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Collaborative Governance for Resilience (CORE) Model in Addressing Rice Security Issues in Banten Province, Indonesia

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Abstract

Agricultural production data for Banten Province, particularly unhusked rice, indicates a positive upward trend over the past three years, with a rice surplus reaching 76,133 tons by the end of June 2025. However, classic anomalies related to the rice distribution supply chain system persist. Premium and medium-grade rice prices remain high, often stockout from the market, as happened after the harvest season in August 2025. Distributors frequently produce adulterated rice to reduce production costs. Meanwhile, stakeholders involved in the distribution supply system, particularly small milling industries, small distributors, and unhusked rice processing industries, have experienced a decline in production, with many even ceasing operations. This study aims to identify issues within the rice distribution supply chain system and propose an appropriate governance model to address these issues. This article is the result of field research with a descriptive qualitative approach, where data collection methods was carried out by observation, analysis documentation study, in-depth interviews, and focus group discussions (FGDs). The results indicate that governance within the distribution system remains a serious issue in food security programs, particularly rice. This study also suggested that the Collaborative Resilience (CORE) model can be implemented to address food security issues, especially in the rice distribution supply chain system in Banten Province.

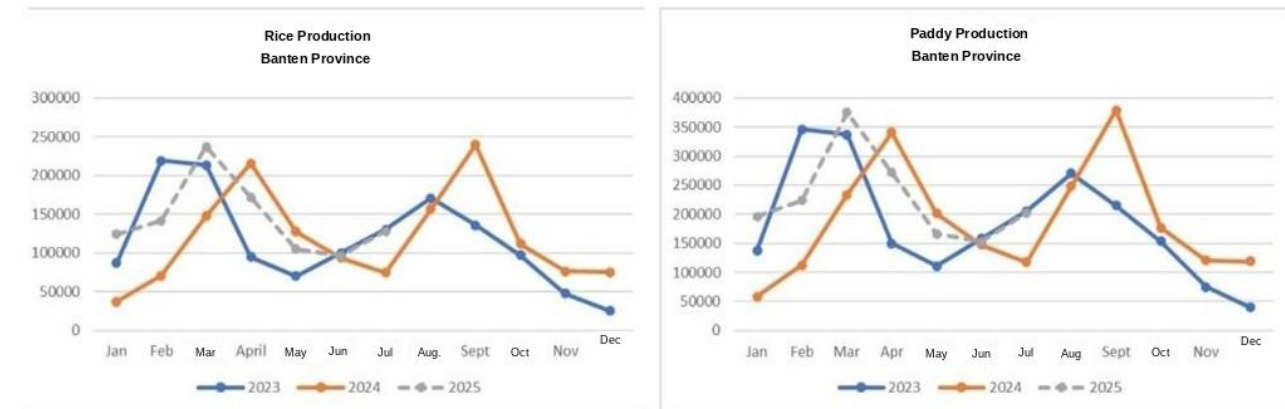
KEYWORDS

collaborative governance; governance; food security; distribution system.

Introduction

Banten Province, located in Indonesia, boasts significant agricultural potential. In 2024, the province's arable rice fields spanned 197,845 hectares, reflecting its strong capacity for agricultural production (Rantau et al., 2023). Geographically, the southern regions—particularly Pandeglang and Lebak Regencies—stand out as highly favorable agricultural zones. These areas, along with parts of Serang Regency, remain dominated by expansive green spaces, including forests and open land, which present further opportunities for agricultural development. In addition to its natural advantages, Banten Province benefits from its proximity to DKI Jakarta and West Java, Indonesia's most densely populated provinces. This strategic location positions Banten as a key supplier to these neighboring markets, enhancing the region's prospects for agricultural growth and food production (Rantau et al., 2022).

Seeing the significance and potential of the agricultural sector, the Banten Provincial Government in the 2017-2022 and 2024-2029 RPJMD states that one of its development missions is to improve the quality of growth, especially in the food agriculture sector (Tauchid S. et al., 2022). In supporting this mission, the central government and regional governments have built agricultural support infrastructure such as connecting roads between agricultural areas, dams, such as the construction of the

Figure 1. Rice and Grain Production's Banten Province

Data Source: Banten Provincial Agriculture Service (2025)

Karian dam in Lebak, and the Sindang Heula Dam in Serang Regency which is also designated as a National Strategic Program (PSN), as well as the construction of irrigation networks that connect water sources with agricultural lands. With the support of natural resources and political will from the government, the ideal of food self-sufficiency should be realized in a short time. Infrastructure support and a crop intensification strategy have made it clear that Banten Province's food agriculture sector is slowly becoming a key driver of regional economic growth. Data on food agriculture production, particularly rice, over the past three years also show quite positive indicators. Rice production experienced an average growth of 2.56-3.2 percent from 2023 to 2024 (BPS, 2024). Similarly, rice production reached a growth rate of 3.5 percent. For the first time in five years, the Banten Provincial

Agriculture Office recorded a rice surplus of 76,133 tons in May 2025, with a projection of 124,762 tons by the end of 2025 (Serang, 2025), as illustrated in Figure 1.

