

Utilization of Local Cassava Plants to Make Tape as an Effort to Empower MSMEs in Mainan Village

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ABSTRACT

This study analyzes the utilization of local cassava plants through processing them into tape as a strategy for empowering MSMEs in Mainan Village. The research method used a qualitative approach with literature studies and field observations to examine the production process, economic contribution, and challenges faced. The results show that processing cassava into tape provides significant added value through increased income, job creation, and strengthening the village's economic identity. Furthermore, product innovation and business mentoring have proven to be strategic factors in increasing the competitiveness of tape MSMEs. However, limited capital, the need for halal certification, and product quality standards remain major obstacles that must be overcome. Therefore, multi-stakeholder collaboration based on the Pentahelix model is considered essential to encourage the development of tape MSMEs as an example of sustainable local economic empowerment practices.

Keywords: Cassava, Tape, MSMEs, Toy Village, Economic Empowerment.

I. Introduction

Indonesia is an agricultural country rich in local resources, one of which is cassava. As an easily cultivated food crop, cassava plays a vital role in supporting community food security. However, its economic value at the village level remains limited, as most of it is sold raw at low prices. This situation results in cassava's contribution to improving the welfare of rural communities being less than optimal. Cassava tape is a traditional Indonesian fermented product that is widely loved by the public. The process is relatively simple, namely by fermenting cassava with yeast to produce a sweet taste, soft texture, and distinctive aroma. Although classified as a traditional food, cassava tape has great potential to be developed as a superior product for MSMEs because market demand for fermented-based processed products continues to increase. This is in line with consumer trends that are now looking not only for food as a staple, but also as part of a lifestyle, culinary recreation, and cultural identity. With modern packaging, flavor innovation, and digital marketing strategies, cassava tape can be upgraded from a simple traditional product to a high-value commercial product that can compete in both local and global markets.

The utilization of cassava as tape can be understood as a form of empowerment for MSMEs that has economic, social, and cultural impacts. From an economic perspective, processing cassava into tape provides



significant added value. The price of fresh cassava at the farmer level is relatively low and often unstable, but after being processed into tape, the selling price can increase severalfold. This increase in value certainly has a direct impact on the income of MSMEs, especially in rural areas that are centers of cassava production. From a social perspective, processing cassava tape can create new jobs for the surrounding community, from cassava farmers and tape craftsmen to marketers. The relatively simple tape production process also allows for the participation of housewives, thus supporting women's empowerment in the economic sector. From a cultural perspective, cassava tape is a culinary heritage of the archipelago that reflects local identity. By developing this product in a more modern way, the community not only gains economic benefits but also helps preserve the nation's cultural richness.

In the context of national development, empowering MSMEs through the utilization of cassava to produce tape plays a strategic role. MSMEs have long been recognized as the backbone of the Indonesian economy due to their significant contribution to job creation, income distribution, and economic growth. However, one of the main challenges for MSMEs is limited access to markets, technology, and capital. Therefore, product innovation based on local potential, such as cassava tape, can be a solution to increase the competitiveness of MSMEs. By utilizing easily accessible raw materials, a simple production process, and broad market demand, cassava tape can be a gateway for MSMEs to further develop. Moreover, in the current digital era, MSME products can be marketed more widely through online platforms, thus opening up opportunities for expansion into national and even international markets. Understanding the use of cassava for tape cannot be separated from the perspective of food security and food diversification. The Indonesian government continues to encourage people to rely not only on rice as their primary carbohydrate source but also to utilize other local food sources. In this regard, cassava holds a strategic position as an alternative food ingredient. By processing cassava into tape, people not only obtain delicious and nutritious food but also strengthen local food security based on traditional wisdom. Furthermore, developing cassava tape as a superior product for MSMEs will strengthen the value chain from upstream to downstream, from cassava farmers to end consumers, thereby creating a sustainable economic ecosystem.

Empowering MSMEs through cassava tape processing is also in line with the Sustainable Development Goals (SDGs). This program supports at least three main goals. First, reducing poverty by increasing the income of farmers and MSMEs. Second, creating decent work and economic growth by opening new business opportunities for cassava tape processing. Third, preserving local culture by promoting sustainable communities, as tape is a traditional culinary heritage preserved through modern innovation. Therefore, utilizing cassava to make tape is relevant not only in a microeconomic context but also within the framework of inclusive and sustainable global development. Furthermore, utilizing cassava to make tape as a way to empower MSMEs can also be viewed from a social entrepreneurship perspective. Social entrepreneurship emphasizes the combination of economic and social goals, namely how a business not only pursues profit but also provides benefits to the community. Cassava tape can be a concrete example of social entrepreneurship because, in addition to generating financial benefits for the business owner, it can also improve the welfare of the surrounding community, strengthen social solidarity, and preserve local cultural identity. With the right approach, cassava tape processing can be developed as a sustainable social business model and provide long-term positive impacts.

