



Development Strategy of Virgin Coconut Oil Bumdes in Collection

Rusdan¹, Mujahid Yunus², Sri Adrianti Muin²

¹Program Studi Magister Manajemen, Fakultas Pascasarjana Universitas Fajar Makassar, Indonesia

²Universitas Fajar Makassar, Indonesia

*Corresponding Author: Rusdan

Email: rusdan99.r9@gmail.com



Article Info

Article history:

Received 7 August 2025

Received in revised form 8

January 2026

Accepted 23 January 2026

Keywords:

Development Strategy

Virgin Coconut Oil

BUMDes

Local Potential

JEL Classification:

I21, I28, I31, H52, C83

Abstract

This study aims to analyze the development strategy of Virgin Coconut Oil (VCO) implemented by BUMDes Bersama Karang Unarang Sejahtera in Sebatik District. The main focus of this research is to identify supporting factors, inhibiting factors, and the strategies applied to optimize local potential through the VCO product. The method used is a descriptive qualitative approach, with data collection techniques including in-depth interviews, field observations, and documentation. Research informants included BUMDes managers, production workers, raw material suppliers, village government representatives, and local community members. The findings show that the VCO development strategy involves planning stages, community involvement, technical training, and gradual marketing through social media and local events. The main supporting factors are the abundant availability of coconut raw materials, government support, and active community participation. Meanwhile, the inhibiting factors include limited technology, constraints in digital marketing, and the underdevelopment of product legality. This research recommends increasing human resource capacity, continuous policy support, and expanding distribution networks to strengthen product competitiveness in broader markets.

Introduction

Sebatik is a sub-district in Nunukan Regency, North Kalimantan, directly bordering Malaysia. This strategic geographical position provides Sebatik with advantageous access to international markets, particularly for high-value-added products like Virgin Coconut Oil (VCO). According to the Central Statistics Agency, Sebatik Sub-district covers an area of approximately 1,200 km², with a topography dominated by lowlands and tropical forests, creating an ideal climate for coconut growth (Riyanto & Suminar, 2023). These favorable natural conditions make Sebatik one of the largest coconut producers in North Kalimantan. Data from the local Agriculture and Plantation Office indicates that coconut production in Sebatik reaches 50,000 tons per year, making it a leading commodity that can be utilized for various processed products, including VCO. With its abundant natural resources, Sebatik Sub-district has significant potential to develop a coconut-based industry that can improve the community's welfare.

Furthermore, Sebatik's location in a border area allows easier access for exporting products to neighboring countries. This provides opportunities for local businesses to increase production scale and expand distribution networks. For example, several processed coconut products from Sebatik have begun to be exported to Malaysia and the Philippines, demonstrating the competitiveness of local products in the international market (Zakaria et al., 2022; Raharjo & Anuar, 2022; Awaluddin et al., 2025). The opportunity to develop VCO in Sebatik is enormous, especially considering the increasing demand in both local and international markets. Data

from the Indonesian Coconut Entrepreneurs Association (Jusoh et al., 2025) shows that global demand for VCO is increasing by around 15% per year (Zainol et al., 2024). However, VCO development still faces various challenges that hinder the optimization of this potential. One major obstacle is the overwhelm in managing the product, due to limited marketing and distribution capabilities. High marketing transportation costs are a major burden, reducing profits and hampering business growth. Furthermore, the Bersama Karang Unarang Sejahtera Village-Owned Enterprise (BUMDes), which manages the VCO, does not yet have its own transportation facilities, such as pick-ups, to support production and distribution operations. This leads to dependence on third-party transportation, which increases operational costs and slows distribution (Ekeskär & Rudberg, 2022; Vlachos & Polichronidou, 2024; Ilori et al., 2024; Akerele et al., 2024; Kaushik et al., 2024; Su et al., 2024). As a village-profit institution established through collaboration between four villages through the Inter-Village Cooperation Agency (BKAD), the Bersama BUMDes should be able to drive the local economy with the full support of its member villages (Adeodu et al., 2023; Namasudra & Sharma, 2022; Edelenbosch et al., 2025; Shanker et al., 2022).

The Sebatik District has thus far played a more facilitative and advisory role. The sub-district provides training and technical support to the Joint Village-Owned Enterprise (BUMDes Bersama), but there has been no significant push to create long-term solutions to distribution and marketing challenges (Pawitan et al., 2025). In this regard, the four villages that are members of the Joint Village-Owned Enterprise (BUMDes) should take the initiative to strengthen more concrete cooperation, particularly in terms of providing joint capital (Rahayu et al., 2024; Fitriani et al., 2024; Soelarso et al., 2024; Hakim et al., 2024). This collaboration can be realized by mutually contributing sufficient capital to support the procurement of operational vehicles. Fresh funds collected from each village can be used to invest in operational vehicles, such as pickup trucks, which will also serve as productive assets for the Joint Village-Owned Enterprise (BUMDes Bersama). Furthermore, this capital can also be allocated to increase production capacity by acquiring more efficient VCO processing technology.

This step will enable the Joint Village-Owned Enterprise (BUMDes) to independently manage product distribution, thereby reducing transportation costs, increasing profit margins, and expanding its marketing network (Akbar et al., 2025; Mahaputra et al., 2025; Sumarsono et al., 2025). This initiative will not only strengthen the Joint Village-Owned Enterprise's operations but also contribute to improving the welfare of the communities in the four villages involved (Gutierrez & Kisat, 2022; Gunawan, et al., 2023; Budhijanto et al., 2024; Fahmi & Savira, 2025). Closer inter-village collaboration is key to successfully addressing the challenges of sustainable VCO development in Sebatik (Putra et al., 2025; Adinugraha, 2025; Christy et al., 2025). This phenomenon demonstrates that VCO development in Sebatik requires greater commitment from relevant parties, particularly the villages within the Joint Village-Owned Enterprise (BUMDes). With fresh capital allocated collectively for production investment and vehicle infrastructure, BUMDes can increase the competitiveness of VCO products and support sustainable local economic growth. Synergy between villages, supported by guidance from the sub-district, will be key to successfully optimizing the potential of Virgin Coconut Oil in Sebatik.

