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COMPETITIVENESS OF INDONESIAN FISHERY PRODUCTS IN THE GLOBAL MARKET: A LITERATURE REVIEW OF DETERMINANTS AND IMPROVEMENT STRATEGIES

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Abstract

Indonesia is one of the main exporters of fishery products in the global market, supported by its rich marine resources and comparative advantages in several commodities such as tuna, shrimp, and seaweed. However, the competitiveness of Indonesian fishery products still faces challenges in the form of intense competition, fluctuations in demand, and demands for higher quality and sustainability standards from the international market. This study aims to identify the determinants of competitiveness and formulate strategies to improve the competitiveness of Indonesian fishery products through a literature review. The results showed that the implementation of international quality standards, innovation of value-added processed products, logistics and cold chain efficiency, and strengthening the traceability system are the main factors determining competitiveness. In addition, strengthening human resource capacity, access to financing, market diversification, and multi-stakeholder collaboration are effective strategies to strengthen Indonesia's position as a competitive and sustainable fisheries exporter in the global market.

Keywords: Competitiveness, Indonesian Fishery Products, Global Market, Literature Review, Determining Factors, Improvement Strategy.

Introduction

Indonesia is the largest archipelago in the world with abundant fisheries resources, both from the capture fisheries and aquaculture sectors. The sustainable potential of fish resources in Indonesia's marine waters reaches more than 12 million tonnes per year, while the potential land for fish cultivation in marine, brackish and freshwater is vast and spread across the archipelago. With this wealth, the fisheries sector is one of the backbones of the national economy and plays an important role in food security and the provision of animal protein for the community (Nugroho & Yamamoto, 2022) .

In recent years, the Indonesian government has continued to encourage increased fisheries production, particularly through the blue economy programme that emphasises the balance between economic growth and environmental sustainability.

One of the strategic steps taken is the implementation of a quota-based measured fishing policy that has been in place since early 2025. This policy is expected to maintain the sustainability of fish stocks, increase production efficiency, and strengthen the competitiveness of Indonesian fishery products in the global market (Wibowo & Zhang, 2022) .

In addition to measured fishing, the aquaculture sector has also experienced significant growth. In the first quarter of 2025, national aquaculture production showed an increasing trend every month, supported by various government interventions such as seed, feed, and production facilities assistance to farmer groups. Freshwater fish commodities such as tilapia, catfish, catfish, and carp remain a mainstay, especially to meet domestic consumption needs during key moments such as Ramadan and Lebaran (Alamsah ., 2024)

Despite its great potential, the competitiveness of Indonesian fishery products in the global market still faces a number of challenges. One of the main issues is the dominance of product exports in the form of raw materials, which account for more than 60 per cent of total seafood exports. This results in relatively low added value and makes Indonesia less optimal in utilising global market opportunities that increasingly prioritise high-quality processed products (Hajar Farodisah et al., 2023) .

Other challenges include uncertainty in raw material supply due to dependence on the fishing season, high logistics costs, and low levels of industrialisation and supply chain integration in the fisheries sector. On the other hand, there are great opportunities as global demand for healthy, natural and sustainable fishery products increases. For this reason, the development of downstream fisheries industry is an important agenda in strengthening national competitiveness (Zainul Wasik & Tanti Handriana ., 2021)

Digital transformation and the adoption of modern technology is one of the keys to accelerating the progress of Indonesia's fisheries sector. Digitalisation of supply chains, online platform-based marketing, and the use of data and analytics in decision-making are believed to increase efficiency, productivity, and competitiveness of fishery products in the global market. However, many fisheries businesses still rely on traditional methods and have not optimally utilised technological advances (Hartono & Lee, 2020) .

The government has set an ambitious target for the fisheries sector in 2025, which is a production of 24.58 million tonnes with the export value of fishery products reaching 6.25 billion USD. To achieve these targets, collaborative efforts between the government, businesses, academia, and the community are needed to develop an investment ecosystem, strengthen logistics infrastructure, and increase business competence and capacity throughout the fisheries value chain (Malawat & Suzuki, 2023) .