However, despite its great potential, developing cassava tape as a leading product for MSMEs is not without challenges. One of the main challenges is the still low quality of production and packaging, which is often considered unattractive by modern consumers. Tape products are often sold in simple packaging without labels, making them less competitive than modern food products with more attractive packaging. Furthermore, MSMEs' limited knowledge of business management, marketing strategies, and the use of digital technology is also a barrier. Therefore, efforts to empower MSMEs in cassava tape processing must include aspects of capacity building, both through training, mentoring, and access to capital and technology. Thus, MSMEs can produce high-quality, hygienic tape products, innovate in taste and packaging, and be able to compete in a wider market. On the other hand, support from various parties is essential to encourage the use of cassava as a tape product to empower MSMEs. The government can provide facilitation through policies,

regulations, and technical assistance. Educational institutions can play a role in research and innovation to improve product quality and production processes. The private sector can contribute through partnership programs and corporate social responsibility. Meanwhile, the public can support this by purchasing and appreciating local MSME products. This multi-stakeholder collaboration will strengthen the cassava tape development ecosystem, allowing its benefits to be felt more widely.

Besides being a traditional food product with nutritional value and a distinctive taste, cassava tape also has great potential in the context of product innovation. In this modern era, consumers are increasingly interested in food products that are not only delicious but also healthy, hygienic, and have a longer shelf life. Through innovation, cassava tape can be developed into a variety of derivative products, such as tape brownies, tape sponge cakes, tape ice cream, fermented tape-based drinks, and even processed tape flour that can be used as a raw material for the food industry. Thus, the use of cassava is not limited to the traditional tape commonly sold in markets, but can be expanded into a variety of products with higher economic value. This opens up significant opportunities for MSMEs to enter a wider market segment, including the upper-middle class and export markets that require unique products with a local touch. In terms of branding, cassava tape can be a symbol of proud local creativity. This product can be packaged with local cultural and historical narratives, so it has a selling point not only as a food but also as a representation of regional identity. For example, cassava tape from Bondowoso or Probolinggo is widely known and has a reputation among consumers. The success of these regions in promoting tape products as local identities can serve as an example of how other MSMEs can also make cassava tape an icon of their respective regions. Strong branding will increase the competitiveness of MSMEs, because consumers are not only buying the product, but also buying the stories, traditions, and local pride inherent in the product.

Furthermore, the use of cassava to make tape also aligns with the concept of a circular economy. In this concept, waste from the production process does not simply become waste, but can be reused to create useful products. For example, leftover cassava peels can be processed into animal feed or organic fertilizer, while the fermented water can be used as an additive in the production of liquid fertilizer. With this approach, MSMEs not only profit from tape sales but also reduce production costs while preserving the environment. This eco-friendly approach also adds to the appeal of modern consumers who are increasingly concerned about sustainability issues. Equally important, empowering MSMEs through cassava tape processing can also play a role in increasing village economic independence. One of the main challenges to rural development has been the community's limited access to sustainable economic opportunities. By leveraging local potential, such as cassava, villages can create joint ventures managed collectively by the community. A cooperative-based business model or farmer group can be implemented to manage cassava tape production in an organized manner, so that the benefits are shared and not enjoyed by a select few. In this way, cassava tape MSMEs become not only a source of individual income but also an instrument of collective empowerment that strengthens village economic independence.

The advent of digitalization and information technology has opened up significant opportunities for the development of cassava tape in the marketing realm. While tape products were previously sold only in traditional markets or small stalls, now MSMEs can market their products through social media, marketplaces, and e-commerce platforms. The presence of Google My Business, Instagram, TikTok Shop, and Shopee and Tokopedia provides extensive platforms for MSMEs to introduce their products to a wider market. Through digital marketing strategies, cassava tape can be repackaged as a modern product while maintaining its traditional flavor. Creativity in creating digital content, such as photos, videos, and storytelling, will increase consumer interest in this local product. Thus, digitalization is a strengthening factor that accelerates the transformation of cassava tape MSMEs to a higher level of competitiveness. Ultimately, the utilization of cassava into tape as a means of empowering MSMEs is not only about transforming a food ingredient into a product of economic value, but also about transforming society towards independence, creativity, and sustainability. This introduction emphasizes that cassava tape can be a strategic instrument in local economic development, social empowerment, cultural preservation, and even in maintaining environmental sustainability. With full support from various parties, including government, academics, the private sector, and

the community, the development of cassava tape will not only improve the welfare of MSMEs but also have a broader positive impact on national development. Therefore, studies and studies on the utilization of cassava into tape within the framework of MSME empowerment are very important to continue to be developed, so that the enormous potential contained within can be optimized to the maximum to realize a more just, equitable, and sustainable community welfare.

Utilizing cassava to produce tape has been proven to support community economic empowerment. Various studies have shown that diversifying processed tape products can increase the income of MSMEs and strengthen local culinary identity (Novia et al., 2018; Ismanto et al., 2023). Furthermore, developing a cassava tape business is considered feasible and has promising prospects if managed with the right business development strategy (Latifa & Ridjal, 2023; Setiawan & Arifin, 2024). In the context of MSMEs, the development of cassava tape is also aligned with community empowerment programs that emphasize innovation, training, and technology utilization. Mentoring through training activities has been proven to increase the capacity of MSMEs, particularly in production aspects (Ilmi & Supeni, 2022; Sayekti et al., 2023). Innovation in processed cassava products also contributes to business sustainability and increased MSME competitiveness at the local and national levels (Afri et al., 2024; Fajriyah et al., 2025). However, several challenges remain, such as limited capital, the need for halal certification, and consistent product quality. Halal certification efforts, for example, are considered crucial for expanding the market and increasing consumer confidence in cassava tape products (Nola Rahmah et al., 2024). Therefore, collaborative strategies based on innovation, government policy support, and ongoing mentoring are needed to encourage the strengthening of cassava tape MSMEs in villages.