The growth trend in rice production is also in line with the government's rice stock reserves where the Jakarta and Banten regions of Bulog claimed to have secured 344 thousand rice stocks to maintain regional food reserves. Bulog also stated that the rice stock was the result of absorbing local agricultural products, which is in accordance with the President's instructions contained in Presidential Instruction No. 6 of 2025 concerning Procurement and Management of Domestic Rice/Grain and Distribution of Government Rice Reserves to absorb local agricultural grain with a HPP of Rp 6500. In line with the Presidential Instruction, Bulog DKI and Banten regions stated that they had absorbed 53,000 tons of Harvested Dry Grain (GKP) of various qualities or 8.3 percent of the total production of Banten Province Grain throughout May to August 2025.

However, behind the increase in regional rice and grain production, as well as the government's claimed abundant rice absorption and reserve stocks, there is an anomaly in the distribution sector and public purchasing prices, where this phenomenon occurs almost every year. The findings of the Indonesian Ombudsman (ORI) show that the price of premium and medium rice circulating in the community throughout the mid-2025 harvest season soared far above the Highest Retail Price (HET) set by the government (Fatika, 2025). The price of premium rice in the Greater Jakarta area, for example, from 35 large modern retailers surveyed, 68.9 percent of them sold rice at an average price of IDR 16,500/Kg, far above the Highest Retail Price set by the government in zone 1 of IDR 14,500/Kg. Likewise, medium rice circulated at a price of IDR 15,500, higher than the HET of IDR 13,500 (Bapanas, 2025). This phenomenon also occurs in various regions in Indonesia, including in Banten

Province with market price fluctuations that are much higher than the HET. Problems in the distribution sector also show more serious anomalies. Data on increases in grain and rice production are inversely proportional to the fact that the rice milling industry, both nationally and in the Banten Province region, has experienced a significant decline. The Central Statistics Agency (BPS) recorded that 12,410 RMU (Rice Milling Units) of various types closed down from 2012 to 2020, of which 95.6 percent were small-scale rice mills (Badan Pusat Statistik, 2020). Meanwhile, the Ministry of Agriculture recorded 125,562 rice milling industries of various scales by mid-2025, up from an initial number of 169,789 in 2020 (Pertanian, 2023).

From the data above, Banten Province is the region with the fifth largest decline in the number of RMU industries in Indonesia after West Java, South Sulawesi, South Sumatra, and Central Java. Throughout 2012-2020, BPS released the number of rice mills in Banten from 7,489 to 6,716 business units, or a decrease in the number of rice mills by 773 business units, most of which are small and medium industries (Badan Pusat Statistik, 2020). Even in the last 3 years, especially after the emergence of Instruksi Presiden No. 6 of 2025, the small milling industry not only has to compete with large industries, but also with Perum Bulog which is tasked with absorbing grain from farmers' harvests of various qualities.

Pre-research conducted in this study indicates that several factors causing the decline in the rice milling industry include a reduced supply of absorbable unhusked rice, particularly by small-scale mills, resulting in an inability to cover the minimum production costs required during the harvest season. The burden of production costs becomes even heavier when they are faced with the obligation to purchase unhusked rice from farmers at the government standard price (HPP) of IDR 6,500 for all types of unhusked rice. They are also faced with the requirement not to sell rice at a price exceeding the Highest Retail Price (HET) set by the government. In addition to the increasing production burden, the medium and small milling industry is also faced with unfair competition (oligopoly), especially with large corporations, such as PT Wilmar Indonesia and the large RMU Company from Kerawang which have capital and production machinery capacity that is larger and more effective. In this case, the collapse of the local rice milling industry is inseparable from the market structure controlled by a handful of large entrepreneurs who have the potential to transform into a cartel that is not only able to control the circulation of commodities but also can also manipulate rice prices in the market. The scarcity of premium rice that causes high prices, amidst claims of rice surplus is an anomaly that cannot be separated from the factor of oligopoly control over the market structure.

Furthermore, the problems in the rice security program,

which arise almost every year, are inseparable from the poorly managed supply chain distribution system. Government intervention, whether by implementing a floor standard for grain purchases (HPP) of Rp 6,500 or a maximum standard for the highest retail price (HET), instead of resolving problems in the supply chain, has instead created production and distribution burdens that have made rice commodities uncontrollable. In this case, the government's priority seems to be focused solely on protecting the public as consumers, rather than protecting the public as producers.