Method

Research Approach

The approach used in this research is descriptive qualitative, aiming to gain a deeper understanding of the development strategy of the Karang Unarang Sejahtera Village-Owned

Enterprise (BUMDes) through Virgin Coconut Oil (VCO) as an effort to increase village income in Sebatik.

Type of Research

The research conducted on the strategy of the Karang Unarang Sejahtera Village-Owned Enterprise (BUMDes) through Virgin Coconut Oil (VCO) to increase village income in Sebatik is descriptive and a case study. The descriptive research aims to describe in detail the conditions, strategies, and development process of the Karang Unarang Sejahtera Village-Owned Enterprise (BUMDes), including the local government policies supporting the program's implementation. Meanwhile, the case study research explores policy implementation in Nunukan Regency, a border region with unique geographical, social, and economic characteristics. Furthermore, this research is exploratory in nature, identifying potential policy developments or innovations in regional information management strategies, thereby supporting the optimization of the management of the Karang Unarang Sejahtera Village-Owned Enterprise (BUMDes) and improving the welfare of the village community.

Research Role Management

The Joint Village-Owned Enterprise (BUMDes) strategy of Karang Unarang Sejahtera through Virgin Coconut Oil (VCO) to increase village income in Sebatik. Role management in the research was carried out by clarifying the duties and responsibilities of each party involved. This division of roles aims to ensure the research is effective, efficient, and produces quality outputs that meet its objectives. In this study, the researcher served as data collector and analyst to identify appropriate strategies for developing Virgin Coconut Oil (VCO) at the Joint Village-Owned Enterprise (BUMDes) in Sebatik District. The researcher actively conducted field observations and in-depth interviews with BUMDes administrators, village officials, and relevant business actors. Furthermore, the researcher reviewed supporting documents and relevant regulations to obtain a comprehensive overview of the potential, challenges, and opportunities for VCO product development. This role was carried out objectively using a descriptive qualitative approach, ensuring that the analysis results could provide practical and strategic contributions to the sustainable development of the BUMDes business.

Research Location and Timeline

The research location in Nunukan Regency was determined based on the consideration that the Regional Development Planning Agency (BAPPEDA) of the Nunukan Regency Government has duties and functions stipulated in the Nunukan Regent's Regulation, which are relevant to strengthening the economy of border areas. Therefore, this study aims to uncover the local government's policy strategy in supporting the development of the Joint Karang Unarang Sejahtera Village-Owned Enterprise (BUMDes) through Virgin Coconut Oil (VCO) as an effort to increase village income in the Indonesia-Malaysia border region. The primary focus is on the role of the local government in implementing policies and tasks related to strengthening the local economy, including empowering village resources, managing superior products, and creating market access to boost community welfare in the border area of Nunukan Regency.

Data Sources

In this study, two main data sources were used: primary and secondary data, on the development strategy of the Joint Karang Unarang Sejahtera Village-Owned Enterprise (BUMDes) in Sebatik District. Both were utilized to obtain a comprehensive picture of the current situation and support evidence-based strategic analysis. Primary data was obtained

directly from the field through in-depth interviews, observations, and focus group discussions (FGDs) with relevant stakeholders. The primary data sources include: Including heads of departments or technical staff responsible for village economic development and regional information management. Information from these sources helps understand the policy direction and role of the government in supporting BUMDes. Consists of cross-agency personnel involved in compiling sub-district and village profiles. This team provides technical and administrative data used as the basis for BUMDes strategic planning, particularly in mapping local potential, such as VCO production. Consisting of community leaders, BUMDes administrators, and village officials in Sebatik District. This group provides direct perspectives on local needs, opportunities for coconut product development, and the economic impact of VCO businesses at the village level. Secondary data was obtained from various official documents and scientific publications that support the validity of the analysis.

Data Collection Techniques

The data collection techniques used in this study were designed to obtain valid, relevant information that reflects the actual conditions related to the Virgin Coconut Oil (VCO) development strategy of the Village-Owned Enterprise (BUMDes) with Karang Unarang Sejahtera in Sebatik District. The data collection process was also aimed at understanding the relationship between local potential, local government policies, and the role of the community in village economic development in border areas. The data collection techniques used included: Interviews were conducted directly with parties who play a key role in BUMDes development, including BUMDes administrators, village officials, relevant agency officials, and community leaders. This technique was used to elicit strategic information, empirical experiences, and their perspectives on the opportunities and challenges in VCO production and marketing. Observations were conducted directly at the BUMDes's operations, covering the Virgin Coconut Oil production process, raw material management, and marketing activities. These observations aimed to obtain a concrete picture of the operationalization of the BUMDes development strategy and the local potential being utilized. Data was collected from various supporting documents, such as BUMDes activity reports, village/sub-district profiles, relevant regulations, and relevant administrative records. This documentation study is essential to complement and confirm the data from interviews and observations. FGDs were conducted involving community representatives, BUMDes administrators, and relevant government agencies to collectively discuss VCO development strategies. This technique aims to elicit ideas, perceptions, and consensus that can be used in formulating future strategies.

