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TECHNICAL AND ECONOMIC FEASIBILITY OF SAMBAS TRADITIONAL DRIED BOTOK PRODUCTION

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Abstract

Sambas traditional dried botok is a fish-based local food product prepared with regional spices and has potential for micro, small, and medium enterprise development. This study assessed the technical feasibility of production, evaluated financial performance, and developed a local-resource-based business model. The study was conducted at the Agribusiness Laboratory of Sambas State Polytechnic from May to November 2026 using experimental and quantitative descriptive approaches. Data were collected through production trials, recording of raw-material and equipment requirements, and analysis of production costs and revenue. Business development strategies were mapped using the Business Model Canvas (BMC). The results indicated a production capacity of 30 packages per cycle, with a production cycle lasting approximately three days. Raw-material costs were IDR 124,200 per cycle and equipment investment was IDR 425,500. At a selling price of IDR 25,000 per package, revenue reached IDR 750,000 per cycle. Reported production costs were approximately IDR 227,746 and reported profit was IDR 522,254 per cycle. The reported benefit-cost ratio was 3.29 and the break-even point was approximately 9.11 packages. The BMC identified Sambas culinary identity, fish and local spices, and potential distribution through souvenir shops, resellers, and digital channels as important elements for business development. The business shows potential for household and MSME-scale development; however, production standardization, product-quality validation, and consistency of financial calculations should be strengthened before commercial expansion.
Keywords: dried botok, technical feasibility, financial feasibility, Business Model Canvas, Sambas

INTRODUCTION

Traditional food products can serve as a means of increasing the value of local commodities if their processing, quality, and marketing are developed in a systematic manner. Sambas-style dried botok is a processed fish product made with a combination of local spices and ingredients, including kesum leaves, turmeric leaves, noni leaves, and coconut. The uniqueness of these ingredients has the potential to shape the product's identity while also setting it apart in the competitive processed food market.

However, botok production in Sambas Regency still faces challenges in the form of a largely conventional production process, limited production capacity, and the need for quality standardization. Product development cannot rely solely on the uniqueness of its flavor; it also requires information regarding production capacity, ingredient requirements, production costs, profit potential, and strategies for reaching consumers. A feasibility study serves as one of the foundations for planning production and reducing business risks (Kasmir, 2003).

Previous studies have examined the financial feasibility of salted fish processing, the value added from fish processing, and the techno-economic analysis of dried fish products. Latifah et al. (2018) assessed the feasibility of the dried salted fish processing industry, while Sartika et al. (2022) examined the value added and business feasibility of salted fish. Pamungkas and Irawan (2023) linked the technical and economic aspects of dried skipjack tuna production. Studies on the shelf life of dried fish also emphasize the importance of controlling the processing and storage conditions (Sulaiman & Khairi, 2024). Although relevant, these studies have not specifically integrated the technical aspects of producing Sambas-style seasoned dried botok with financial analysis and business model design.

The Business Model Canvas (BMC) can be used to map the relationships between customer segments, value propositions, marketing channels, customer relationships, revenue streams, key resources, key activities, key partners, and cost structure (Osterwalder & Pigneur, 2012). In local food businesses, this mapping helps link product strengths to production activities and marketing strategies. This study offers a novel approach by integrating a technical assessment of the production of Sambas-style dried botok, an economic analysis of the tested production scale, and a mapping of the nine BMC elements. The objectives of this study are to assess the technical feasibility of production, analyze financial indicators, and develop a business model that can serve as a foundation for business development based on local potential.

RESEARCH METHOD

This study employs an experimental approach combined with quantitative descriptive analysis. The unit of analysis is a single production cycle of traditional Sambas-style dried botok, with a target output of 30 packages. Primary data were collected from process trials and records of raw material requirements, equipment, capacity, costs, and selling prices. Secondary data were obtained from research reports and relevant literature.

