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Strategies to Promote Investment in the Cassava-Processing Agro-Industry : Advancing Local Food Downstreaming and Sustainable Economic Transformation in Sikka Regency

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Abstract

This study aims to formulate an integrated strategy for promoting investment in the cassava-processing agro-industry in Sikka Regency, particularly in the Maumere area. The analysis focuses on identifying structural barriers to investment, mapping the potential of high-value cassava-based products, and designing an institutional model that fosters collaboration among local farmers, micro, small, and medium-sized enterprises (MSMEs), investors, and local government. The study seeks to provide a blueprint for local food industrialization that reflects the characteristics of an archipelagic region, including Sikka Regency's extensive dryland areas.

This study employed a qualitative method with a case study approach to gain an in-depth understanding of investment development in the cassava-processing agro-industry as part of local food downstreaming and sustainable economic transformation in Sikka Regency.

The findings indicate that cassava has a promising production base and is already used as a food source and as a raw material for various MSME products. Agro-industry development is supported by raw material availability, market opportunities, and local labor. However, it faces several constraints, including limited capital, technology, post-harvest facilities, infrastructure, and market access, as well as high logistics costs.

Keyword : investment; downstreaming; economic transformation

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INTRODUCTION

Food security is a strategic aspect that plays an important role in supporting national development (Rumawas et al., 2021). Indonesia is an agrarian country endowed with abundant biological resources and a substantial agricultural sector, which supports economic development and food security (Anggita S et al., 2022). As globalization advances, many countries have strengthened downstream processing in the food sector to produce goods with greater competitiveness in global markets (Bakhtiar, 2024). National economic development is directed toward strengthening an economic structure that creates added value, increases competitiveness, expands

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employment opportunities, and reinforces food security through the use of local resources. The concept of food security emphasizes people's access to sufficient, safe, and nutritious food through its physical, social, and economic dimensions (Ariani & Suryana, 2023). Food security concerns not only the availability of food, but also people's ability to access and afford food that is sufficient, safe, and nutritious.

Agriculture remains strategically important to the Indonesian economy because it supplies food and industrial raw materials, absorbs labor, and supports rural economic activity. Data from Statistics Indonesia indicate that agriculture, forestry, and fisheries remain important contributors to national gross domestic product (GDP). However, agricultural commodities are still insufficiently processed: much of the output is marketed as raw material without further processing that could generate greater economic returns. As a result, the added value, supply-chain efficiency, and competitiveness of local products have not been fully developed. Research has shown that investment in agro-industry can increase agricultural productivity and promote economic transformation through the growth of processing industries.

Agro-industry is regarded as a strategic instrument for supporting industrialization based on local resources. It includes agricultural processing, product diversification, more efficient distribution, stronger economic value chains, and closer integration between primary production and industry. This is not merely a technical strategy; it requires coordinated collaboration among businesses, farmers, government, and academia. International studies have found that agro-processing can strengthen regional economic development, create jobs, and raise rural incomes through the effective use of local commodities (Goffar et al., 2025). National research also indicates that downstream processing of agricultural commodities can improve regional competitiveness by creating added value and attracting domestic investment (Fajrin Puspa Rini et al., 2025). Strengthening agro-industry investment is therefore an important step toward sustainable economic growth.

East Nusa Tenggara (NTT) is one of the regions whose economy remains dominated by primary sectors, particularly agriculture, livestock, and traditional fisheries. Its archipelagic geography and extensive dryland areas call for an economic development approach that adapts to environmental constraints and makes use of local resources. Cassava and sweet potato are among the local food commodities with strong potential. They can adapt to dry agro-climatic conditions, are relatively resilient to climate variability, and generally require lower cultivation costs than some other food crops. Research suggests that adaptable local food crops such as cassava and sweet potato can support food security and regional economic diversification (Dewi, 2026).

Investment barriers remain a major challenge to developing the cassava-processing agro-industry in Sikka Regency. Uneven post-harvest facilities, limited access to financing, low technology adoption, weak inter-island logistics connectivity, and inadequate integration among farmers, MSMEs, and processing industries have slowed the industrialization of local food. These constraints contribute to low production capacity, limited product innovation, and weak market competitiveness. Research has highlighted the role of agro-industry investment in strengthening links between agriculture and industry and supporting economic

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growth in developing regions (Mundial, 2022). At the same time, agricultural land degradation remains a global concern (Chasek, 2022).

METHODOLOGY

This study was conducted in Sikka Regency, East Nusa Tenggara Province. The location was selected because cassava is one of the local food sources suited to the agro-climatic conditions of this archipelagic region. This study used a qualitative method with a case study approach. The approach was selected to develop an in-depth understanding of investment in the cassava-processing agro-industry as part of local food downstreaming and sustainable economic transformation in Sikka Regency. A qualitative study seeks to understand human or social events through detailed and complex descriptions expressed in words and examined in their natural context. Pramiyati (2017) explains that primary data are obtained directly from their original sources. Such data can provide information that reflects actual conditions and can support decision-making.