Data Analysis Techniques

The Joint Village-Owned Enterprise (BUMDes) strategy of Karang Unarang Sejahtera through Virgin Coconut Oil (VCO) to increase village income in Sebatik. Data analysis was conducted using the 4Ps Marketing Mix as a framework to understand the internal and external factors influencing the development of the Joint Village-Owned Enterprise (BUMDes) of Karang Unarang Sejahtera. This data analysis technique was structured through systematic steps as outlined by Burhan and Bungin: data collection, data reduction, data display, verification, and conclusion drawing.

Validity Check of Findings

In a qualitative study on the Virgin Coconut Oil (VCO) development strategy by the Village-Owned Enterprise (BUMDes) with Karang Unarang Sejahtera in Sebatik District, data validity was tested to ensure that the information obtained was credible, objective, and accountable.

Result and Discussion

Virgin Coconut Oil Development Strategy of the Karang Unarang Sejahtera Village-Owned Enterprise (BUMDes) in Sebatik District

Virgin Coconut Oil (VCO) is a coconut derivative product with high economic value and is increasingly popular due to its numerous health and beauty benefits. In Padaidi Village, Nunukan Regency, the Karang Unarang Sejahtera Village-Owned Enterprise (BUMDesma) has developed VCO production as a leading commodity to boost the village economy. This study aims to evaluate the production process, quality, and development potential of VCO produced by the Karang Unarang Sejahtera BUMDesma in supporting local economic resilience and village community empowerment. The author's question regarding what motivated the Karang Unarang Sejahtera Village-Owned Enterprise (BUMDesma) to choose Virgin Coconut Oil as its flagship product was then explained by Senawi, the Head of BUMDesma Karang Unarang Sejahtera. He explained:

"We see the enormous potential of coconuts in Padaidi Village. Many coconuts, especially those that are old or have fallen from the tree, have not been optimally utilized. That's why we thought about processing them into value-added products like Virgin Coconut Oil (VCO). Besides being easy to make, the market is also promising."

Senawi's statement indicates that the choice of VCO as a flagship product was based on the abundant availability of local raw materials and the desire to increase the economic value of underutilized coconuts. Echoing the previous interviewee's response, Sam Nirwana, a member of the Village-Owned Enterprise (BUMDesma) involved in VCO production, expressed this opinion:

"We chose VCO because the production process doesn't require complicated machinery. With a short training, we can process coconuts into pure oil. Furthermore, the product can be sold directly without the need for expensive packaging."

Sam Nirwana emphasized that practical and technical reasons were the primary considerations, particularly because VCO production can be carried out by villagers with simple equipment and still has a high sales value. Abigurdi (Padaidi Village Head and Advisor to the Karang Unarang Sejahtera BUMDesma) continued with his explanation:

"I fully support this venture because in addition to reducing coconut waste, this VCO business also creates jobs for local residents. We're not just selling raw materials, but also starting to produce our own."

Abigurdi emphasized the importance of local economic sustainability and community empowerment through village-based commodity industrialization, particularly to reduce dependence on raw material sales. Echoing the previous informant's response, Jamaludin (a raw material supplier) stated:

"Before this business, old, fallen coconuts were sometimes left unsold. But now, coconuts that were previously considered unsaleable are now sought after. I have additional income from selling coconuts that were previously worthless."

Jamaludin highlighted the direct economic impact of the VCO business on the livelihoods of residents, particularly coconut farmers and raw material collectors. Adding another point, Firman (a resident of Padaidi Village) explained:

"I see that young people in the village are now also starting to be interested in learning how to make VCO. Previously, they were confused about what kind of work they could do in the village, but now there is activity and hope from this business."

Firman highlighted the social aspect of this venture, namely inspiring the younger generation to become entrepreneurs and creating new job opportunities in the village. The author's question regarding the Virgin Coconut Oil (VCO) product development strategy currently being implemented was explained by Senawi, Head of the Karang Unarang Sejahtera Village-Owned Enterprise (BUMDesma). Senawi, Head of the Karang Unarang Sejahtera Village-Owned Enterprise (BUMDesma), explained the current VCO product development strategy:

"Our main strategy currently is to improve the quality of VCO production to meet SNI standards and halal certification. Furthermore, we have begun diversifying our products, including VCO-based soap and massage oil. We are collaborating with third parties for technical training in production and packaging to make our products more attractive to the market."

Senawi, as Head of the BUMDesma, provided an overview of the direction of the VCO product development strategy. The focus on improving quality and product diversification is the foundation of the BUMDesma's efforts to create high-value-added products. Furthermore, external collaborations demonstrate their commitment to developing internal capacity through technical guidance. A similar opinion to the previous informant, Sam Nirwana, a member of the Village-Owned Enterprise (BUMDesma) involved in VCO production, stated:

"We are working to increase production capacity without compromising quality. We also actively participate in training sessions from relevant agencies to improve our members' skills in VCO extraction and processing. We are also trying to expand our market reach through social media and participating in regional exhibitions."

Sam Nirwana, who is directly involved in the production process, explained the implementation of the strategy established by his leadership. This demonstrates the synergy between management and field staff, particularly in increasing production capacity and mastering processing techniques. Promotional efforts through digital media and participation in exhibitions are also important parts of the marketing strategy. Abigurdi (Head of Padaidi Village and advisor to the Karang Unarang Joint Village-Owned Enterprise) continued with an explanation:

"We strongly support the Joint Village-Owned Enterprise's efforts to develop VCO as one of the village's mainstays. The strategy we are promoting is collaboration between neighboring villages for a more stable supply of raw materials, as well as the formation of MSME clusters to facilitate easier access to funding and training from the local government."