The technical analysis was conducted descriptively by examining the processing flow, raw material and equipment requirements, cycle time, and production capacity. The financial analysis includes initial investment, production costs, revenue, profit, cost of goods sold (COGS), B/C Ratio, break-even point (BEP), Return on Investment (ROI), Payback Period (PP), Net Present Value (NPV), Internal Rate of Return (IRR), and

sensitivity analysis as calculated in the research report. The financial indicators are presented in accordance with the source report; their interpretation must take into account assumptions regarding scale, sales volume, working capital, and cash flow consistency.

The business model analysis uses the nine elements of the BMC. The results of the technical and financial analyses are then linked to the BMC elements to examine the implications of production capacity, value proposition, marketing channels, partners, and cost structure on business development opportunities.

RESULT AND DISCUSSION

Availability of Raw Materials and the Production Process

Sambas Regency has raw material resources that support the development of dried botok. Research reports note the availability of fish—both wild-caught and farmed—as well as coconuts, turmeric, and kesum leaves, which can be found in various areas. Noni leaves are used to wrap the product, while other complementary spices can be obtained at the market. The availability of local ingredients provides an opportunity to connect processing businesses with local suppliers, although supply continuity and quality consistency still need to be managed.

The experiments used mackerel and big-eyed fish. In the final experiment, mackerel was chosen because its bones are easier to separate and its flesh is thicker. The production stages included preparing the fish and seasonings, cooking, separating the bones, mixing the seasonings, wrapping the fish in young noni leaves, steaming, cooling, oven-drying, and vacuum-packing in embossed plastic bags measuring 20 × 30 cm. Differences in bone-separation time and drying duration across the experiments highlight the importance of standard operating procedures (SOPs) that specify time, temperature, and handling of ingredients.

Technical Feasibility of Production

Table 1. Raw material costs for producing dried botok per cycle

Material component	Cost per cycle (Rp)
Fish	45.000
Spices and additional ingredients	79.200
Total raw materials	124.200

Source: primary data

The total cost of raw materials is Rp124,200 per cycle, consisting of Rp45,000 for fish and Rp79,200 for spices and other ingredients. The variety of ingredients gives the product its character, but it also requires consistent weighing and formulation to ensure that the taste, aroma, color, and texture remain consistent from cycle to cycle.

Therefore, documenting the formulation and implementing standard operating procedures must be an integral part of production development.

Table 2. Production Capacity and Equipment Investment

No.	Parameters	Results
1	Production per cycle	30 packs
2	Duration of a cycle	± 3 days
3	Assumption: one cycle per month	10 cycles
4	Monthly production	300 pack
5	Annual production	3.600 packs
6	Equipment investment	Rp425.500

Source: primary data

With a target of 30 packages per cycle and assuming ten cycles per month, the theoretical capacity reaches 300 packages per month or 3,600 packages per year. The equipment used includes cutting boards, mixing bowls, knives, stainless steel trays, spatulas, an electric oven, a pot, and a steamer, with a total investment of Rp425,500. The electric oven represents the largest investment at Rp233,000, so controlling the temperature and drying time are key considerations. This capacity is still suitable for a household or small-to-medium enterprise (SME) scale and cannot yet be directly considered validation for large-scale commercial production.

Technical feasibility at the scale tested is supported by the availability of materials, simple equipment and a feasible production process. However, the report has not yet provided detailed measurement results regarding the final moisture content, microbiological parameters or the results of statistical tests on quality consistency. Therefore, claims regarding quality consistency need to be substantiated through repeated testing, hygiene and sanitation controls, and documentation of drying parameters before the product is scaled up to a larger scale.

Financial Feasibility Study

Tabel 3. Revenue, Cost, and Profits

No.	Description	Per cycle	Per month	Per year
1	Revenue	Rp750.000	Rp7.500.000	Rp90.000.000
2	Total cost	Rp227.746	Rp2.277.458	Rp27.329.500
	Profits	Rp522.254	Rp5.222.542	Rp62.670.500

Source: primary data

Based on a selling price of Rp25,000 per pack and a volume of 30 packs per cycle, the reported revenue is Rp750,000 per cycle. The report records total production costs of approximately Rp227,746 and a profit of Rp522,254 per cycle. The cost of goods sold (COGS), based on these total costs, is approximately Rp7,591.53 per pack. The difference between the selling price and the cost of goods sold indicates a significant

margin in the initial calculations; however, the actual results are highly dependent on product sales, labour costs, energy costs, packaging, distribution and other costs that may not have been fully accounted for.

