# FROM TRADITION TO INNOVATION: ENHANCING COMPETITIVENESS IN COMMUNITY ENTERPRISES WITH NEW PRODUCT DEVELOPMENT

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**Abstract** - This study explores the enhancement of competitiveness in community enterprises through the development of new products and packaging, focusing on the Ban Tha Yiam Community Enterprise in Yasothon Province, Thailand. The primary product, fermented fish ("Pla Som"), faced challenges such as inconsistent quality, short shelf life, and inadequate packaging. Using a participatory action research approach, this project engaged community members in identifying issues, improving production processes, and designing suitable packaging to align with market demands. Key interventions included standardizing product sizes, adopting improved frying techniques, reducing oil retention, and introducing oil-resistant packaging to enhance quality, hygiene, and shelf life. Additionally, value-added products, such as chili paste and snacks, were developed to minimize waste and expand market opportunities. These efforts highlight the potential of integrating local expertise and modern technologies to foster sustainable growth and competitiveness in community enterprises.

## I. INTRODUCTION

Community enterprises in Thailand play a vital role in strengthening the economy and building community resilience. They create jobs, generate income, promote sustainable resource use, and serve as hubs for members to develop skills in production, management, and marketing. They also foster collaboration within communities, aiming for long-term economic stability and social sustainability. To address income inequality and promote inclusivity, the Thai government supports community enterprise development as a strategic initiative (Maisont, P., Taiphapoon, T., Ch, A., rachai, & Sinthupinyo, S. ,2020). New Product Development Co Creation Process A Thai Case of Micro Community Enterprises of Non-Food Herbal Products and R&D Government Organizations. Academy of Entrepreneurship Journal.. However, challenges such as limited knowledge in management, production, marketing, innovation, and technology adoption, as well as insufficient funding and external collaboration, hinder their growth and competitiveness.The Industrial Promotion Center Region 7, in partnership with Ubon Ratchathani University, has initiated a project to enhance the capacities of community enterprises. This project focuses on improving management, production, marketing, and innovation capabilities to adapt to the new economic landscape, aiming to make these enterprises key drivers of Thailand's economic growth.

One such enterprise is the Ban Tha Yiam Community Enterprise in Yasothon Province, consisting of 20 members, most over 50 years old. Their primary product, fermented fish ("Pla Som"), is made through a 15-day fermentation process. However, its short shelf life of 7 days and required thorough cooking pose challenges for consumers. These factors, along with the rising demand for ready-to-eat products, have caused a significant decline in sales, with a revenue drop of over 50% in 2024 compared to 2023. Attempts to sell pre-fried Pla Som failed due to issues such as oil leakage from packaging, which stemmed from inadequate skills in production and packaging design.This research project focuses on improving the enterprise's production processes, adopting appropriate technologies, and enhancing product quality and sustainability to meet market demands and ensure long-term viability.

Our research objectives are

1. To develop a new product from fermented fish (Pla Som) using production processes and technologies suited to the capabilities of the Ban Tha Yiam Community Enterprise.
2. To design packaging that meets the unique characteristics and needs of the new product.

## II. THEORETICAL BACKGROUND

### New Product Development

New Product Development (NPD) is a structured process involving design, production testing, and marketing, guiding products from ideation to market launch (Zhu, 2024). Successful NPD relies on seven key drivers: (1) creating a unique, superior product with clear value; (2) incorporating customer feedback; (3) conducting pre-work for effective development; (4) providing precise product definitions; (5) refining products based on stakeholder input; (6) adopting a global perspective; and (7) executing a well-planned product launch (Sukmaitree et al., 2022).

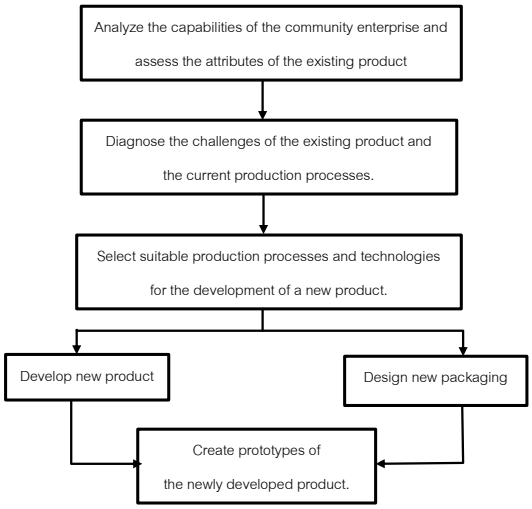
**Development of Packaging**

Packaging development is critical for enhancing competitiveness, adding value, and expanding market opportunities for community enterprises. Beyond protecting products, packaging serves as a communication tool that attracts consumers and boosts satisfaction. Studies have shown that packaging aligned with market needs can increase income and improve product credibility. For example, in Ranong, Thailand, packaging innovations boosted sales, while sustainable designs in Indonesia expanded market reach and reinforced credibility (Sukmaitree et al., 2022; Simms & Trott, 2022). Thus, packaging development is essential for economic and environmental sustainability within communities.

**Participatory Action Research**

Participatory Action Research (PAR) involves collaboration between researchers and community members at all research stages, from problem identification to dissemination, creating solutions that address community needs and drive social change. For community enterprises, PAR empowers members to solve local issues, improves resource management, and fosters sustainability (Duea et al., 2022). By strengthening trust and creating a sense of ownership, PAR ensures long-term viability even without external support (Kyoon-Achan et al., 2018). In this study, community members actively engage in decision-making throughout the research process, including problem identification, solution analysis, implementation, and evaluation.