Secondary data refer to information drawn from books, texts, journals, scientific articles, and literature reviews containing concepts relevant to the research. In a research context, secondary data consist of information previously recorded or documented (Jabnabillah et al., 2023).

The case study approach was chosen to examine conditions in a specific region while taking economic, social, and institutional factors, as well as the characteristics of an archipelagic setting, into account. According to Goffar et al. (2025), developing an economy based on local resources requires an understanding of the relationships among business actors, resources, markets, and institutions so that development strategies can be appropriately designed.

RESULTS AND DISCUSSION

Development of the Cassava Agro-Industry

The findings indicate that cassava raw materials have considerable potential, supported by harvested areas in Kewapante, Kangae, and Nita Districts. This production base provides a foundation for the sustainable development of cassava-processing businesses. Raw material availability can support food downstreaming, both to meet household consumption needs and to supply industry and MSMEs.

Farmers' cassava is used not only for household consumption but also has potential as a raw material for a range of value-added products. This creates opportunities for MSMEs to obtain locally sourced inputs and strengthens links among farmers, households, and industry within the cassava value chain. The use of cassava as a local crop can strengthen food security, increase community income, and support efficient and sustainable farming (Nurti & Saputra, 2025).

Cassava agro-industry development offers market opportunities because processed products can serve local consumers and markets across districts. The findings also suggest that improving farmers' capacity should be supported by a green economy approach that promotes technology use, resource efficiency, supportive policies, and sustainable market access (Aditi et al., 2025). Demand for locally sourced snacks may also increase sales of processed cassava products. Key strategies include expanding markets through collaboration among stakeholders and

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using social media and digital platforms to promote products (Kusnandar et al., 2025).

The scale of cassava production suggests that the commodity can serve household consumption while also supplying raw materials to MSMEs and the food industry. This is consistent with Arifin et al. (2025), who found that food downstreaming can create added value in semi-finished and finished products.

Cassava can be processed into a range of value-added products, including cassava chips, fermented cassava, cassava flour, fried cassava, and other processed foods. Product diversification can reduce reliance on fresh cassava sales and increase the commodity's economic value. Stronger links among farmers, MSMEs, processing industries, and markets are needed to ensure that production is absorbed, increase added value, and build a sustainable cassava value chain that benefits farmers in Sikka Regency. This is consistent with Nurma et al. (2025), who describe downstreaming as the process of adding value to food products through post-harvest handling, raw material processing, packaging, and distribution. Downstreaming can increase the income of farmers and small businesses while creating local employment.

Cassava agro-industry can generate employment at different stages, including raw material collection, processing, packaging, and marketing. These activities can engage local workers and increase economic activity in the community. This finding is consistent with Nurma et al. (2025), who report that downstream processing can increase the income of farmers and small businesses while creating local jobs.

Cassava processing also gives local communities an opportunity to develop MSMEs based on local commodities. The availability of raw materials, product variety, and market opportunities can provide a starting point for business expansion, higher incomes, and the development of a local cassava value chain. More broadly, food downstreaming plays an important role in strengthening national economic resilience (Akhmadi, 2024).

Supporting Factors

Raw material availability is important to investors because the continuity of agro-industry operations depends on a reliable supply from farmers. Another supporting factor is the potential to transform cassava into a range of value-added products. In addition to being sold fresh, cassava can be processed into chips, flour, dried cassava, fermented cassava, and other food products. Diversification can generate greater economic returns than selling cassava as a raw commodity.

These activities can also expand local employment, particularly in processing, packaging, distribution, and marketing. The findings further show that the harvested area being larger than the planted area in the 2023 data should be interpreted as an indicator of production activity resulting from different planting and harvesting cycles throughout the year, rather than as evidence of increased productivity. This highlights the need for better production-calendar management and supply records so investors can assess the continuity of raw material supplies more accurately. A reliable supply is a key requirement when assessing the feasibility of agro-industry investment.

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Constraints

The study identifies several factors that may discourage investment in the cassava-processing agro-industry. Limited capital and access to financing constrain farmers and business owners seeking to increase production and processing capacity. Agro-industry requires investment in machinery, production facilities, storage, packaging, and working capital. Limited financing means that some businesses continue to operate on a small scale, restricting their ability to produce consistently and meet market demand.