Tabel 4. Summary of Financial Feasibility Indicators

No.	Indicator	Figures in the report	Original meaning
1	B/C Ratio	3,29	Revenue of approximately 3.29 times the calculated cost
2	BEP	9,11 bungkus	According to the report's calculations, it takes around 10 packets to break even
3	ROI	14.728,67%	It is very high when compared with the initial investment in equipment
4	PP	0,081 bulan (±2,43 hari)	Return on investment in equipment based on the assumptions in the report
5	NPV	Rp55.910.214	A positive value at a discount rate of 12 per cent, as calculated in the report
6	IRR	14.728,67%	Reported figures; need to be recalculated using cash flows per period

Source: primary data

B/C ratio of 3.29 and a BEP of approximately 9.11 cases indicate that, based on the cost structure and pricing assumptions used, revenue exceeds costs and the break-even volume is lower than the production target of 30 cases. However, the ROI and PP are calculated against a relatively small investment in equipment, rather than against the total capital requirements, including working capital. The NPV and IRR figures in the report also need to be re-verified by preparing consistent annual cash flow statements. Methodologically, the IRR should be derived from the discount rate that makes the NPV equal to zero, rather than solely from the ratio of cash flow to investment.

The reported sensitivity analysis shows that the B/C ratio remains above one and the NPV remains positive under scenarios involving changes in selling price, sales volume, increases in raw material costs, and a combined adverse scenario. In the scenario where the selling price falls by 10 per cent, the B/C ratio is recorded at 2.96 and the NPV at Rp47,874,500; in the scenario where raw material costs rise by 20 per cent, the B/C ratio is 2.97 and the NPV at Rp53,248,786. The adverse combined scenario resulted in a B/C ratio of 2.31 and an NPV of Rp36,909,500.

Business Model Canvas for Sambas Dried Botok

Tabel 5. Business Model Canvas for the Traditional Sambas Dried Botok

BMC Elements	Business Model Design
Customer Segments	The people of Sambas, consumers in West Kalimantan, households, tourists, lovers of traditional food, souvenir shops, street stalls, resellers and online shoppers
Value Propositions	Traditional food products from Sambas, made from fish and local spices, reflect the region's identity, are convenient, and have the potential to become souvenirs.

Channels	Direct sales, local markets, souvenir shops, small shops/stalls, resellers, WhatsApp, Facebook, Instagram and online marketplaces.
Customer Relationships	Personalised service, digital communication, handling complaints, feedback, promotions and encouraging repeat purchases.
Revenue Streams	Sales per pack, bulk/wholesale sales, sales via resellers, event orders, and opportunities for derivative products.
Key Resources	Fish, spices, labour, equipment, recipes, packaging, brand, capital and marketing network.
Key Activities	Procurement of raw materials, processing, drying, packaging, quality control, marketing, distribution and financial record-keeping.
Key Partnerships	Fishermen/fish suppliers, spice traders, packaging suppliers, souvenir shops, resellers, delivery services and supporting organisations.

Source: primary data

The product's core value proposition lies in the culinary identity of Sambas and the use of a combination of fish and local spices. This value needs to be translated into a brand identity, product information, appropriate packaging and consistent marketing messages. Customer segments are not limited to the local community but can be expanded to include tourists, consumers from outside the region, souvenir shops and online shoppers. However, market expansion should only be undertaken once the product's safety, quality and shelf life are supported by adequate data.

Direct marketing channels can be used to gather initial feedback, whilst souvenir shops and resellers enable distribution to be expanded without having to set up one's own outlets. WhatsApp and social media can support promotion, customer communication and repeat orders. To ensure a sustainable supply, partnerships with suppliers of fish and spices must be accompanied by agreements regarding the quality of ingredients, supply schedules and prices.

