCY, NORTH SULAWESI

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**Abstract—** Munte Village in Likupang Barat District, North Minahasa, North Sulawesi lacks both food and non-food industries, despite the district's abundance of commodities, one of which is coconut with a total land area of 2,595.18 hectares. This indicates that the potential in Likupang Barat District, especially in Munte Village, is not matched with the use of innovative processing technology, resulting in its underutilization. Through this program, the community is empowered to utilize coconuts for the production of virgin coconut oil (VCO) and liquid organic fertilizer as Munte Village's flagship products. These products are expected to provide innovation and inspiration for the advancement of the biodiversity-based economy sector in Munte Village, thereby maximizing the available benefits to support the local economy. Additionally, it is aimed that these products will become distinctive souvenirs Munte Village, contributing to the development of the tourism sector in that area. As a result, residents of Munte Village who participated in the socialization and workshops have successfully produced these flagship products by harnessing coconut as a local biodiversity resource.

**Keywords—** coconut, munte village, organic liquid fertilizer, virgin coconut oil, west likupang district.

## I. INTRODUCTION

North Minahasa is one of the districts in North Sulawesi. This district covers an area of 1,059.24 km<sup>2</sup>. The Gross Domestic Product of North Minahasa was Rp11,481.00 in 2021. The Human Development Index of the district was 74.11 in 2021. North Minahasa district comprises 10 sub-districts, 6 urban villages, and 125 rural villages. This program will focus on the village of Munte in West Likupang. Likupang sub-district is a coastal area predominantly inhabited by the Northern Nusa people, who belong to the Sangir Talaud ethnic group. This ethnic group resides in the island districts of North Sulawesi, such as the Sitaro Islands, Sangihe Islands, and Talaud Islands. One of the commodities with potential in West Likupang is coconut. Coconut plantation land in West Likupang covered approximately 2,471.97 hectares as of 2021 [3] [4].

The potential coconut land in West Likupang has not been fully utilized. Nevertheless, North Sulawesi is recognized as one of the leading coconut-producing regions in Indonesia due to its extensive coconut plantations, often referred to as the 'land of swaying coconut palms.' It is no surprise that coconut production in North Sulawesi is a prominent export, including copra[6]. In addition to copra, the ample coconut land can be effectively harnessed to support the local economy by creating various value-added products. Coconut is a versatile plant that can be utilized from root to tip, including the fruit, trunk, and leaves. Coconut raw materials can take many forms, such as charcoal from coconut shells, coconut fiber, and coconut dust. Coconut leaves and trunks can also serve as construction materials and household equipment. Indonesia produces an average of 15.5 billion coconuts per year, and when processed effectively, coconut products can enhance the income and local economy[8]. Most of the population in North Sulawesi are farmers, making the coconut agricultural sector a vital and commercial commodity. However, farmers face significant challenges, including fluctuating incomes due to market price volatility and a lack of innovative or processed coconut products [2].

The village of Munte in West Likupang is a village that lacks both food and non-food industries. This indicates that the potential in the West Likupang sub-district, especially in Munte village, is not being complemented by the use of innovative processing technology, thus its utilization remains suboptimal. Through this program, the community is empowered to utilize coconuts in the production of Virgin Coconut Oil (VCO) and liquid organic fertilizer as Munte village's flagship products. VCO is a coconut oil product obtained from fresh coconuts processed mechanically or naturally with or without heating, without purification or the addition of chemicals. VCO can be produced through various methods, including chemical, physical, and enzymatic processes [7]. VCO has many health benefits, including its antibacterial properties, cardiovascular health support, assistance in preventing diseases such as osteoporosis, diabetes, and

liver conditions, weight management, and skin health maintenance [9].

Meanwhile, the liquid organic fertilizer mentioned is derived from animal manure mixed with coconut water waste. The addition of coconut water waste enhances the phosphate and potassium content because coconut water is rich in these elements, which serve as plant macronutrients [11]. These products are expected to bring innovation and inspiration to advance the biodiversity-based economic sector in Munte village, thereby maximizing the available benefits to support the local economy. Additionally, it is hoped that these flagship products will become distinctive souvenirs of West Likupang, contributing to the development of the tourism sector in Munte village. This program will be implemented through socialization and workshops.

## II. PROGRAM IMPLEMENTATION

The Development of the Nucifera Creative Cottage in Munte Village, Likupang Sub-district, North Minahasa Regency, North Sulawesi, is expected to boost the local economy through innovative products based on local biodiversity. Munte Village, in West Likupang Sub-district, will serve as the focal point for the development of the Nucifera Creative Cottage, making it a model village for surrounding areas. In the future, this program could mark the beginning of creative industry development aimed at enhancing the economy of West Likupang.