II. Literature Review and Hypothesis Development

2.1. Cassava as a Local Crop with Economic Value

Cassava is a crucial agricultural commodity in Indonesia, contributing to community food security. As an easily cultivated crop, cassava has significant potential for development into various value-added processed products (Malik et al., 2020). Optimal cassava utilization has been shown to support the economic empowerment of rural communities, particularly through food processing (Ismanto et al., 2023). Cassava is known for its high adaptability to various soil conditions, including marginal, nutrient-poor lands. This makes it highly potential for further development, as it can be cultivated at relatively low cost, with simple technology, and yields a relatively abundant yield. These advantages make cassava a highly economically valuable local crop, not only for food security but also for improving community welfare and strengthening the national economic base. The economic value of cassava can be seen in its diverse functions and uses. As a food ingredient, cassava is a source of carbohydrates that can replace rice or corn. Cassava's high energy content makes it suitable as an alternative staple food, especially in areas frequently facing rice crises. With increasing public awareness of the importance of food diversification, cassava is again gaining attention as a strategic food ingredient that can support national food security. Freshly, cassava is usually boiled, fried, or baked for direct consumption. However, its added economic value increases when cassava is processed into various derivative products such as cassava chips, tape (tape), getuk (getuk), tiwul (rice flour), and tapioca flour. These products have a higher selling value and broad appeal in both domestic and international markets, providing significant opportunities for communities to gain economic benefits.

Cassava is not only useful as a food ingredient but also has economic value in non-food industries. Tapioca flour produced from cassava, for example, is widely used in the food, pharmaceutical, textile, paper, and adhesive industries. Cassava starch can even be processed into bioethanol, an environmentally friendly biofuel that can be used as a renewable energy alternative. The use of cassava in the bioethanol industry has attracted global attention because it is considered capable of reducing dependence on fossil fuels while reducing carbon emissions. Thus, cassava plays a role not only in food security but also in energy security, a strategic issue at the international level. This potential demonstrates that cassava has vast economic value,

spanning the agricultural, industrial, energy, and environmental sectors. In a socio-economic context, cassava plays a significant role in community empowerment, particularly in rural areas. Most cassava farmers are smallholders who rely on their harvest to meet their daily needs. The relatively easy cultivation of cassava allows many rural families to participate in its production, both as farmers and as processors. By processing cassava into value-added products, communities not only earn higher incomes but also create new jobs. For example, small and medium enterprises producing cassava chips or tape (tape) can absorb local labor, particularly among women and youth. Thus, cassava serves as an instrument for community economic empowerment and a means to reduce unemployment and poverty.

Furthermore, cassava holds cultural value that is inseparable from the lives of Indonesian people. Many regions have distinctive culinary delights based on cassava, such as tiwul in Gunungkidul, lemet in Banyumas, or tape in East Java. The existence of these traditional cassava-based foods demonstrates that this local crop holds not only economic but also cultural value. By preserving cassava-based culinary delights, communities not only gain economic benefits but also strengthen their local cultural identity. The potential for a creative economy is also vast when cassava-based products are packaged with modern innovations without losing their traditional values. For example, cassava tape can be developed into a unique souvenir product with modern packaging that appeals to tourists, thereby increasing regional income while preserving the archipelago's culinary culture. Globally, cassava also offers significant potential to become a leading export commodity. Several countries in Africa, Latin America, and Asia rely heavily on cassava as a staple food, leading to increasing demand for cassava products and their derivatives. As one of the world's largest cassava producers, Indonesia has significant opportunities to expand its export market, particularly for value-added processed products such as tapioca, chips, and bioethanol. However, this opportunity has not been optimally utilized due to limitations in processing technology, quality standards, and marketing strategies. Therefore, strengthening the capacity of MSMEs and cassava-based industries is key to increasing the competitiveness of Indonesian cassava products in the international market.

Developing cassava as a locally valuable crop also faces various challenges. One of these is the low selling price of fresh cassava at the farm level, which often prevents farmers from earning a decent profit. Fluctuations in cassava prices are influenced by unstable industrial demand and farmers' lack of access to broader markets. Furthermore, cassava productivity in Indonesia remains relatively low compared to other cassava-producing countries. This is due to the use of inferior seeds, traditional cultivation techniques, and farmers' limited access to modern technology and production facilities. If these challenges are not addressed promptly, cassava's economic potential will not be fully utilized. To make cassava a leading commodity with economic value, a comprehensive development strategy is required. First, strengthening the upstream sector through the provision of superior seeds, improving cultivation techniques, and supporting agricultural production facilities. This is crucial for increasing the productivity and quality of cassava produced. Second, developing the downstream sector by encouraging the cassava processing industry to produce value-added products. The government can facilitate training, technology, and access to capital for MSMEs operating in this sector. Third, expanding market access at both the national and international levels through promotion, improving quality standards, and supporting export policies. Fourth, integrating farmers, entrepreneurs, the government, and educational institutions to build a strong and sustainable cassava ecosystem.