The recorded cost structure shows labour at Rp100,000 per cycle, or approximately 43.91 per cent of total costs, followed by spices at Rp79,200 (34.79 per cent) and fish at Rp45,000 (19.76 per cent); depreciation was recorded at Rp3,546 (1.56 per cent). Labour and seasoning are key areas for recording and evaluating efficiency. Costs relating to packaging, electricity, transport and marketing also need to be explicitly recorded if they are not already fully covered by the total production costs. Thus, the BMC serves not only as a roadmap for marketing strategy, but also as a tool to ensure that the value proposition and sales channels are supported by realistic capacity and costs.

Overall, the integration of technical, financial and BMC feasibility indicates the potential for a small-scale business, subject to the prerequisite of strengthening standardisation. Development priorities include the drafting of standard operating procedures (SOPs), formulation scaling, control of drying temperature and time, moisture content and microbiological testing, comprehensive cost recording, and

market testing. These steps will help transform the economic potential calculated on a pilot scale into a more reliable basis for business decision-making.

IMPLICATIONS FOR BUSINESS MODEL DEVELOPMENT

With regard to customer segments, the development strategy should be implemented in stages. Local consumers can serve as the initial target group to gather feedback on flavour, pack size, price and ease of consumption. Once processes and quality have stabilised, the tourist and souvenir-buyer segments can be targeted through souvenir shops and regional promotional activities. The reseller and digital consumer segments have the potential to expand reach, but require consistent supply and clear product information. This segmentation represents a recommended direction for development, rather than the result of market demand measurements in this study.

Value propositions need to be translated into benefits that consumers can recognise. Sambas's identity can be highlighted through product naming, brief stories about local ingredients, storage instructions, and packaging that protects the product. Claims regarding shelf life, safety or nutritional benefits should only be made once supported by appropriate testing. In this way, product differentiation is not merely narrative in nature, but is also underpinned by consistent quality.

When selecting sales channels, it is advisable to take into account distribution costs, consumer reach and the ability to maintain product quality during delivery. Direct sales can offer higher margins and faster feedback, whilst resellers and souvenir shops can help expand the market. Digital channels require informative product photographs, a swift response to orders, clear information on prices and delivery charges, and an order-tracking system. Channel expansion should be aligned with actual production capacity to avoid any mismatch between demand and the ability to fulfil orders.

Customer relationships can be built through responsive communication, clear product information, and the recording of customer complaints and suggestions. For food products, feedback should be categorised according to taste, texture, size, packaging, price and the condition of the product upon receipt. This data can be used to improve products and determine repeat-purchase promotions. Even a simple customer relationship strategy still requires record-keeping to ensure that decisions are not based solely on momentary impressions.

The revenue streams in the report derive primarily from sales per pack, with projections of Rp750,000 per cycle, Rp7,500,000 per month, and Rp90,000,000 per year, assuming that the entire production target is sold. These projections represent potential revenue, not actual sales figures. The development of wholesale packages, event orders or derivative products may be considered following market testing and calculations of additional costs. Wholesale prices must take into account discounts, packaging costs, channel commissions and working capital requirements.

Key resources include not only equipment and raw materials, but also documented formulations, workforce skills, brands, packaging designs and production records. Documentation of formulations and SOPs will reduce reliance on individual knowledge and facilitate the transfer of skills as the workforce grows. Key activities should include the inspection of incoming materials, weighing, time and temperature control, equipment sanitation, packaging, batch recording, and the tracing of

complaints. The addition of quality control activities may increase the workload, but is necessary as the market and production volumes grow.

Partnerships with fishermen or fish suppliers should focus on the continuity of supply and the specifications of raw materials. Relationships with suppliers of spices and packaging can help ensure price stability and the availability of inputs. Partnerships with souvenir shops and resellers should begin on a limited scale, accompanied by agreements on pricing, payment methods, product handling and returns should the quality be unsatisfactory. In the cost structure, costs that have not yet been identified in detail—such as electricity for ovens, packaging, transport, promotion and administrative costs—need to be factored in before determining the long-term selling price.