Abigurdi, as the Village-Owned Enterprise advisor, provided a policy perspective from the village government. He emphasized the importance of continuous raw material availability through inter-village networks and structural support in the form of MSME cluster formation. This demonstrates that VCO development is not merely an internal program of the Village-Owned Enterprise but is also supported by local policies to create a conducive business ecosystem. Jamaludin (a raw material supplier) expressed a similar opinion to the previous informant, stating:

"I see that the Village-Owned Enterprises (BUMDesma) are becoming more serious about VCO production. They have begun providing guidance to coconut farmers to be

more selective in selecting the coconuts they supply. This is important because the quality of coconut milk from fresh coconuts significantly determines the final quality of the VCO."

Jamaludin provided a perspective from the supply chain. The involvement of BUMDesma in providing guidance to farmers demonstrates an awareness that product quality begins with the selection of good raw materials. This is a preventative measure to ensure that the resulting VCO product is of consistent quality and meets standards.

Supporting and Inhibiting Factors in the Implementation of Virgin Coconut Oil Development by the Joint Village-Owned Enterprise (BUMDes) Karang Unarang Sejahtera in Sebatik District

In its efforts to develop Virgin Coconut Oil (VCO) as a superior village product, the Joint Village-Owned Enterprise (BUMDes) Karang Unarang Sejahtera in Sebatik District faces various challenges. The implementation of this business development process depends not only on the availability of natural resources but is also influenced by interrelated internal and external factors. On the one hand, there are supporting factors that strengthen business sustainability. Despite various efforts to utilize local potential, involve the community, and develop production and marketing, it cannot be denied that in practice there are a number of obstacles or challenges. The author's question is:

"What challenges are faced in product marketing and distribution?"

As explained by Senawi, the Head of the Joint Village-Owned Enterprise (BUMDes) Karang Unarang Sejahtera, he explained:

"Our biggest challenge is limited marketing and product legality. Our product is good and widely liked, but we don't have an official distribution permit, making it difficult to sell to large stores or meet demand from outside the region."

The main challenges lie in regulatory aspects and market access. Although the product is of acceptable quality, without legal documents such as a PIRT permit or other certification, distribution is limited. This also impacts consumer confidence and access to a wider market. This opinion, similar to the response given by the previous informant, a member of the production team, stated:

"We also have difficulty maintaining a consistent supply of coconuts. Sometimes there are plenty of coconuts, sometimes there are not enough. If there are no raw materials, production stops. Especially during the rainy season, many coconuts rot on the trees."

From a production perspective, the biggest challenge is the instability of the raw material supply, primarily due to the unpredictable harvest season and the impact of weather. Reliance on local raw materials without a dedicated coconut plantation makes production consistently unsustainable. The BUMDesma advisor continued with an explanation, explaining:

"Our challenges also lie in packaging and branding. Our products don't yet have a professional appearance that can compete in stores or marketplaces. If we want to enter a wider market, we must be prepared in terms of product appearance and identity."

Packaging and product identity are another significant obstacle. Products that aren't packaged attractively and professionally struggle to compete in a market already crowded with similar products. Weak branding also makes products less well-known, even if they are high-quality. A similar opinion echoed that of the previous informant, a raw material supplier:

“From my perspective, the problem also lies in transportation. Sometimes we have difficulty delivering coconuts or shipping products because road access outside the village is still difficult, especially when it rains.”

From a logistical perspective, the biggest challenge is limited transportation access, especially during the rainy season. Limited infrastructure in border areas impacts the smooth delivery of raw materials and distribution of finished products outside the village or to other areas. Adding another point of view, a local resident who uses the product explained:

“This product is actually good, but many outsiders still don't know about it. Our promotion is still lacking. If we were active on social media or had an online store, there would definitely be more interest.”

The challenge in terms of promotion is the lack of digital exposure. The market potential is there, but the product is not yet widely known due to limited promotion and the lack of a digital sales platform. This poses a significant obstacle to reaching consumers outside the Sebatik region. After identifying general challenges such as legality and market access, this question focused more specifically on obstacles that arise in the daily production process, including technical aspects, raw materials, human resources, and production equipment. This question aims to delve deeper into the operational challenges faced by the production team and how they address them directly in the field. The answers to these questions are crucial for developing strategies to continuously improve production efficiency and quality.

Virgin Coconut Oil Development Strategy by the Joint Village-Owned Enterprise (BUMDes) Karang Unarang Sejahtera in Sebatik District

The development of Virgin Coconut Oil (VCO) by the Joint Village-Owned Enterprise (BUMDes) Karang Unarang Sejahtera is a concrete step in promoting the economic independence of village communities by utilizing the abundant potential of coconuts in the Sebatik District. To ensure the success of this venture, a strategy is needed that focuses not only on production aspects but also encompasses raw material management, community involvement, product quality improvement, and market network expansion. This development effort is designed in stages and contextually, taking into account local social and geographical conditions, as well as institutional capacity (Cid & Lerner, 2023; Kalogiannidis et al., 2022; Yu et al., 2024; Ansell et al., 2022; Anyanwu et al., 2025). The strategy is based on the 4P Marketing Mix approach as follows: The Joint Village-Owned Enterprise (BUMDes) Karang Unarang Sejahtera utilizes the potential of previously underutilized old coconuts to produce Virgin Coconut Oil (VCO), a primary product with high economic value and advantages as a natural organic product. This product is developed with an emphasis on hygienic quality, production standards, and sales differentiation, including the potential for developing derivative product variants based on VCO (Brown, 2022; Atinaf et al., 2023; Venner et al., 2024; Rahman et al., 2023; Gohari et al., 2024). Pricing is being set gradually and realistically, adjusted to production costs, local consumer purchasing power, and export market potential. Current pricing remains adaptive and open to evaluation, but the long-term strategy is geared toward implementing a pricing scheme based on the quality and uniqueness of the product as an organic village VCO. VCO product distribution is still carried out locally, directly reaching consumers and local stores. However, efforts are underway to expand the distribution network to areas such as Tarakan and Nunukan. Strengthening distribution through local e-commerce, collaboration with cooperatives, and cross-village cooperation are also part of the medium-term plan. Promotional strategies are being implemented in simple yet effective ways, such as through local events, official visits, and the use of conventional methods. The product is introduced to the public through informal campaigns and free trials. Branding efforts have also