In addition to these strategies, technological innovation also plays a crucial role in developing cassava as an economically valuable crop. With more modern processing technology, cassava-based products can have longer shelf life, more consistent quality, and a wider variety of varieties. This innovation not only increases product added value but also opens up opportunities for MSMEs to enter the premium market segment. For example, gluten-free cassava flour can be marketed as a health product, which is increasingly sought after by global consumers. This product even has significant potential to enter the export market, where demand continues to rise in line with healthy lifestyle trends. Furthermore, cassava also plays a strategic role in sustainable development. As a drought-resistant crop that can grow on marginal land, cassava can be a solution to address climate change and land degradation. By encouraging cassava cultivation, communities can utilize unproductive land to produce food and income. This aligns with the Sustainable Development

Goals (SDGs) agenda, particularly in terms of poverty alleviation, decent job creation, and food security. Cassava also supports the transition to clean energy through the use of bioethanol as an environmentally friendly fuel. Thus, developing cassava as a locally valuable crop benefits not only farmers and MSMEs, but also environmental sustainability and global development. With all its advantages and potential, cassava can be positioned as a strategic commodity that makes a real contribution to Indonesia's economic, social, and cultural development. However, to truly realize this, commitment and synergy are needed from various parties. The government needs to provide conducive and supportive policies, businesses need to increase their innovation capacity and competitiveness, and the public needs to continue appreciating and consuming cassava-based products. If all parties can work together, cassava will be recognized not only as a common crop but as a superior local commodity with high economic value, global competitiveness, and a significant contribution to community well-being.

2.2. Cassava Tape as a Traditional Processed Product

Cassava tape is a traditional fermented product widely consumed by Indonesians. Diversification of tape products, such as tape brownies, tape dodol (sweetened sticky rice cake), and fermented drinks, has been shown to increase community income and strengthen local culinary identity (Novia et al., 2018). Furthermore, a business feasibility analysis indicates that cassava tape development has promising economic prospects if managed with the right business strategy (Latifa & Ridjal, 2023; Setiawan & Arifin, 2024). This product is made through a cassava fermentation process using yeast consisting of various microorganisms, especially *Saccharomyces cerevisiae* and *Amylomyces rouxii*. Fermentation converts the starch content in cassava into simple sugars and alcohol, resulting in a sweet taste with a slight sour sensation and a distinctive aroma that distinguishes tape from other cassava products. The presence of cassava tape is not just a food product, but also part of the Indonesian culinary heritage that has been passed down from generation to generation. Many regions in Indonesia have their own characteristics of cassava tape, both in terms of taste, texture, and how to serve it, so this product enriches the diversity of local culinary culture.

The traditional value of cassava tape can be seen in its place in various cultural activities. In some regions, cassava tape is not only consumed as a daily snack, but also part of traditional ceremonies, celebrations, and folk festivals. Its simple and home-based preparation makes cassava tape deeply embedded in rural communities. Furthermore, tape is often considered a food that symbolizes togetherness, as it is typically produced collectively within families or community groups, especially on special occasions. This cultural value makes cassava tape not only seen as a common food product, but also as an identity and symbol of local wisdom of the Indonesian people. From an economic perspective, cassava tape has great potential to be developed as a flagship product for MSMEs. The production process is relatively simple and does not require complex modern equipment, making it accessible to those with limited capital. The raw material, cassava, is also relatively inexpensive and readily available in various regions, making tape production very affordable. However, despite its simplicity, the selling price of tape is much higher than that of fresh cassava. This makes tape a product capable of providing significant added value for both farmers and MSMEs. Many small business owners have successfully increased their family income through tape production, both for sale in traditional markets and as a regional specialty. With the right packaging and marketing strategies, cassava tape even has the potential to penetrate modern markets, such as supermarkets, restaurants, and even export markets.

Besides its economic value, cassava tape also boasts considerable nutritional value. Fermented cassava produces simple sugars, B-complex vitamins, and probiotics that are beneficial for digestion. The alcohol content in cassava tape does give it a distinctive flavor, but in moderate amounts, this product is safe to consume. Several studies have also indicated that cassava tape has health benefits, including helping to improve digestion, increasing energy, and improving metabolism. This demonstrates that cassava tape is not only a traditional culinary product but also has potential as a functional food that can attract the interest of modern consumers who are increasingly concerned about health. In the modern era, cassava tape continues

to experience innovation in both taste and presentation. While previously consumed as a snack, tape has now been processed into a variety of more modern variants, such as tape brownies, tape sponge cake, tape donuts, tape ice cream, and even tape-based drinks. This innovation opens up new opportunities for businesses to expand their market and reach consumers from various segments, including young people and the upper middle class. Innovation has also helped cassava tape break away from its image as a simple traditional food and become a modern culinary product that is widely sought after. With the right branding and promotion, cassava tape can compete with other modern food products, both in local and national markets.