**Research Framework**




## III. METHODOLOGY

This study uses a participatory action research approach with 10 participants: 3 researchers, 5 members of the Ban Tha Yiam Community Enterprise, and 2 staff from the Industrial Promotion Center Region 7. Participants actively contributed by sharing opinions, exchanging ideas, and co-learning through activities such as in-depth interviews, observations, experimental production, and prototype creation. Data collection involved audio recordings, photos, and video clips, which were analyzed using the research framework to address the study's objectives.

**Research Result**

Assessing the Attributes of Existing Products

The evaluation of the fried fermented fish (Pla Som) product prior to consultation identified the following issues: (1) inconsistent sizes of fermented fish fillets: the pieces of fried fermented fish lack uniform, affecting product consistency; (2) uneven color of fried fermented fish: the color of the fried product is inconsistent due to inadequate control of oil temperature and frying time. Furthermore, the traditional frying method, which uses a limited amount of oil, exacerbates the issue; (3) excessive oil absorption: the fried fermented fish retains excessive oil, negatively impacting its texture and overall quality; (4) packaging oil leakage: oil seeps out of the packaging, leading to an unappealing appearance and raising potential hygiene concerns. (5) leftover small-sized or residual pieces, the production process produces leftover small-sized or broken pieces of fried fermented fish, reducing overall yield and production efficiency.

**Diagnosing Challenges in Products and Processes**

To enhance the performance of community enterprises, a systematic approach is required to address existing challenges and improve product quality and marketability. Key strategies include standardization, process optimization, packaging improvements, and new product development. Standardizing product sizes ensures consistent appearance and quality, enhancing aesthetic appeal and uniformity in subsequent processes like frying and packaging. Transitioning from traditional to deep-frying methods improves control over cooking parameters, resulting in consistent doneness and uniform color. Reducing excess oil retention, which affects texture, flavor, and shelf life, can be achieved with post-frying techniques such as oil-spinning and baking. Upgrading to oil-resistant packaging prevents oil seepage, improves hygiene, and extends shelf life, fostering consumer trust. Finally, creating value-added products from residual pieces, such as snacks and chili paste, minimizes waste and increases product value.

**Selecting Suitable Production Processes and Technologies**

Improving the operational efficiency and quality of fried fermented fish (Pla Som) requires implementing targeted strategies across production stages. Key

strategies include standardizing product specifications, refining processing methods, upgrading packaging, and developing new product offerings to align with market demands and minimize waste. Standardizing product sizes ensures uniformity, with fillets recommended at 0.5 cm width and 5 cm length, and cubed products at 1.5 x 1.5 x 1.5 cm. Refining the frying process is another critical improvement. Transitioning to deep-frying methods ensures consistent cooking, with each batch of 250 grams fried in an electric fryer at 160°C. The frying process should follow a structured schedule: a 10-minute first round, a 10-minute resting period, and a second 10-minute frying round. This method ensures even cooking and consistent texture.

To address excessive oil retention, oil reduction techniques should be introduced. Using a centrifugal spinning machine for 1 minute followed by an oil-baking process can reduce oil content by 20-25%, improving texture, shelf life, and consumer appeal for healthier options. Upgrading packaging is essential to maintaining product quality and presentation. Oil-resistant materials, such as 100-gram foil bags or jars, prevent oil seepage, ensure hygiene, and enhance the product's professional appearance. Packaging individual portions in 100-gram jars also improves convenience for consumers.

Product development presents opportunities for innovation and market expansion. Adding local herbs and garnishes such as fried garlic, shallots, kaffir lime leaves, and chili creates unique flavor profiles and new variations, catering to diverse consumer tastes while increasing market appeal and revenue potential. Finally, repurposing small or irregular leftover pieces of fermented fish into value-added products such as chili paste reduces waste and maximizes resource utilization, offering another revenue stream and further diversifying the product line. These strategies holistically enhance product quality, sustainability, and market competitiveness.



**Figure 1 Original Product Before Research**



**Figure 2 Developed Product After Research**

**Conclusions and Suggestions**

Enhancing the performance of fried fermented fish (Pla Som) production requires systematic improvements in standardization, process optimization, packaging, and product innovation. Standardizing product sizes ensures consistency and streamlines production, while adopting controlled deep-frying methods enhances cooking quality and product uniformity. Techniques like oil-spinning and baking reduce excess oil, improving texture, shelf life, and health appeal. Upgraded, oil-resistant packaging enhances product presentation, qualities, and hygiene. Additionally, repurposing residual pieces into value-added products, such as chili paste or snacks, minimizes waste and expands market opportunities.

To achieve these goals, community enterprises should invest in modern equipment, provide technical training, and explore cost-effective solutions. Research on consumer preferences and sustainable packaging options is crucial for long-term success. These strategies will not only improve product quality but also foster growth and competitiveness in evolving markets.

## LIMITATIONS AND FUTURE RESEARCH

Although the proposed strategies for enhancing community enterprises hold potential, but there are challenges. Implementing standardized production methods and upgraded technologies may demand significant investment, challenging small enterprises with limited resources. Scalability and adaptability across different contextsare uncertain, especially varying product types and market demands.

Future research should prioritize cost-effective, scalable solutions suitable for small enterprises, investigate consumer preferences for value-added

products, and assess market potential. Additionally, exploring sustainable, oil-resistant packaging and utilizing residual fish for innovative products will promote waste reduction and enterprise sustainability.

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