Furthermore, rice distribution governance is also challenged by the uncoordinated roles of various stakeholders. Each stakeholder, including the government, the private sector, and community representatives, presents opportunities and constraints that are not integrated with one another. This is particularly true in terms of asymmetries in power, capital, and information. Several parties involved in both production and distribution appear to be unequally positioned to create an effective and mutually beneficial agri-food ecosystem.

Previous studies related to collaboration in rice supply chain governance in Banten Province have emphasized the role of one party in the food distribution process (Fiqhi et al., 2024). Other studies have proposed a new ecosystem in the form of a food estate to initiate a regional government food security program (Rayhan et al., 2024). This study emphasizes the collaboration of all stakeholders involved in the food supply chain with the facilitation of the regional government. The concept of the CORE model collaboration is used considering the limited resources, both human and financial, which no longer allow the state to create a new ecosystem in the food supply chain in Banten Province. Collaborative for resilience in the context of cross-sectoral collaboration in Banten Province prioritizes the re-empowerment of various stakeholders who were previously involved, to then strengthen their roles to support the optimization and effectiveness of the food supply chain.

Methods

This research employed a descriptive qualitative design, with subjects including several stakeholders involved in the rice supply chain and distribution in Banten Province. This research involved several informants including the Banten Provincial Government, the State Logistics Agency (Bulog), private rice milling industries, NGOs, civil society, academics, the media, and the general public. Subjects were selected using purposive sampling and snowball sampling techniques.

Research Type

This study adopted a qualitative study design to explore emerging issues in the food chain in Banten Province, as well as possible cross-sectoral collaboration models that could be implemented to address these issues. The informants in this study consisted of 38 stakeholders, including local governments (agriculture services and food security services), 12 rice milling industry players, 2 NGOs, 10 farmers, and 10 community members as rice consumers, spread across 4 districts which are rice producing centers in Banten Province.

Data Analysis

Data analysis in this study uses the NVivo tool by inputting data from interviews with stakeholders, so that a mapping of the opportunities and challenges faced by stakeholders in the food supply chain is obtained and how cross-sectoral cooperation models can be implemented.

Result and Discussion

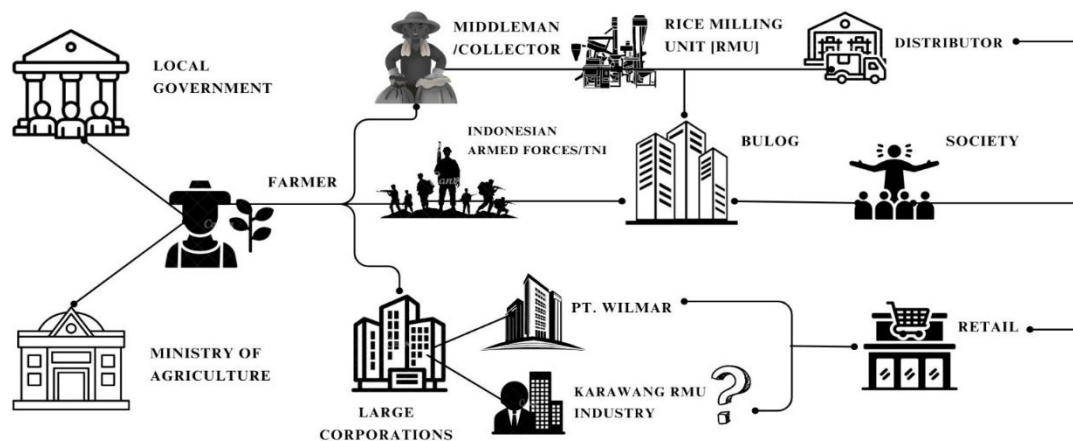
One crucial factor in supporting food security programs, particularly rice, is integration across sectors, both at the production and distribution levels (Lu & Carter, 2023). Cross-sectoral collaboration is expected to resolve any issues that arise across various sectors within the rice farming ecosystem. The asymmetries of power, capital, and information within the rice supply chain, as outlined in this research, are also expected to be resolved through collaboration that allows for mutual adaptation between stakeholders to address the challenges and opportunities within the rice security program, (Mardenli & Sackmann, 2022; Ratner & Smith, 2014), in the Collaborative Governance Assessment designed the Collaborative Governance framework for the Collaborative for Resilience (CORE) model to ensure that all stakeholders participate in the program equally (Ratner, 2012). The CORE concept ensures that all parties with various perspectives will be represented and have equal opportunities to influence each other, and ultimately build commitment to action (Qoyimah et al., 2023). Furthermore, the CORE concept emphasizes local actors to be able to stand on equal footing with the government and the private sector to jointly achieve public goals, when these goals will be difficult to achieve without cooperation with various parties. The CORE concept can be said to be the simplest approach among other Collaborative models, such as Collaborative Governance (Ansell & Gash, 2008), Collaborative Governance Regime (CGR) (Emerson, K., Nabatchi, T., & Balogh, 2012), Deliberative Collaborative Governance (Thomson, A. M., & Perry, 2006), and others. The reason for the simplicity of this concept is what makes CORE considered relevant to answer the problem of rice distribution supply flow which is quite complex and involves various stakeholders. Complex problems and multi-sector stakeholders require a simple approach, so that consensus can be achieved to achieve common goals. The CORE approach prioritizes 3 phases/stages in the process as part of the Collaborative Governance process (Blake Ratner, 2014; KANIGOWSKI, 2015).