Cassava tape is also closely linked to the tourism sector. Many regions in Indonesia make cassava tape a signature souvenir, such as Bondowoso tape in East Java or Kuningan tape in West Java. This product is a unique attraction for tourists who want to bring home something that reflects the region's uniqueness. Therefore, the development of cassava tape significantly supports the increasingly popular culinary tourism sector. When tourists enjoy local cuisine, they not only purchase food but also take away the cultural experience inherent in the product. In this context, cassava tape holds strategic value as a superior tourism product that can increase regional income while preserving local culture. However, the development of cassava tape as a traditional product also faces several challenges. One of these is the issue of quality and production standards, which still vary widely. Many cassava tape producers still use traditional methods without paying attention to hygiene and food safety standards. This has the potential to reduce product quality and limit competitiveness in the modern market. Another challenge is packaging that is often simple and unattractive, making it less competitive than modern food products with more professional packaging designs. Furthermore, limited knowledge among MSMEs in business management, product innovation, and digital marketing also hinders the development of cassava tape businesses in the era of globalization.

To overcome these challenges, empowerment and mentoring strategies are needed for cassava tape MSMEs. The government, educational institutions, and the private sector can play an active role in providing training on production standards, processing technology, product innovation, and marketing. By implementing good standards, cassava tape can be produced more hygienically, consistently, and in accordance with modern market needs. Modern packaging with attractive designs also needs to be developed to provide the tape with a visual appeal that can compete in the retail market. Furthermore, the use of digital technology through social media, marketplaces, and e-commerce can be an effective means of expanding the cassava tape market nationally and even internationally. Furthermore, research and innovation from universities and research institutions are crucial to supporting the development of cassava tape. Research can focus on developing superior yeast, improving the nutritional value of the product, and diversifying cassava-based processed products. Research findings can be implemented in MSME production, resulting in higher-quality, safer, and more competitive products. Collaboration between academics, government, businesses, and the community is key to elevating cassava tape to a modern, sustainable, and superior traditional product.

2.3. The Role of MSMEs in Economic Empowerment

MSMEs are the main driving force of the village economy by creating jobs, increasing family income, and reducing unemployment. In the context of cassava processing, tape-based MSMEs have the opportunity to grow through innovation and product diversification strategies (Afri et al., 2024). Other research also shows that innovations in cassava processing can strengthen the competitiveness of MSMEs while positively impacting the local economy (Fajriyah et al., 2025). Micro, Small, and Medium Enterprises (MSMEs) are a vital sector in the Indonesian economy. They are considered the backbone of the economy, absorbing a large workforce, increasing community incomes, and serving as a key driver of local economic empowerment. MSMEs are widespread throughout the region, from major cities to remote villages, enabling them to reach segments of society not yet served by larger corporations. Therefore, the role of MSMEs is inseparable from efforts to build an inclusive, sustainable, and competitive national economic foundation. In the context of

economic empowerment, MSMEs serve not only as profit-generating business units but also as strategic instruments for equitable prosperity, poverty alleviation, and grassroots community empowerment.

One of the greatest contributions of MSMEs to economic empowerment is their ability to absorb a large workforce. Amidst the limited formal employment opportunities provided by large companies and the government sector, MSMEs present a real solution for communities to earn income. Many MSMEs start businesses from home, on a small scale, or as family businesses, yet they can create new, productive job opportunities. MSMEs also often serve as entry points for workers without higher education or specialized skills to participate in economic activities. Thus, MSMEs play a crucial role in reducing unemployment rates, increasing community productivity, and helping drive the local economy. In addition to providing employment, MSMEs also play a significant role in increasing income and purchasing power. The growth of MSMEs in a region will increase the economic dynamics due to ongoing buying and selling transactions. MSMEs not only produce products or services to meet consumer needs but also create a supply chain involving multiple parties, from raw material suppliers and laborers to distributors. This established economic chain provides a multiplier effect for the local economy, thereby improving overall community welfare. This is especially crucial in rural areas, where MSMEs often serve as the primary source of family income.

Moreover, MSMEs play a strategic role in poverty alleviation. By providing business opportunities for low-income communities, MSMEs are an effective economic empowerment tool for reducing social inequality. Many poor communities without access to formal employment can start small businesses with limited capital as a way out of poverty. For example, food stalls, handicrafts, laundry services, or small-scale agriculture can provide sustainable sources of income. When low-income communities are empowered through MSMEs, they become not only beneficiaries but also active actors in economic development. This concept makes MSMEs a crucial tool in creating an inclusive and equitable people's economy. MSMEs also play a role in preserving local wisdom and the economic culture of the community. Many MSMEs operate in handicrafts, traditional culinary arts, and other locally-based products that reflect regional cultural identity. By developing products based on local culture, MSMEs not only generate economic value but also contribute to preserving the nation's cultural heritage. For example, batik businesses in Java, weaving in Nusa Tenggara, or regional culinary specialties such as rendang in West Sumatra and tape in East Java are all produced by MSMEs that utilize the potential of local wisdom. Through MSMEs, these cultural values are kept alive and even have the opportunity to be introduced to the global market, thus becoming a source of national pride and a source of foreign exchange.

