

Analysis of Agricultural Agribusiness Development: Literature Review of Challenges and Opportunities in the Modern Era

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ABSTRACT

Agricultural agribusiness is an important sector in the economic development and food security of a country. In the last two decades, agribusiness has undergone significant transformation influenced by technological advances, climate change, and globalization. This article is a literature review that analyzes various scientific literature on the development of agricultural agribusiness, the challenges faced, and the opportunities that can be utilized. This study uses a descriptive qualitative approach with a literature study method from national and international scientific journals. The results of the study indicate that the main challenges of agribusiness today include dependence on imported inputs, low adoption of digital technology, and climate uncertainty. However, there are great opportunities through the development of agritech, product diversification, and strengthening of digital-based supply chains. This study recommends the need for collaboration between the government, private sector, and farmers in encouraging sustainable agribusiness growth.

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INTRODUCTION

Agribusiness is an economic activity that covers the entire system from production, processing, distribution, to marketing of agricultural products. This sector plays a vital role in providing food, creating jobs, and increasing the income of rural communities. In the modern context, agribusiness is not only limited to the production aspect, but also includes technological innovation and efficient and sustainable business models. Therefore, it is important to study the development of agricultural agribusiness through a scientific approach to understand its dynamics and prospects in the future. The agricultural sector plays a very important role in the structure of the Indonesian economy. Not only as a provider of food, this sector also absorbs a large workforce and is the main source of income for rural communities. However, in the era

of globalization and technological disruption, the agricultural sector is required to transform to be more efficient, adaptive, and market-oriented. This is where the concept of agribusiness plays a strategic role.

Agribusiness is a system that covers all economic activities from the provision of production inputs, cultivation, processing of products, to the distribution and marketing of agricultural products (Saragih, 2021). In other words, agribusiness is not just about farming, but about how agricultural activities are economically integrated in a complex value chain. In the context of Indonesia, the development of agribusiness has great potential in driving inclusive and sustainable national economic growth, given the vast natural resources and high domestic consumption.

However, literature shows that agribusiness in Indonesia still faces various structural and technical constraints. Among them are low productivity, lack of farmer access to markets and technology, high dependence on imported inputs, and limitations in supply chain management (Rondhi et al., 2020; Nasution et al., 2021). On the other hand, the development of digital technology and the emergence of agritech startups provide a breath of fresh air in efforts to modernize agribusiness (Yuliawan et al., 2022).

Therefore, it is important to conduct a study on the latest developments in agricultural agribusiness through a scientific literature review. This study aims to understand the dynamics and direction of changes in agribusiness in facing current challenges, as well as to identify strategic opportunities for its future development. The main focus of this study includes aspects of technology, institutions, supply chains, and policies that impact the competitiveness and sustainability of the agribusiness sector. The agricultural sector is one of the backbones of the Indonesian economy, contributing around 13% to the national Gross Domestic Product (GDP) and absorbing more than 30% of the national workforce (BPS, 2023). Moreover, this sector plays a vital role in maintaining food security, rural socio-economic stability, and providing raw materials for downstream industries. In facing the era of globalization, the industrial revolution 4.0, and the climate crisis, the Indonesian agricultural sector is required to transform from a conventional pattern to a modern agribusiness system that is technology-based, efficient, and market-oriented (Ministry of Agriculture of the Republic of Indonesia, 2022).

Agribusiness is an integrated approach to agricultural economic activities, covering the entire value chain from upstream to downstream: provision of production facilities, cultivation, post-harvest, processing, to distribution and marketing (Saragih, 2021; Afifi & Darwanto, 2022). The concept of agribusiness bridges traditional agricultural activities with the increasingly complex needs of the market economy. Therefore, strengthening agribusiness is not only aimed at increasing agricultural productivity, but also at creating added value, increasing farmers' incomes, and creating new jobs.

However, several studies reveal various challenges that still hamper the development of agribusiness in Indonesia. Among them are limited access to capital, markets, technology, and information, especially for small farmers (Rondhi et al., 2020; Nasution et al., 2021). In addition, the agricultural supply chain is still inefficient and often oligopolistic, so that farmers do not have a strong bargaining position (Setiawan & Haryati, 2022). Another challenge is the increasing impact of climate change which affects production resilience and planting seasons (FAO, 2022).

On the other hand, the digital era brings great opportunities for the agribusiness sector through the use of information technology, precision agriculture, big data, the

Internet of Things (IoT), and the development of agritech startups (Purwanto et al., 2020; Yuliawan et al., 2022). These innovations have the potential to increase production efficiency, shorten the distribution chain, and strengthen the connection between farmers and consumers.

Through this literature review, the author aims to examine the latest dynamics in agricultural agribusiness development in Indonesia and globally, with a focus on the main challenges and opportunities that can be exploited. This study is expected to provide conceptual and practical contributions to policy making, institutional innovation, and the design of sustainable agribusiness strategies.