begun through labeling, attractive packaging, and licensing processes such as distribution permits and halal certification, as formal forms of promotion that strengthen the product's image. The development of VCO by the Village-Owned Enterprise (BUMDes) with Karang Unarang Sejahtera demonstrates a strategic direction that is responsive to local conditions and strengthens competitiveness through the 4P Marketing Mix approach. By utilizing abundant natural resources, involving the community in the production process, and developing a phased and contextual marketing system, the BUMDesma strives to create products that are not only economically competitive but also representative of local identity. This approach strengthens village economic resilience through a synergy between quality products, affordable prices, adaptive distribution, and community-based promotion. Going forward, digital marketing and product diversification will be strategic next steps, supported by training, technical assistance, and multi-stakeholder collaboration.

Supporting and inhibiting factors in the implementation of Virgin Coconut Oil development by the BUMDes with Karang Unarang Sejahtera in Sebatik District

The development of Virgin Coconut Oil (VCO) by the BUMDes with Karang Unarang Sejahtera is a local economic initiative based on the potential of the village's natural resources, particularly the abundant coconuts in the Sebatik area. Despite progress in production and public acceptance, the product development process is inextricably linked to the dynamics of implementation on the ground. Various factors directly and indirectly influence the program's success, both internally, such as raw material availability and community participation, and externally, such as policy support, product legality, and distribution access. One of the main strengths is the abundance of coconuts in Padaidi Village and surrounding villages. Most residents are coconut farmers, making raw materials easily accessible without having to import them from outside the region. The VCO production process actively involves residents, from coconut collection and processing to packaging. This participation builds a sense of ownership of the local product and strengthens the village's economic empowerment model. The village government provides support through allocation of funds for productive economic activities, while the regency government provides training, assistance with simple tools, and access to MSME exhibitions.

This strengthens production and promotional capacity. VCO products have been routinely used by the community for health and care purposes. This demonstrates the product's local acceptance and perceived benefits by direct consumers. Demand for the product from outside the village (e.g., Nunukan and Tarakan), although unstable, indicates that this product has appeal and potential for broader development. The development of Virgin Coconut Oil (VCO) products by the Village-Owned Enterprise (BUMDes) Bersama Karang Unarang Sejahtera in Sebatik District is inseparable from several supporting factors that have contributed to its success. One key strength is the abundant natural resources, particularly coconuts, which are abundantly available in surrounding villages such as Padaidi. This potential serves as strategic capital for developing local commodity-based businesses. In addition to the availability of raw materials, active community participation is also a crucial driving factor. The community plays a role not only as labor in the production process but also as raw material suppliers and product users. Community empowerment through VCO production in border areas has a positive impact on increasing income and increasing socio-economic engagement. Institutional support from the village and district governments also strengthens the BUMDesma's efforts in developing this product. The government provides assistance in the form of training, mentoring, and facilitation of production equipment. This aligns with the concept of institution-based empowerment expressed where collaboration between stakeholders is key to the success of village economic programs. The availability of simple technology that can be operated by

the community is also a supporting factor in VCO production. Although still manual, the tools and methods used are sufficient to produce a quality product. Emphasized that technological innovation, even on a small scale, can improve the efficiency and quality of VCO products at the village level. Another contributing factor is the strong spirit of mutual cooperation within the community. This is evident in how people help each other in the production, distribution, and promotion processes. This fosters social solidarity and facilitates the implementation of collective-based programs.

Support from external parties, such as supporting institutions, technical agencies, and communities, is also an external factor that strengthens VCO development. For example, visits from relevant agencies and participation in MSME exhibitions open up broader networking opportunities to introduce the product to a larger market. The marketing aspect also shows positive development thanks to the use of basic social media platforms such as WhatsApp and Facebook. Although not yet optimal, this strategy has proven effective in reaching consumers outside the village. Kartika (2023) explained that digital marketing plays a crucial role in expanding market access for local VCO products. Strengthening product branding, such as the use of labels, attractive packaging, and efforts to obtain PIRT and halal certification, is a strategic step in building market trust. This demonstrates that BUMDes (Village-Owned Enterprises) is not only focused on production, but also on the downstream aspects of the product value chain. Public trust in the product is also a crucial factor. VCO products have been widely used by residents for health and beauty needs, indicating that the product's quality and benefits are well-known and accepted by local consumers. By integrating all these supporting factors, BUMDes Bersama Karang Unarang Sejahtera is able to sustainably develop VCO. This success aligns who emphasized the importance of community involvement, technological support, and digital marketing strategies in encouraging the growth of micro-enterprises in rural and border areas. To date, VCO products do not have a distribution permit, such as PIRT, so they cannot enter formal retail stores or collaborate with official distributors. This hampers market expansion. The production process is still carried out manually with simple tools. This results in low production capacity and longer processing times. Sebatik's geographical location as a border island makes transportation access limited, especially during the rainy season. Distributing products outside the region is expensive and inefficient.