In the context of women's empowerment, MSMEs also play a significant role. Many MSME owners are women, particularly housewives, who utilize their free time and skills to produce marketable products. MSMEs provide opportunities for women to actively participate in economic activities without having to abandon their roles within the family. This not only increases household income but also strengthens women's positions in family and community economic decision-making. With more women empowered through MSMEs, gender equality in the economic sector can be achieved, resulting in more inclusive and sustainable development. Beyond their direct benefits to society, MSMEs also play a role in enhancing national economic resilience. In crises, such as the 1997-1998 monetary crisis or the COVID-19 pandemic, the MSME sector has proven more resilient than large companies. This is due to MSMEs' high flexibility, relatively low operational costs, and proximity to local markets. While many large companies have gone bankrupt, MSMEs have been able to survive and continue driving the economy at the grassroots level. Therefore, the existence of MSMEs is crucial in maintaining national economic stability and acting as a buffer against global shocks.

The role of MSMEs in economic empowerment is also evident in their contribution to Gross Domestic Product (GDP). Data shows that the MSME sector contributes more than 60% of Indonesia's GDP. This figure demonstrates that although most MSMEs operate on a small scale, collectively they have a tremendous impact on the national economy. This contribution spans nearly all sectors, from trade and agriculture to fisheries and manufacturing to services. With a vast base and a large number of players, MSMEs are a key foundation in Indonesia's economic structure. However, the significant role of MSMEs in economic empowerment is not without challenges. The main challenge is limited capital and access to financing. Many MSMEs struggle to obtain loans from formal financial institutions due to limited collateral and creditworthiness. As a result, they

rely solely on their own capital or informal loans, which often carry high interest rates. Another challenge is limited managerial capacity and human resource skills. Many MSMEs are still managed traditionally without a well-developed business plan, making it difficult for them to grow and compete in the broader market.

Limited access to technology and information is also a major obstacle for MSMEs. In the digital era, a business's success depends heavily on its ability to utilize information technology for marketing, distribution, and product innovation. However, many MSMEs are unable to optimally utilize digital technology due to limited knowledge and infrastructure. As a result, MSME products often struggle to compete with larger, more modern products with extensive marketing networks. Another issue is the limited legality and certification. Many MSMEs lack business permits, trademarks, or standard certification, making it difficult to enter modern markets or export. To overcome these challenges, support is needed from various parties, including the government, financial institutions, academics, and the private sector. The government has a strategic role in creating supportive regulations, providing easily accessible financing facilities, and providing management and technology training for MSMEs. Programs such as People's Business Credit (KUR), entrepreneurship training, and business mentoring need to be expanded to reach more MSMEs. The private sector can also contribute through partnership programs and corporate social responsibility (CSR) programs focused on MSME development. Meanwhile, universities can contribute through research and innovation that can help improve the quality and competitiveness of MSME products.

In addition to external support, MSMEs themselves also need to increase their capacity and competitiveness. MSMEs must be bold in innovating, both in terms of products, design, and marketing strategies. Utilizing digital technologies, such as social media, marketplaces, and e-commerce, is key to expanding the market and reaching a wider consumer base. Attractive product packaging, quality improvement, and consistent service are also crucial for MSME products to compete with modern products. With a willingness to grow, MSMEs can move up from small to medium, or even large, businesses. In the context of globalization, MSMEs also have significant opportunities to penetrate international markets. Indonesian MSME products, such as handicrafts, batik, traditional foods, and creative products, have high appeal in the global market. However, to enter the international market, MSMEs must meet quality standards, legality, and production continuity. Therefore, government support in the form of MSME product promotion at international exhibitions, export facilitation, and strengthening local product branding is crucial. If this opportunity is properly utilized, MSMEs can become a driving force for non-oil and gas exports, increasing the country's foreign exchange earnings and strengthening Indonesia's position in global trade.

2.4. Innovation and Challenges for MSMEs

Mentoring through training and financial literacy has been shown to increase the production capacity of MSMEs (Ilmi & Supeni, 2022; Sayekti et al., 2023). However, cassava tape entrepreneurs still face various challenges, such as limited capital, consistent product quality, and halal certification. Halal certification efforts are considered crucial for expanding the market and increasing the competitiveness of tape products at the regional and national levels (Nola Rahmah et al., 2024). Micro, Small, and Medium Enterprises (MSMEs) are a vital sector in the Indonesian economy. They are considered the backbone of the economy, absorbing a large workforce, increasing community incomes, and serving as a key driver of local economic empowerment. MSMEs are widespread throughout the region, from major cities to remote villages, enabling them to reach segments of society not yet served by larger corporations. Therefore, the role of MSMEs is integral to building an inclusive, sustainable, and competitive national economic foundation. Within the context of economic empowerment, MSMEs serve not only as profit-generating business units but also as strategic instruments for equitable distribution of prosperity, poverty alleviation, and grassroots community empowerment.