METHOD

This research was conducted using a literature review approach. Data were collected from various scientific journals indexed by Scopus and SINTA published in the period 2013–2024. Article selection criteria include relevance to the theme of agricultural agribusiness, valid methodology, and contribution to understanding agribusiness challenges and innovations.

RESULT AND DISCUSSION

Development of Agribusiness in the Modern Era

Literature shows that agribusiness has undergone major changes since the implementation of digital technologies such as IoT, big data, and artificial intelligence in agriculture (Smart Farming). Developing countries have begun to adopt precision farming systems to increase production efficiency and reduce waste.

Agribusiness Challenges

Some of the main challenges in the literature that are often raised include:

1. Limited access to capital and markets for small farmers (Rondhi et al., 2020)
2. Climate crisis affecting agricultural productivity (FAO, 2022)
3. Delays in adoption of digital technology at the farmer level (Nasution et al., 2021)

Development Opportunities and Strategies

Despite the challenges, the sector holds much potential. Opportunities identified include:

1. Development of agritech startups and digital applications for farmers
2. Leveraging blockchain in supply chains for transparency and efficiency
3. Increasing the role of farmer cooperatives as local economic institutions

Current Agribusiness Developments and Trends

The transformation of agricultural agribusiness in Indonesia and the world has been significantly influenced by changes in technology, consumption patterns, and global trade policies. One of the main trends is the digitalization of the agricultural sector, which drives the adoption of technologies such as precision farming, IoT (Internet of Things), artificial intelligence, and data-based management systems (Purwanto et al., 2020). These technologies enable efficient use of inputs such as water, fertilizers, and pesticides and increase production accuracy.

In addition, increasing consumer awareness of sustainability and health issues has also driven the growth of organic agricultural products and sustainable agricultural systems (FAO, 2022). The agribusiness business model has also begun to shift to a digital and e-commerce-based system, where farmers and agribusiness actors can sell directly to end consumers through platforms such as Tanihub and Sayurbox (Yuliawan et al., 2022).

Challenges of Agribusiness Development

Despite showing promising developments, agricultural agribusiness still faces various challenges which can be grouped as follows:

1. **Infrastructure and Technology Access Limitations:** Most farmers in Indonesia still do not have access to modern agricultural technology. Limited internet networks in remote areas and low digital literacy are major obstacles to the adoption of agritech (Setiawan & Haryati, 2022).
2. **Inequality of Access to Capital and Markets:** Studies show that small farmers have minimal access to formal capital sources and tend to depend on middlemen in the distribution of agricultural products (Rondhi et al., 2020). This weakens their bargaining position in the market.
3. **Land Fragmentation and Low Productivity:** Small and uneconomical farming scale causes production inefficiency. The average area of farmer's land in Indonesia is only 0.3–0.5 hectares, far below the minimum economic scale (Ministry of Agriculture of the Republic of Indonesia, 2022).
4. **Impact of Climate Change:** Climate change increases the uncertainty of planting seasons and causes disruption to food production systems. Extreme events such as floods, droughts and pest attacks are becoming more frequent (FAO, 2022).

Strategic Opportunities for Strengthening Agribusiness

Despite the significant challenges faced, there are a number of strategic opportunities that can be exploited to strengthen the agribusiness system:

1. **Utilization of Agritech Startups and Technological Innovation:**
The development of agritech startups such as eFishery (for aquaculture) and Tanihub (for horticulture distribution) shows that technology can bridge market gaps and reduce dependence on intermediaries (Yuliawan et al., 2022).
2. **Strengthening Agricultural Value Chains and Logistics:**
The literature mentions the importance of establishing institutions such as digital cooperatives and agribusiness clusters to strengthen local value chains (Afifi & Darwanto, 2022). Supply chain digitization helps improve transparency, tracking of results, and efficiency of agricultural product distribution.
3. **Agricultural Policy Reform and Financial Inclusion:**
Policies that support agricultural insurance, targeted fertilizer subsidies, and digital-based microfinance can encourage farmer inclusion in modern agribusiness systems (Nasution et al., 2021).

4. Increasing Human Resources (HR) Capacity: Strengthening vocational education, agribusiness training, and technology-based extension are urgent needs to create adaptive and productive farmers (Ministry of Agriculture of the Republic of Indonesia, 2023).

CONCLUSION

Based on the results of the literature review, it can be concluded that agricultural agribusiness is undergoing a structural transition phase towards a more modern, technology-based and market-oriented system. Challenges such as technology access, land fragmentation, and climate impacts still limit progress. However, opportunities from digital innovation, policy support, and the emergence of agritech startups open up space for inclusive, efficient, and sustainable agriculture.

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