LIMITATIONS OF THE RESEARCH AND FUTURE RESEARCH DIRECTIONS

This study assesses feasibility on a limited production scale and utilises reported cost and capacity data from individual production cycles. The data do not yet reflect large-scale market testing, inter-period variations in demand, or comprehensive laboratory test results regarding food safety and shelf life. Furthermore, several long-term investment indicators in the report are calculated using simplified formulas that require verification using periodic cash flows. Consequently, the financial conclusions should be understood as preliminary indications based on the assumptions underlying the calculations, rather than as a guarantee of business performance under all market conditions.

Further research is recommended to involve repeat production runs, recording the yield and time for each stage, measuring moisture content and relevant quality parameters, and carrying out microbiological testing as required by the product. Consumer studies can assess taste preferences, price acceptance, packaging design, purchase intent and repurchase interest. From a financial perspective, calculations should include working capital, energy costs, packaging, distribution and marketing costs, as well as realistic scenarios for capacity and sales volumes. Multi-year cash flows and the residual value of the investment must also be clearly defined before NPV, IRR and PP are used to inform investment decisions.

Tabel 6. Ringkasan analisis sensitivitas

Scenario	B/C Ratio	BEP (packs)	NPV (Rp)
Basic conditions	3,29	9,11	55.910.214
Selling price has fallen 10%	2,96	10,12	47.874.500
Selling prices have risen 10%	3,62	8,28	63.945.929
Sales volume has fallen 10%	2,96	9,11	47.874.500

Rising raw material costs 10%	3,12	9,61	54.579.500
Rising raw material costs 20%	2,97	10,10	53.248.786
Labour force up 10%	3,15	9,51	54.838.786
A combined worst-case scenario	2,31	11,67	36.909.500

Source: primary data

CONCLUSION

The production of Sambas dried botok can be carried out on a pilot scale with a capacity of 30 packets per cycle over approximately three days, requiring raw materials costing Rp124,200 per cycle and an investment in equipment of Rp425,500. At a selling price of Rp25,000 per packet, the report records revenue of Rp750,000 and a profit of Rp522,254 per cycle, with a B/C ratio of 3.29 and a break-even point of approximately 9.11 packets. These results indicate potential economic viability based on the assumptions and cost components used. The business model developed emphasises the culinary identity of Sambas, multi-channel marketing, customer relations, and partnerships with suppliers and resellers. Prior to expansion, the business needs to strengthen process standardisation, quality and food safety validation, comprehensive cost recording, and recalculate long-term investment indicators using consistent cash flows.

REFERENCES

Anggraeni, L., Alifia, P., Rizky, D., & Indriartiningtias, R. (2025). Strategi pengembangan usaha mikro kecil menengah (UMKM) V-Fie Bakery dengan pendekatan Business Model Canvas (BMC). Metris: Jurnal Sains dan Teknologi, 26(2), 160–175. https://ejournal.atmajaya.ac.id/index.php/metris/article/view/7462

Astuti, B. D., & Noor, T. I. (2019). Profil bisnis startup makanan instan menggunakan Business Model Canvas (BMC): Studi kasus Neng Daysi di Jatinangor Sumedang Jawa Barat. Jurnal Ilmiah Mahasiswa Agroinfo Galuh, 6(3), 438–456. https://jurnal.unigal.ac.id/agroinfogaluh/article/view/2356

Boedianto, L. P. (2015). Strategi pengembangan bisnis pada Depot Selaris dengan pendekatan Business Model Canvas. Agora, 3(2), 292–301. https://media.neliti.com/media/publications/36402-ID-strategi-pengembangan-bisnis-pada-depot-selaris-dengan-pendekatan-business-model.pdf?exp=1793122203&kid=1&sig=18_zLB2jKq_Kl67wIdCXlqDWpcl3M7UGyIxn7nujSo

Dewobroto, W. S. (2013). Penggunaan Business Model Canvas sebagai dasar untuk menciptakan alternatif strategi bisnis dan kelayakan usaha. Jurnal Teknik Industri

Universitas Trisakti, 1, 215–230. https://scholar.google.com/scholar?hl=id&as_sdt=0%2C5&q=Penggunaan+Business+Model+Canvas+sebagai+dasar+untuk+menciptakan+alternatif+strategi+bisnis+dan+kelayakan+usaha&btnG=