Limited processing technology and post-harvest facilities are also significant constraints. Cassava requires relatively prompt handling after harvest to maintain raw material quality. The availability of both simple and advanced technologies for washing, cutting, drying, processing, packaging, and storage affects a business's ability to meet market standards. Where these technologies are inadequate, the added value generated from cassava remains relatively low. Production infrastructure and transportation costs are further constraints. Harvested areas across several districts indicate that raw materials are available in different locations. However, the distance between production centers, processing sites, and markets can increase collection and distribution costs. This is a key consideration for potential investors when selecting an agro-industry location. Roads, transportation facilities, electricity, water, and storage need to be improved to reduce logistics costs and enable efficient movement of raw materials. Market access and marketing capacity also shape investment outcomes. Processed cassava products require markets that can absorb production on a sustained basis. Agro-industry businesses need to improve not only production volume but also product quality, packaging, branding, required certification, and marketing through both conventional and digital channels. Stronger links with MSMEs, cooperatives, food industries, souvenir centers, local markets, and wider distribution networks could help create more stable demand.

Strategies for Investment in the Cassava-Processing Agro-Industry

Production concentration can help identify priority locations for agro-industry development, particularly by considering proximity to raw material centers. This creates an opportunity for local government and investors to adopt an investment strategy based on production clusters. Agro-industry does not need to be established uniformly across all districts; development can begin in areas with relatively large and reliable cassava supplies. One way to support sustainable agriculture is to build on local knowledge through innovation. This can help protect the environment and preserve local culture while adapting to global change (Sujianto, 2024).

This approach can reduce raw material collection costs, shorten the distance over which agricultural products must be transported, and improve processing efficiency. Districts with larger harvested areas could be developed as processing centers, while districts with smaller production volumes could serve as supporting suppliers in the supply chain.

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Investment should also focus on increasing the added value of cassava products. Integrated policies are needed to address population growth, increase food production, and sustain food systems in support of long-term food security (Islam et al., 2026). Cassava that is currently sold as a raw commodity could be processed into cassava chips, tapioca flour, modified cassava flour (mocaf), fermented cassava, frozen food products, and other products suited to local and regional markets. Processing can increase the commodity's economic value compared with selling it fresh. Product development should also reflect available capacity and technology. Investment can be introduced gradually, beginning with simple technologies suited to MSMEs and progressing to larger-scale processing units.

Strengthening the food value chain is another essential part of this strategy. The cassava value chain involves farmers, farmer groups, collectors, transport providers, processing MSMEs, distributors, and consumers. Agro-industry investment should be designed to create closer integration among these actors. Investors and processing units can partner with farmers through supply contracts, quality standards, purchase commitments, and cultivation support. These arrangements can give farmers more certainty about market access while ensuring a continuous supply of raw materials for processing businesses.

For farmers, agro-industry can provide economic benefits by making the sale of their harvest more predictable. Farmers would have an alternative market through processing units rather than relying solely on selling fresh cassava to traders. Their bargaining position could improve if farmer groups or cooperatives coordinate production, quality, volume, and delivery schedules. These institutions can also connect farmers with investors and processing businesses.

In Sikka Regency, investment development could therefore be directed toward an agro-industry model based on production centers and partnerships with farmers. Districts with relatively large harvested areas could be prioritized for processing units, while other districts could be developed as part of the raw material supply network. Local government can support this development by improving infrastructure, facilitating access to financing, providing processing technology training, strengthening farmer institutions, and promoting investment. The private sector and MSMEs can be encouraged to develop processed products with market potential.

Contribution of Cassava-Processing Agro-Industry to Farmer Welfare

The available raw materials can support the development of various processed products. This could give farmers access to wider markets and income opportunities beyond selling cassava fresh. Agro-industry may also create jobs in raw material collection, processing, packaging, transportation, and marketing.
Production centers with relatively large harvested areas—including Kangae (634 ha), Waiblama (468.5 ha), Bola (440 ha), Talibura (345 ha), and East Alok (320 ha)—could be considered priority areas for agro-industry development. Cassava processing can therefore support the local economy by increasing the commodity's added value and expanding income opportunities for communities in Sikka Regency.

CONCLUSION

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Cassava agro-industry has considerable development potential in Sikka Regency. This potential is supported by cassava production areas distributed across several districts and the crop's existing use as food and as a raw material for small-scale processing. Cassava can thus serve not only household consumption needs but also provide opportunities for economic development through processing.

The findings indicate links between the agricultural sector and MSME activity, with some agricultural products already gaining added value through processing. Supporting factors include raw material availability, market opportunities, local labor, and scope for government support. However, development remains constrained by limited capital, basic processing technology, inadequate production and post-harvest infrastructure, high transportation and logistics costs, and limited market reach. Cassava processing can increase the commodity's economic value, provide farmers with alternative markets, and create employment in raw material collection, processing, packaging, transportation, and marketing. Developing the cassava-processing agro-industry can therefore help strengthen the local economy by building on the region's own resources.

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