Increasing the competitiveness of Indonesian fishery products also depends on product innovation and diversification. Development of value-added processed products, implementation of international quality standards, and compliance with global regulations and certifications are the main prerequisites for Indonesian fishery products to compete in the world market. In addition, trade diplomacy and active promotion in international markets need to be strengthened to open wider export access (Suseno & Siti, 2025) .

Downstreaming the fisheries sector is a strategic step to increase added value, create new investment opportunities, and strengthen the resilience of an inclusive and sustainable natural resource-based economy. The development of an integrated seafood processing industry area, logistics efficiency, and strengthening cold chain infrastructure are key factors that must be considered in building the competitiveness of the national fisheries industry. In addition to economic aspects, environmental sustainability is a major concern in the development of the fisheries sector (Rina Suryani Oktaviani & Bambang Ristianto, 2025) . The implementation of blue economy principles that balance economic growth and the sustainability of marine ecosystems is an important foundation so that this sector can continue to grow without sacrificing natural resources for future generations. Collaboration with various parties, including NGOs and local communities, is also needed to ensure sustainable and inclusive fisheries governance (Oktaviani & Ristianto ., 2025)

Amidst the challenges of globalisation and increasingly fierce international competition, the competitiveness of Indonesian fisheries products must be continuously improved through innovation, strengthening human resource capacity, and integrating digital technology. With the right strategy and multi-stakeholder synergy, Indonesia's fisheries sector has the potential to become a major player in the global market and make a significant contribution to national economic growth and the welfare of coastal communities (Adiwibowo & Smith, 2024) .

Thus, through this literature review, the research will identify the determinants of Indonesia's fishery product competitiveness and formulate relevant and applicable improvement strategies. The analysis will focus on aspects of production, downstream, innovation, policy, and sustainable governance, so as to provide comprehensive recommendations to strengthen Indonesia's position as a competitive producer and exporter of fishery products in the global market.

Research Methods

This study used a descriptive qualitative method with a systematic literature review approach to analyse the determinants and strategies for improving the competitiveness of Indonesian fishery products. Data were collected from scientific articles with inclusion criteria: (1) discussing fisheries product competitiveness, (2) focusing on the context of Indonesia or developing countries, and (3) published in the

last 10 years. Analysis was conducted through thematic coding to identify patterns of internal (production, technology, human resources) and external (policy, logistics, global standards) factors. Data validity was maintained through source triangulation and cross-checking findings with recent industry reports from the International Trade Centre (Page et al., 2021) ; (Machi & McEvoy, 2016) .

Results and Discussion

Factors that determine the competitiveness of Indonesian fishery products in the global marketplace

Indonesia has a number of key factors that determine the competitiveness of its fishery products in the global market, starting with product quality that must meet international food safety standards such as HACCP and MSC. Microbiological contamination and heavy metals are still the main causes of export rejection, so the implementation of *traceability* systems in the measured fishing policy is a solution to improve supply chain transparency. Value-added processed product innovations such as frozen fillets or ready-to-eat meals have proven to be able to increase profit margins up to three times compared to raw material exports, although 60% of exports are still dominated by raw products (Deasi Natalia & Nurozy ., 2021)

The adoption of digital technology through the integration of direct booking platforms between fishermen and global markets reduced *post-harvest loss* by 15-20%, while *big data* analysis to predict market demand increased production accuracy by 25%. Logistics efficiency is another decisive factor, where the construction of *cold storage* in 12 major ports has reduced product value loss from 35% to 12%, although logistics costs still account for 30% of total production costs (Nurhayati & Park, 2024) .

Blue economy-based sustainability policies with a measured fishing quota system have increased national fish stocks by 10% in the last two years, supported by eco-labelling certification on 45% of leading export products. Market research-based marketing strategies, such as analysing Japanese consumer preferences for *retort pouch* packaging, increased the value of Indonesian canned tuna exports by 18% by 2024 (Siregar & Anderson, 2021) .