Ghezzi, A. (2014). The dark side of business models: The risks of strategizing through business models alone. Strategic Direction, 30(6), 1–4. https://scholar.google.com/scholar?hl=id&as_sdt=0%2C5&q=The+dark+side+of+business+models%3A+The+risks+of+strategizing+through+business+models+alone&btnG=

Hartanti, L., & Rahayuni, T. (2024). Quality of tuna botok Pontianak in glass jar packaging during storage. Jurnal Biologi Tropis, 24(4), 526–534. https://jurnalfkip.unram.ac.id/index.php/JBT/article/view/7604

Hutajulu, H., Ismail, M., Nari, A. A., & Aini, N. (2021). Model business canvas makanan olahan rumput laut di Kabupaten Biak Numfor Provinsi Papua. Jurnal Ekobis: Ekonomi Bisnis & Manajemen, 11(2), 240–251. https://ejournal.utmj.ac.id/ekobis/en/article/view/326

Jakfar, & Kasmir. (2003). Studi kelayakan bisnis. Prenada Media.

Latifah, N., Sofia, L. A., & Lilimantik, E. (2018). Financial feasibility of traditional processing industry: Study of processing dry salted fish of Tatah Mina Group, South Kalimantan, Indonesia. Repository Universitas Lambung Mangkurat. https://repo-dosen.ulm.ac.id/handle/123456789/22124

Morris, M. H., Schindehutte, M., & LaForge, R. W. (2006). Entrepreneurial marketing: A construct for integrating emerging entrepreneurship and marketing perspectives. Journal of Marketing Theory and Practice, 10(4), 1–19. https://www.tandfonline.com/doi/abs/10.1080/10696679.2002.11501922%4010.1080/tfocoll.2023.0.issue-impactful-articles

Osterwalder, A., & Pigneur, Y. (2012). Business model generation: Membangun model bisnis. Elex Media Komputindo.

Pamungkas, I., & Irawan, H. T. (2023). Techno-economic analysis of industrial-scale dried skipjack tuna production in West Aceh District, Indonesia. International Journal of Progressive Sciences and Technologies. https://www.researchgate.net/profile/Iing-Pamungkas/publication/367191155_Techno-Economic_Analysis_of_Industrial-Scale_Dried_Skipjack_Tuna_Production_in_West_Aceh_District_Indonesia/links/63c67833d9fb5967c2e3cf74/Techno-Economic-Analysis-of-Industrial-Scale-Dried-Skipjack-Tuna-Production-in-West-Aceh-District-Indonesia.pdf

Putri, S. M., Nurhayati, A., Pratama, R. I., & Maulina, I. (2024). Analisis kelayakan usaha produk olahan lele fillet dan lele furai berbahan baku ikan lele Sangkuriang (Clarias sp.) (Studi kasus di UKM Enza Lele). Juvenil: Jurnal Ilmiah Kelautan dan Perikanan. https://pertanian.trunojoyo.ac.id/jurnal/juvenil/

Sartika, Lubis, M. M., & Saleh, K. (2022). Analisis nilai tambah dan kelayakan usaha pengolahan ikan asin (Studi kasus: Desa Percut, Kecamatan Percut Sei Tuan, Kabupaten Deli Serdang). AGRISAINS. https://jurnalmahasiswa.uma.ac.id/index.php/agrisains/article/view/1198

Sulaiman, I., & Khairi, I. (2024). Shelf-life measurement of dried fish (keumamah) using the accelerated shelf-life testing (ASLT) with the Arrhenius model using microwave. Agroindustrial Technology Journal. https://atj.journal.unida.gontor.ac.id/index.php/atj/article/view/116

Yeskainayah, A., Suryana, N., & Prambudia, Y. (2021). Perancangan dan analisis kelayakan pengembangan usaha produk olahan hasil budidaya perikanan CV. Mina Indo Sejahtera di Tangerang Selatan. eProceedings of Engineering. https://openlibrarypublications.telkomuniversity.ac.id/index.php/engineering/id/article/view/16502