Products are still packaged simply and lack attractive packaging designs. This makes foreign consumers hesitant, even though the quality of the contents is excellent. Marketing strategies still rely on word-of-mouth and direct sales. Products are not yet actively marketed digitally or through online marketplaces. The development of VCO by the Village-Owned Enterprise (BUMDes) with Karang Unarang Sejahtera has been supported by the potential of local resources and community enthusiasm. However, strengthening institutions, legality, distribution systems, and improving packaging quality and promotional strategies remain key challenges that must be addressed for this product to develop sustainably and compete in a broader market. The development of Virgin Coconut Oil (VCO) by the Village-Owned Enterprise (BUMDes) in Sebatik District faces several challenges that hinder its smooth operation and sustainability. One key factor hindering this is the community's limited technical skills in hygienic and efficient VCO processing. Communities in border areas still require intensive training in processing technology to achieve market-recognized quality standards. Limited supporting infrastructure, such as unstable electricity access and a lack of modern production equipment, also poses significant obstacles. The fermentation and storage processes require specific environmental conditions, and if these conditions are not met, the quality of the VCO can decline. Technological innovation is essential in VCO production to ensure efficiency and quality, but access to this innovation remains limited in villages. Furthermore,

limited market access is another obstacle. Local VCO products have yet to penetrate a wider market due to a lack of digital marketing knowledge and the absence of an established distribution network. Kartika (2023) emphasized the importance of digital marketing in effectively promoting VCO products, especially to reach consumers outside the local area. Product legality is also a significant issue hampering development. Many VCO products lack official distribution permits, such as PIRT (Issuing Permits for Distribution) or halal certification, preventing them from being widely marketed through modern retail outlets.

The permitting process often requires costs, time, and administrative expertise that BUMDes Bersama managers have not yet fully mastered. Another obstacle is dependence on the coconut harvest season and weather. VCO production is heavily influenced by the availability of mature coconuts, and if the harvest is disrupted by extreme weather or crop failure, production will cease. This indicates the lack of a sustainable raw material supply system, also observed as a common problem in border areas. Weak business management also impacts the operational effectiveness of Village-Owned Enterprises (BUMDesma). Some managers lack adequate managerial capacity for financial management, production planning, and market development. This slows business growth and makes it difficult to attract investors or partnerships. Transportation and logistics issues also pose challenges in border areas like Sebatik. Inadequate road access and high distribution costs complicate the delivery of products outside the region. VCO products, which require special treatment, are at risk of deteriorating in quality during the distribution process. The lack of ongoing support from the government or third parties is also a barrier. Training or facility assistance is often one-off without follow-up monitoring, thus failing to have a long-term impact on strengthening production capacity. However, as explained, successful technological innovation requires a process of adaptation and ongoing support. Low public awareness of VCO's potential as a superior product is also a barrier. Some residents still view coconuts as valuable only when sold as raw materials, not as high-value processed products. Changing this mindset requires time and an effective communication strategy. Competition with similar products that already have well-known brands and extensive distribution systems also poses a significant challenge. VCO from other regions that have developed earlier has advantages in terms of branding, legality, and market penetration. Without a strong differentiation and competitive strategy, BUMDesma products will struggle to compete nationally and internationally. By identifying these various inhibiting factors, BUMDes Bersama Karang Unarang Sejahtera is expected to design appropriate adaptive strategies to overcome these obstacles and strengthen the foundation for sustainable VCO development.

Conclusion

The development of Virgin Coconut Oil (VCO) products by the Village-Owned Enterprise (BUMDes) with Karang Unarang Sejahtera represents a concrete example of empowering local potential based on natural resources, particularly coconuts, which are abundant in the Sebatik region. The strategies implemented include thorough planning, active community involvement, capacity building through technical training, and gradual marketing efforts. VCO development also faces various challenges, such as limited production technology, limited digital market access, fluctuating raw material availability, and limitations in product legality. This requires innovation, sustainable policy support, and increased digital marketing literacy. Without sustainable and collaborative strategic steps, this product development will struggle to consistently penetrate a wider market.