The Nucifera Creative Hut Development Program engages the community participants in educational activities to enhance their knowledge of adding value to coconuts. This involves brief theoretical instruction on basic product concepts followed by hands-on practical learning. The program's success indicator is the community's ability to produce two flagship products. In many Indonesian villages, the traditional elder system is still in place, where the village head serves as a symbol in all aspects of governance, including having authority in integration and discretion to play a dominant role in the community [5]. Moreover, this program also adaptive to this village system.

The objectives of the Nucifera Creative Cottage in Munte Village, Likupang Sub-district, North Minahasa Regency, North Sulawesi, include establishing Munte Village as a model for coastal village development, involving Hukum Tetua (local elders) as motivators for the Nucifera Hut development, providing significant employment alternatives in downstream industries, generating flagship products or innovative prototypes such as Virgin Coconut Oil and Liquid Organic Fertilizer, and supporting the development of the local creative and tourism industries.

This program was implemented in Munte Village for six months (July 2022—December 2022), as outlined in the schedule provided in Table 1.

TABLE 1. EVENT TIMELINE

Event	Jul	Aug	Sep	Oct	Nov	Des
Event Preparation						
Socialization of the program to the community						
Training in the production of Virgin Coconut Oil and Liquid Organic Fertilizer						
Development and innovation of flagship products						
Assistance in marketing flagship products						
Progress report						
Monitoring and evaluation						
Final report and community service program outcomes						

## III. RESULT AND DISCUSSION

The Development of the Nucifera Creative Hut involves a mentoring phase to ensure the activities run smoothly and sustainably. Evaluation is conducted through written reports, participant surveys, photographs, and video documentation. In addition to evaluation, the Nucifera Creative Hut will implement sustainability strategies, including coordination between the Nucifera Creative Hut team and local elders as coordinators of the Nucifera Hut in Munte Village. This monitoring is carried out to ensure the continuity of the program and the community formed. Based on the monitoring and evaluation results obtained from the beneficiary community, the training provided by the Community Service Team from the Faculty of Mathematics and Natural Sciences, University of Indonesia, can be further developed by the community, especially in creating two flagship coconut-based products: Virgin Coconut Oil and liquid organic fertilizer. These products are utilized by the community in their daily lives and can also be sold.

### 1. Supporting Factors

Some of the factors that support the progress of the program include a cooperative and enthusiastic community participating in the training sessions. The positive response from the residents of Munte Village is part of the nationwide competition in the Micro, Small, and Medium Enterprises (MSMEs) sector taking place in Indonesia. This is because the number of MSMEs in Indonesia continues to increase annually, with 90% of them being from the agriculture and fisheries sectors [12]. Additionally, there are faculty and student resources with a high level of dedication. The abundant coconut farming results motivate the community to create various innovations.

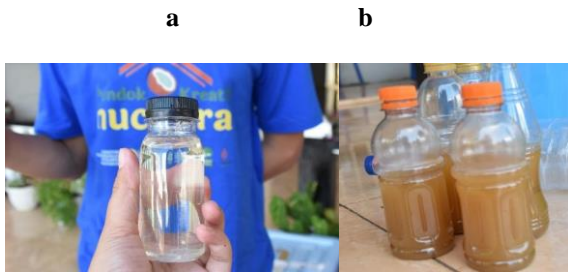


FIGURE 1. FLAGSHIP PRODUCT OF NUCIFERA CREATIVE COTTAGE FROM LOCAL COCONUT (a) Virgin Coconut Oil; (b) Organic Liquid Fertilizer

This indicates the presence of supportive facilities and infrastructure. Furthermore, through the implementation of the community service program, the team has prepared supportive facilities and infrastructure such as packaging to ensure the development process related to the Nucifera Creative Hut community service program runs smoothly. Packaging is a crucial aspect of marketing as it is an effective means to enhance product attributes and brand perception through its graphic, textual, and structural design elements. However, packaging design is not only about its aesthetics but also pertains to the safety and durability of the product [10].

## 2. Inhibiting Factors

The distance between the partner location and the Community Service Team's location has led to remote monitoring. This has resulted in a slower development process, causing the community service stages to only reach the production phase and not progress to broader product marketing stages. Furthermore, the lengthy process of producing Virgin Coconut Oil on a gas stove has become a production drawback due to the relatively high cost of purchasing liquefied petroleum gas (LPG) for residents with lower to middle per capita incomes. One method of extracting coconut oil is through a heating process that requires temperatures of up to 100-120°C. The heating of coconut milk causes protein denaturation and emulsification to separate the oil from the residue [1].

## IV. CONCLUSION

The methods of socialization and the production of flagship biodiversity-based products, namely virgin coconut oil and liquid organic fertilizer, have been successfully implemented. The sustainability target of the program is to ensure a market for coconut flagship products, and through this program, Munte Village in West Likupang Sub-district, North Minahasa Regency, becomes a coconut processing hub in West Likupang. Furthermore, there is a need to expand product diversification, such as coconut-based processed products, to broaden innovation, expand the market, and attract consumer interest through a variety of processed offerings.

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