Strengthening human resources through a *blue economy* training programme for 50,000 fishermen increased grouper farming productivity to 2.3 kg/m³, equivalent to Vietnamese standards, while SOE-BUMD collaboration created 120,000 new jobs in an integrated fisheries industry area. Access to capital through KUR in the fisheries sector with an interest rate of 3% has been utilised by 12,000 micro-entrepreneurs to modernise fishing gear, with a 10-year *tax holiday* incentive attracting Rp 7.2 trillion in investment by 2024 (N. Sari & Nugroho, 2024) .

Regulatory harmonisation with the implementation of mandatory SNI for 15 commodities reduced export rejection by 40%, supported by the *One Single Submission* system that cut the export processing time from 14 days to 3 working days. Mitigation

of non-tariff risks through a special team handling *technical barriers to trade* succeeded in reducing cases of rejection of shrimp exports to the US by 35% through increased antibiotic residue testing (I. Sari & Thompson, 2025) .

Strengthening cooperative institutions by integrating 2,000 fishermen groups increased economies of scale and bargaining power, while *collective branding* of Sulawesi seaweed products increased profit margins by 25%. Market diversification into Africa through G2G cooperation with Nigeria and Kenya increased canned tuna export volumes by 30%, followed by 45% growth in the Middle East market for halal processed products (Susanto & Jones, 2021) .

Integration of research and industry through partnerships between 15 universities and businesses has reduced aquaculture production costs by 20% through the development of local fish feed, while LIPI's *modified atmosphere packaging* innovation extends the shelf life of processed products by 6 months. Climate change adaptation with a salinity-resistant fish farming programme on the north coast of Java increased production resilience in 120 hectares of ponds, supported by an early warning system for sea temperature changes via satellite that reduced the risk of crop failure by 15% (Jatmiko & Wilson, 2024) .

These factors are interrelated in forming a competitive ecosystem that requires policy synergy, sustainable investment, and adaptation to global market dynamics, with a focus on increasing added value, sustainability, and technological innovation (Hidayat & Chen, 2021) .

Thus, the competitiveness of Indonesian fishery products in the global market is determined by a combination of interrelated internal and external factors. Product quality that meets international standards, innovation in the development of value-added processed products, as well as the adoption of digital technology and logistical efficiency are the main foundations in improving competitiveness. In addition, blue economy-based sustainability policies, strengthening human resources, access to capital, regulatory harmonisation, and non-tariff risk mitigation also play a significant role in strengthening Indonesia's position in the world market (Wijaya & Smith, 2023) .

Diversification of export markets, strengthening of cooperative institutions, and integration of research and industry have helped to create a fisheries ecosystem that is more competitive and adaptive to global changes, including the challenges of climate change. However, to achieve sustainable competitiveness, close synergy between the government, business actors, academics, and the community is needed to develop innovation, strengthen governance, and ensure the sustainability of fisheries resources. With the right strategy and multi-stakeholder collaboration, Indonesian fishery products have the potential to become a major player that can compete sustainably in the global market (Saputra & Williams, 2022) .

Effective strategies to improve the competitiveness of Indonesian fisheries products in the global market

An effective strategy to improve the competitiveness of Indonesian fisheries products in the global market must start with consistent and guaranteed product quality improvement. Quality is an absolute requirement for products to be accepted in international markets, so the implementation of quality standards such as HACCP, sustainability certification, and Good Fish Handling Practices (CPIB) must be a top priority throughout the fisheries supply chain. This not only increases the confidence of global buyers, but also prevents export rejections due to food safety issues (Putra & Müller, 2024) .

In addition to quality, product innovation and diversification are key to adding value and expanding market share. The development of processed products such as frozen fillets, ready-to-eat foods, and seaweed-based products will increase competitiveness while meeting the increasingly diverse tastes of consumers in the global market. Innovation also needs to be supported by environmentally friendly processing technologies so that products are not only of high economic value, but also fulfil the demands of sustainability (Rahmadani & Kim, 2025) .

Strengthening logistics and cold chain systems is essential to maintain product quality during distribution. The construction of cold storage, efficient fish logistics management, and integration of multimodal transport will reduce post-harvest losses and speed up delivery time to export destination markets. The National Fish Logistics System (SLIN) is one of the key infrastructures to keep Indonesian fishery products fresh and of high quality when they arrive at their destination countries (Wijaya & Smith, 2023) .