References

- Adeodu, A., Maladzhi, R., Katumba, M. G. K. K., & Daniyan, I. (2023). Development of an improvement framework for warehouse processes using lean six sigma (DMAIC) approach. A case of third party logistics (3PL) services. *Heliyon*, 9(4).
- Adinugraha, H. H. (2025). Sustainable Food Governance in Subang through Strengthening Central Markets and Integrating the Upstream-Downstream Supply Chain. *Scientific Journal of Governance and Accountability (SINGA)*, 3(2), 9-9.
- Akbar, S., Pradana, M. N. R., Rahma, A., & Rahmah, N. F. (2025). Integrating state-owned enterprises (SOEs), agro-economics, and sustainability: A systematic literature review on contract farming mechanism. *Journal of Agrosociology and Sustainability*, 3(1), 36-56. <https://doi.org/10.61511/jassu.v3i1.2025.1984>
- Akerele, J. I., Uzoka, A., Ojukwu, P. U., & Olamijuwon, O. J. (2024). Optimizing traffic management for public services during high-demand periods using cloud load balancers. *Computer Science & IT Research Journal*, 5(11), 2594-2608.
- Ansell, C., Sørensen, E., & Torfing, J. (2022). The key role of local governance in achieving the SDGs. In *Co-creation for sustainability: The UN SDGs and the power of local partnership* (pp. 9-22). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-80043-798-220220002>
- Anyanwu, L., Felix, O. O., Ejike, I. W., & Onyewuchi, I. (2025). Environmental Governance Frameworks and Stakeholder Engagement Mechanisms for Effective Natural Resource Management at Local Levels. *Preprint, January*. [https://doi.org/10.13140/RG.2\(35850.12480\)](https://doi.org/10.13140/RG.2(35850.12480)). <https://doi.org/10.30574/wjarr.2025.28.2.3808>
- Atinaf, M., Anteneh, S., & Kifle, M. (2023). A holistic understanding of information and communication technology for development through context, resilience, and sustainability: Evidence from a local agriculture extension information service in Ethiopia. *The Electronic Journal of Information Systems in Developing Countries*, 89(4), e12260. <https://doi.org/10.1002/isd2.12260>
- Awaluddin, S. P., Muntasir, M., Imran, U. D., Kamaluddin, L. O. A., & Thalib, M. K. (2025). Analysis of Export Development Potential for Virgin Coconut Oil as a Flagship Regional Product in the International Market. *Journal of Economic Education and Entrepreneurship Studies*, 6(1), 76-87.
- Brown, T. (2022). Skill ecosystems in the global South: Informality, inequality, and community setting. *Geoforum*, 132, 10-19. <https://doi.org/10.1016/j.geoforum.2022.03.019>
- Budhijanto, W., Marleni, N. N. N., Wulaningtyas, A. H., Istiqomah, I., Ahmad, J. S. M., & Marbelia, L. (2024). Techno-economic analysis on community-based municipal solid waste processing facilities: A case study in Sleman Regency Indonesia. *Environmental Development*, 52, 101083. <https://doi.org/10.1016/j.envdev.2024.101083>
- Christy, N. N. A., Ika, S., Ardana, I. K., Wibowo, R. A., Anggahegari, P., Nasution, L. Z., ... & Elizabeth, R. (2025). Transforming Social Assistance into Entrepreneurial Empowerment: UMi as a Public Sector Innovation in Indonesia. *Administrative Sciences*, 15(11), 430. <https://doi.org/10.3390/admsci15110430>
- Cid, A., & Lerner, A. M. (2023). Local governments as key agents in climate change adaptation: challenges and opportunities for institutional capacity-building in Mexico. *Climate Policy*, 23(5), 649-661.

- Edelenbosch, O. Y., Hof, A. F., van den Berg, M., de Boer, H. S., Chen, H. H., Daioglou, V., ... & van Vuuren, D. P. (2024). Reducing sectoral hard-to-abate emissions to limit reliance on carbon dioxide removal. *Nature Climate Change*, *14*(7), 715-722. <https://doi.org/10.1038/s41558-024-02025-y>
- Ekeskär, A., & Rudberg, M. (2022). Third-party logistics in construction: perspectives from suppliers and transport service providers. *Production Planning & Control*, *33*(9-10), 831-846. <https://doi.org/10.1080/09537287.2020.1837932>
- Fahmi, F. Z., & Savira, M. (2025). Digital technologies and rural community resilience: learning from the COVID-19 crisis in Indonesia. *Rural Society*, 1-24. <https://doi.org/10.1080/10371656.2025.2495402>
- Fitriani, D., Shauki, E. R., & Shahbudin, A. S. M. (2024). Exploring the role of village head in empowering sustainable village economy: A multiple-case study in Indonesia. *Global Business and Management Research*, *16*(4s), 1016-1040.
- Gohari, S., Silvia, S. C., Ashrafian, T., Konstantinou, T., Giancola, E., Prebreza, B., ... & Liu, M. (2024). Unraveling the implementation processes of PEDs: Lesson learned from multiple urban contexts. *Sustainable Cities and Society*, *106*, 105402. <https://doi.org/10.1016/j.scs.2024.105402>
- Gunawan, S., Suhartono, M. J., Elfatma, O., Hasanah, N. A. U., & Anggraini, Y. D. (2023, August). Planned Granulated Palm Sugar Business Development as a Program to Strengthen the Economy of Hargotirto Village Kulon Progo. In *Proceeding of International Conference on Innovations in Social Sciences Education and Engineering* (Vol. 3, pp. 116-116).
- Gutierrez, E., & Kisat, F. (2022). *Financial solutions to support the social and solidarity economy and the role of development banks*. World Bank.
- Hakim, M. L., Agung, M. F. M., Hanif, N. A., & Firman, F. (2024). Driving Village-Owner Enterprises (BUMDes) Innovation as a Driving Force for Independent Village Development Through Inclusive Leadership. *Journal of Social Contemplativa*, *2*(2), 78-91. <https://doi.org/10.61183/jsc.v2i2.49>
- Ilori, O., Nwosu, N. T., & Naiho, H. N. N. (2024). Third-party vendor risks in IT security: A comprehensive audit review and mitigation strategies. *World Journal of Advanced Research and Reviews*, *22*(3), 213-224. <https://doi.org/10.30574/wjarr.2024.22.3.1727>
- Jusoh, A., Hassan, A. A. G., Loganathan, N., Kogid, M., Latif, H. A., Zakaria, N. H., ... & Yazid, M. H. A. (2025). Empowering Smallholder Coconut Farmers Through E-Commerce: A Preliminary Study on Current Business Models, Opportunities, and Digital Readiness in Malaysia. *Journal of Contemporary Management Studies*, *1*(1), 1-12.
- Kalogiannidis, S., Loizou, E., Kalfas, D., & Chatzitheodoridis, F. (2022). Local and regional management approaches for the redesign of local development: A case study of Greece. *Administrative Sciences*, *12*(2), 69. <https://doi.org/10.3390/admsci12020069>
- Kaushik, P., Rathore, S. P. S., Sachdeva, L., Poonia, M., Singh, D., & Bir, L. (2024, March). Intelligent transportation systems trusted user's security and privacy. In *2024 IEEE International Conference on Interdisciplinary Approaches in Technology and*