One of the greatest contributions of MSMEs to economic empowerment is their ability to absorb a large workforce. Amidst the limited formal employment opportunities provided by large companies and the government sector, MSMEs present a real solution for communities to earn income. Many MSMEs start businesses from home, on a small scale, or as family businesses, yet they can create new, productive job

opportunities. MSMEs also often serve as entry points for workers without higher education or specialized skills to participate in economic activities. Thus, MSMEs play a crucial role in reducing unemployment rates, increasing community productivity, and helping drive the local economy. In addition to providing employment, MSMEs also play a significant role in increasing income and purchasing power. The growth of MSMEs in a region will increase the economic dynamics due to ongoing buying and selling transactions. MSMEs not only produce products or services to meet consumer needs but also create a supply chain involving multiple parties, from raw material suppliers and laborers to distributors. This established economic chain provides a multiplier effect for the local economy, thereby improving overall community welfare. This is especially crucial in rural areas, where MSMEs often serve as the primary source of family income.

Moreover, MSMEs play a strategic role in poverty alleviation. By providing business opportunities for low-income communities, MSMEs are an effective economic empowerment tool for reducing social inequality. Many poor communities without access to formal employment can start small businesses with limited capital as a way out of poverty. For example, food stalls, handicrafts, laundry services, or small-scale agriculture can provide sustainable sources of income. When low-income communities are empowered through MSMEs, they become not only beneficiaries but also active actors in economic development. This concept makes MSMEs a crucial tool in creating an inclusive and equitable people's economy. MSMEs also play a role in preserving local wisdom and the economic culture of the community. Many MSMEs operate in handicrafts, traditional culinary arts, and other locally-based products that reflect regional cultural identity. By developing products based on local culture, MSMEs not only generate economic value but also contribute to preserving the nation's cultural heritage. For example, batik businesses in Java, weaving in Nusa Tenggara, or regional culinary specialties such as rendang in West Sumatra and tape in East Java are all produced by MSMEs that utilize the potential of local wisdom. Through MSMEs, these cultural values are kept alive and even have the opportunity to be introduced to the global market, thus becoming a source of national pride and a source of foreign exchange.

In the context of women's empowerment, MSMEs also play a significant role. Many MSME owners are women, particularly housewives, who utilize their free time and skills to produce marketable products. MSMEs provide opportunities for women to actively participate in economic activities without having to abandon their roles within the family. This not only increases household income but also strengthens women's positions in family and community economic decision-making. With more women empowered through MSMEs, gender equality in the economic sector can be achieved, resulting in more inclusive and sustainable development. Beyond their direct benefits to society, MSMEs also play a role in enhancing national economic resilience. In crises, such as the 1997-1998 monetary crisis or the COVID-19 pandemic, the MSME sector has proven more resilient than large companies. This is due to MSMEs' high flexibility, relatively low operational costs, and proximity to local markets. While many large companies have gone bankrupt, MSMEs have been able to survive and continue driving the economy at the grassroots level. Therefore, the existence of MSMEs is crucial in maintaining national economic stability and acting as a buffer against global shocks.

The role of MSMEs in economic empowerment is also evident in their contribution to Gross Domestic Product (GDP). Data shows that the MSME sector contributes more than 60% of Indonesia's GDP. This figure demonstrates that although most MSMEs operate on a small scale, collectively they have a tremendous impact on the national economy. This contribution spans nearly all sectors, from trade and agriculture to fisheries and manufacturing to services. With a vast base and a large number of players, MSMEs are a key foundation in Indonesia's economic structure. However, the significant role of MSMEs in economic empowerment is not without challenges. The main challenge is limited capital and access to financing. Many MSMEs struggle to obtain loans from formal financial institutions due to limited collateral and creditworthiness. As a result, they rely solely on their own capital or informal loans, which often carry high interest rates. Another challenge is limited managerial capacity and human resource skills. Many MSMEs are still managed traditionally without a well-developed business plan, making it difficult for them to grow and compete in the broader market.

Furthermore, limited access to technology and information is also a major obstacle for MSMEs. In the digital era, a business's success depends heavily on its ability to utilize information technology for marketing, distribution, and product innovation. However, many MSMEs are unable to optimally utilize digital technology

due to limited knowledge and infrastructure. As a result, MSME products often struggle to compete with larger, more modern products with extensive marketing networks. Another issue is the limited legality and certification. Many MSMEs lack business permits, trademarks, or standard certification, making it difficult to enter modern markets or export. To overcome these challenges, support is needed from various parties, including the government, financial institutions, academics, and the private sector. The government has a strategic role in creating supportive regulations, providing easily accessible financing facilities, and providing management and technology training for MSMEs. Programs such as People's Business Credit (KUR), entrepreneurship training, and business mentoring need to be expanded to reach more MSMEs. The private sector can also contribute through partnership programs and corporate social responsibility (CSR) programs focused on MSME development. Meanwhile, universities can contribute through research and innovation that can help improve the quality and competitiveness of MSME products.