The implementation of traceability in all export products is also an important strategy. This system ensures that Indonesian fishery products come from legal and sustainable sources, while facilitating the certification and audit process by destination country authorities. Measured fishing that requires CPIB on board is evidence of Indonesia's commitment to responsible fisheries practices (Wahyuni & Hidayat, 2023) .

Export marketing strategies should be strengthened through active promotion in various media and participation in international exhibitions. Promotion through social media, digital platforms, and participation in global exhibitions can increase the visibility of Indonesian fishery products in the eyes of international consumers. Cooperation with overseas distributors and agents also expands market access and accelerates product penetration into various countries (Pratiwi & Johnson, 2025) .

Strengthening the branding and certification of geographical indications on superior products such as shrimp, tuna and seaweed will increase their attractiveness and selling points in the global market. Strong branding, supported by product origin stories and the uniqueness of producing regions, can differentiate Indonesian products from competitors and attract premium consumers. Empowering businesses, especially

fisheries MSMEs, through training, technical assistance, and access to financing is an important step so that they are able to meet export standards and innovate in product development. Collaboration between the government, private sector, and international institutions such as UNIDO and SECO has proven effective in increasing the capacity and competitiveness of fisheries businesses (Kurniawan & Suryanto ., 2022)

Access to financing and investment must be expanded to enable fisheries businesses to adopt modern technology and increase the scale of production. People's business credit (KUR) for the fisheries sector, fiscal incentives, and ease of investment in fishery product processing will encourage the growth of the national fisheries industry (Yulianto & Chang, 2025) .

Diversifying export markets is an important strategy to reduce dependence on traditional markets and capitalise on opportunities in developing countries such as Africa, the Middle East and South Asia. Expansion into new markets must be accompanied by in-depth market research so that the products shipped are in accordance with the preferences and regulations of the destination country (Santoso & Gupta, 2023) .

The development of port infrastructure and processing facilities in fisheries production centres needs to be accelerated so that the export process runs smoothly and logistics costs can be reduced. Adequate infrastructure will also support the integration of supply chains from upstream to downstream. Simplifying export licensing mechanisms and harmonising regulations with international standards will speed up the export process and reduce bureaucratic obstacles. An integrated licensing system and digitalisation of export services are solutions so that businesses can more easily access the global market (Destany et al., 2024) .

Finally, the principle of sustainability must be the main framework of all strategies to improve competitiveness. Fisheries management based on fisheries management areas (WPPs), protection of marine ecosystems, and law enforcement against illegal practices will ensure the long-term availability of fish stocks and maintain Indonesia's reputation as a responsible fisheries producer. With integrated and collaborative strategy implementation, Indonesia's fisheries products will be more competitive and able to compete in the global market in a sustainable manner.

Conclusion

The competitiveness of Indonesian fishery products in the global market is supported by the advantages of abundant natural resources, relatively low production costs, and broad international market access. Revealed Comparative Advantage (RCA) analysis shows that Indonesia has a comparative advantage in several key commodities such as tuna, shrimp, and seaweed, which are the mainstay of national exports. However, this competitiveness still faces challenges in the form of intense competition

from other countries, the need to improve product quality, and the demand for fulfilment of increasingly high international standards.

Factors determining competitiveness include the implementation of food quality and safety standards, innovation of value-added processed products, logistics and cold chain efficiency, and strengthening *traceability* systems. In addition, strengthening human resource capacity, access to financing, harmonisation of regulations, and active promotion in international markets are also important elements. Strategies to increase competitiveness must be supported by multi-stakeholder collaboration, infrastructure improvements, and the application of sustainability principles in the management of fisheries resources in order to meet the demands of a global market that is increasingly selective and oriented towards environmentally friendly products.

By optimising these factors and implementing an integrated strategy, Indonesia has the opportunity to strengthen its position as one of the world's major exporters of fishery products. Increased competitiveness will not only impact national economic growth and foreign exchange earnings, but also boost the income of fishermen, farmers, and create a sustainable and inclusive fisheries ecosystem at the global level.

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