Management for Social Innovation (LATMSI) (Vol. 2, pp. 1-6). IEEE.
<https://doi.org/10.1109/IATMSI60426.2024.10502873>

- Mahaputra, I. K., Susrusa, K. B., Satriawan, I. K., Swastika, D. K. S., Arsana, I. G. K. D., Trisnawati, N. W., ... & Normal, I. N. (2025). Strategies for improving sustainable rice seed supply chain performance in Indonesia: A case study in Bali Province. *Sustainable Futures*, *10*, 101484. <https://doi.org/10.1016/j.sfr.2025.101484>
- Namasudra, S., & Sharma, P. (2022). Achieving a decentralized and secure cab sharing system using blockchain technology. *IEEE Transactions on Intelligent Transportation Systems*, *24*(12), 15568-15577. <https://doi.org/10.1109/TITS.2022.3186361>
- Pawitan, G., Lesmono, D., Aritonang, K., & Diyanah, M. C. (2025). Empowering Rural Communities through Strengthening Village-Owned Enterprises (BUMDes) for Sustainable Socioeconomic Development: A Case Study of Mekarsari Village, Garut Regency. *Society*, *13*(1), 256-274.
- Putra, I. R. A. S., Wibowo, R. A., Purwadi, Andari, T., Asrori, Christy, N. N. A., ... & Suryawardana, E. (2025). Village-Owned Enterprises Perspectives Towards Challenges and Opportunities in Rural Entrepreneurship: A Qualitative Study with Maxqda Tools. *Administrative Sciences*, *15*(3), 74. <https://doi.org/10.3390/admsci15030074>
- Raharjo, S. N. I., & Anuar, A. A. (2022, December). Transnationalism of Sebatik Island Malaysia-Indonesia: A regional economic integration perspective. In *Proceedings of the First Australian International Conference on Industrial Engineering and Operations Management, Sydney, Australia*.
- Rahayu, M. J., Mukaromah, H., & Mulyanto, M. (2024). Social capital-based strategy of sustainable village-owned enterprises (BUMDes) development. *International Journal of Social Economics*, *51*(3), 297-312. <https://doi.org/10.1108/IJSE-10-2022-0700>
- Rahman, M. F., Falzon, D., Robinson, S. A., Kuhl, L., Westoby, R., Omukuti, J., ... & Nadiruzzaman, M. (2023). Locally led adaptation: Promise, pitfalls, and possibilities. *Ambio*, *52*(10), 1543-1557. <https://doi.org/10.1007/s13280-023-01884-7>
- Riyanto, S., & Suminar, M. R. (2023). *Encyclopedia Series For Indonesian Children The Beauty Of Kalimantan*. Penerbit Andi.
- Shanker, S., Sharma, H., & Barve, A. (2022). Analysing the critical success factors and the risks associated with third-party logistics in the food supply chain: a case of coffee industry. *Journal of Advances in Management Research*, *19*(2), 161-197. <https://doi.org/10.1108/JAMR-11-2020-0307>
- Soelarso, S., Ahmad, A. A., Suharno, S., & Adawiyah, W. R. (2024, September). The Development Strategies for Village-Owned Enterprises in Optimizing Local Economy Development in Banyumas Regency, Indonesia. In *2024 IEEE Technology & Engineering Management Conference-Asia Pacific (TEMSCON-ASPAC)* (pp. 1-6). IEEE. <https://doi.org/10.1109/TEMSCON-ASPAC62480.2024.11024648>
- Su, H., Dong, S., Wang, N., & Zhang, T. (2024). An efficient privacy-preserving authentication scheme that mitigates TA dependency in VANETs. *Vehicular Communications*, *45*, 100727. <https://doi.org/10.1016/j.vehcom.2024.100727>
- Sumarsono, H., Qurrata, V. A., Yusida, E., Prayitno, P. H., Rahmawati, F., Wijayanti, F., & Saputra, J. (2025). Circular economy adaptation by creating small business based on

agri-food waste in rural Enterprises in East Java, Indonesia. *International Research Journal of Multidisciplinary Scope*, 6(3), 460-474.

- Venner, K., García-Lamarca, M., & Olazabal, M. (2024). The multi-scalar inequities of climate adaptation finance: a critical review. *Current Climate Change Reports*, 10(3), 46-59.
- Vlachos, I., & Polichronidou, V. (2024). Multi-demand supply chain triads and the role of Third-Party Logistics Providers. *The International Journal of Logistics Management*, 35(1), 136-157. <https://doi.org/10.1108/IJLM-04-2022-0161>
- Yu, Y., Appiah, D., Zulu, B., & Adu-Poku, K. A. (2024). Integrating rural development, education, and management: Challenges and strategies. *Sustainability*, 16(15), 6474. <https://doi.org/10.3390/su16156474>
- Zainol, F. A., Arumugam, N., Daud, W. N. W., Suhaimi, N. A. M., Ishola, B. D., & Ishak, A. Z. (2024). The Impact of Government Intervention on Comparative Advantage of Coconut Farming: A Systematic Review. *International Journal of Sustainable Development & Planning*, 19(6). <https://doi.org/10.18280/ijmdp.190625>
- Zakaria, M. H., Amin, M. Z., Ahmad, M. F., & Dani, M. S. (2022). Market potential and competitiveness assessment of Malaysian coconut-based products. *Econ. Technol. Manag. Rev*, 18, 11-22.