In addition to external support, MSMEs themselves also need to increase their capacity and competitiveness. MSMEs must be bold in innovating, both in terms of products, design, and marketing strategies. Utilizing digital technologies, such as social media, marketplaces, and e-commerce, is key to expanding the market and reaching a wider consumer base. Attractive product packaging, quality improvement, and consistent service are also crucial for MSME products to compete with modern products. With a willingness to grow, MSMEs can move up from small to medium, or even large, businesses. In the context of globalization, MSMEs also have significant opportunities to penetrate international markets. Indonesian MSME products, such as handicrafts, batik, traditional foods, and creative products, have high appeal in the global market. However, to enter the international market, MSMEs must meet quality standards, legality, and production continuity. Therefore, government support in the form of MSME product promotion at international exhibitions, export facilitation, and strengthening local product branding is crucial. If this opportunity is properly utilized, MSMEs can become a driving force for non-oil and gas exports, increasing the country's foreign exchange earnings and strengthening Indonesia's position in global trade.

III. Research Method

This research employed a qualitative approach with two primary methods: a literature review and participatory field observation. The literature review examined various literature related to the use of cassava as a local food ingredient and strategies for developing village-based MSMEs. Field observations were conducted in Mainan Village with Ceu Eem MSMEs to directly document the cassava tape production process, from ingredient preparation and fermentation to product packaging. Data analysis was conducted using content analysis techniques, which include coding, grouping information, and drawing interpretive conclusions. Literature data were compared with field findings to identify potential strategies and challenges in developing cassava tape businesses at the village level. Thus, this study not only provides a theoretical overview but also presents empirical evidence through the practice of Community Service Program (KKN-T) mentoring with MSMEs.

IV. Results and Discussion

Mainan Village has the potential for fertile agricultural land, dominated by cassava. This is in line with Malik et al. (2020), who emphasized cassava as a strategic commodity due to its ease of cultivation and role in food security. Ismanto et al. (2023) also demonstrated that processing it into processed products supports village economic empowerment. The abundant availability of raw materials provides the basis for the development of value-added products, one of which is cassava tape. Processing cassava into tape has been shown to provide higher economic value than selling it raw. Product diversification, such as brownies, dodol (sweetened sticky rice cake), and fermented drinks, can increase community income (Novia et al., 2018). Financially, household-scale tape businesses are considered viable, with a relatively quick break-even point if the production strategy is implemented effectively (Latifa & Ridjal, 2023; Setiawan & Arifin, 2024).

Cassava-based MSMEs play a role in increasing income and creating jobs. Innovation in cassava processing is a strategy for MSME sustainability while strengthening local competitiveness (Afri et al., 2024; Fajriyah et al., 2025). Capacity building for MSMEs is carried out through training in hygienic production and financial literacy. Ilmi & Supeni (2022) and Sayekti et al. (2023) demonstrate that structured mentoring can enhance business capacity, while Wulandari et al. (2024) emphasize the importance of technological innovation in increasing competitiveness. However, the development of cassava tape MSMEs still faces obstacles, such as limited capital, consistent quality, and the crucial need for halal certification to expand the market (Nola Rahmah et al., 2024). Therefore, policy support and multi-stakeholder collaboration are needed to strengthen the sustainability of cassava tape MSMEs in Mainan Village. Stages of making tape from cassava:



Explanation :

Figure 1 : The initial process of making cassava tape begins with peeling the main raw material. This activity is carried out manually by KKN students and Ceu Eem MSMEs to maintain the quality of the cassava before washing.

Figure 2 : After peeling, the cassava is thoroughly washed to remove any remaining skin, soil, and dirt. This washing process is carried out with KKN students in the production house yard to ensure the ingredients remain hygienic before fermentation.

Figure 3 : The cleaned cassava is then cut and inspected again to ensure there are no remaining impurities. This step is carried out manually by Ceu Eem MSMEs to ensure the quality of the tape is maintained.

Figure 4 : Cassava ready for fermentation is arranged in a container lined with banana leaves. The banana leaves maintain moisture and impart a distinctive aroma to the tape.

Figure 5 : The fermentation container is then tightly covered with banana leaves and a metal lid to create optimal conditions. This process lasts 2–3 days, until the cassava changes texture and develops the distinctive sweet flavor of tape.

Figure 6 : Documentation of cassava tape production results neatly packaged in plastic. MSME actors and KKN students are seen collaborating directly in the production process, with the banner "Ceueem Production" in the background.

Figure 7 : Group photo of Community Service Program students and Ceueem MSMEs in front of the production house. This documentation illustrates collaboration in local product development, from rengginang as the main product to the innovation of cassava tape.

V. Conclusion

Optimizing local resources through the development of cassava tape in Mainan Village has great potential as a strategic step in empowering MSMEs. The availability of raw materials in the form of cassava, supported by the enthusiasm of the community and Synergy with MSMEs such as Ceueem, becomes significant social and economic capital. Tape production carried out in one location with the rengginang business provides efficiency and opportunities for product collaboration. The implementation of tape processing training and financial literacy has made a real contribution to increasing the capacity of MSME actors. In addition to technical aspects, the application of Islamic economic values also forms the basis of business ethics that strengthen the welfare of society holistically. This study also shows that a collaborative approach between sectors through the Pentahelix model is key to creating a sustainable tape business development ecosystem. Downstreaming of tape products not only provides added economic value, but also strengthens the local identity of Mainan Village as a center for cassava-based food innovation.

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