First, identifying governance obstacles and opportunities. The first step is the listening phase, where the government initiates a meeting with stakeholders to identify emerging obstacles, as well as the opportunities and challenges each stakeholder faces in program implementation. This first phase also determines the main issues, key actors as leading sectors, and the targets to be achieved. This phase also necessitates a consultation forum in which stakeholders are an integral part. The forum is created to minimize imbalances in opportunities and challenges in accessing capital, power, and information from each party.

Second, debating strategies for influence. This phase initiates a dialogue, where stakeholders begin discussions to formulate the most effective strategy for change. Discussions to formulate strategies must be conducted symmetrically, given the potential for conflict between parties to intensify during this phase. This will help identify which parties can persist in supporting collaboration and which parties oppose it. This discussion also leaves open the possibility of involving other parties in addressing the issues faced.

Third, planning collaborative actions. In this phase, the form of the collaborative forum and the initial steps to be taken (the choice phase) are selected and determined. Strategic steps are identified to address the issues. Methods for measuring and evaluating cross-sector collaboration are also determined, ensuring the model can be sustained in the future. Cross-sector collaboration, using a model like CORE, is expected to provide a roadmap for the active participation of all stakeholders in various community issues, particularly food security (Ratner et al., 2017). Cross-sector collaboration not only strengthens the implementation of government programs but also provides the

Figure 2. Rice Supply Chain Flow (Existing)



Source: processed by researcher

right direction for development that meets community needs (Noor et al., 2023). This ensures that development success is enjoyed not only by a select few but also by the entire community. The Collaborative for Resilience (CORE) model offers three stages to ensure that cross-sectoral collaboration on rice distribution supply chains can support food security programs in Banten Province. These three stages include identifying governance obstacles and opportunities, debating strategies for influence, and determining collaborative actions. Relevant stakeholders involved in this collaboration include the government (both central and regional), the private sector, civil society and NGOs, academics, the press, and the public. (Hexa Helix),(Noor, Muhammad. at, 2022; Praja, 2024). 1. Identifying governance obstacles and opportunities to identify problems and challenges, it is necessary to first map the current rice distribution supply chain, particularly in Banten Province. This research found that the rice distribution supply chain, from harvest by farmers to consumption by the public, involves numerous stakeholders within a fairly long supply chain system. There are at least three schemes within the rice supply chain, involving eight to ten stakeholders with varying capacities, as shown in Figure 2.

The first scheme involves local stakeholders, where farmers sell their harvests to local traders/collectors at an agreed price. In this case, the government, through Presidential Instruction No. 6 of 2025 concerning the Procurement and Management of Domestic Rice/Grain and the Distribution of Government Rice Reserves, has set the price of grain according to the Government Purchase Price of IDR 6,500/Kg. The government's determination of the HPP is like a minimum price where traders are forced to buy grain at that price, or even more expensive. The market price of grain during the May-August 2025 harvest season in Zone 1 ranged from IDR 6,500-9,000/Kg. The next subsystem in the rice distribution supply chain is the rice milling industry/Rice Milling Units (RMU). There are three types of RMUs developing in our agricultural ecosystem: small-scale industries with a capacity of under 5 tons/day, medium-scale with a capacity of 5-10 tons/day, and large-scale with a capacity above 10 tons/day. The rice milling industry not only produces rice but also other derivative products such as bran, rice bran, rice groats, and husks. These derivative products form a separate industrial chain, especially in the field of animal feed. The rice milling industry also absorbs a significant number of workers, with small-scale industries requiring 4-9 workers, and even more for medium and large-scale industries. Therefore, problems that arise in this industry will certainly impact other sectors. The main product of the rice milling industry is rice of various

qualities, ranging from premium, medium, to the government's version of rice for food stabilization (SPHP). Rice distribution is carried out by traditional and modern distributors, as well as retailers who then consume directly by the public. The

government, through the National Food Agency, sets the Highest Retail Price (HET) for various qualities ranging from IDR 12,500-IDR 14,900/Kg. However, the facts on the ground show that the retail price of rice, especially premium and medium varieties, often exceeds the government's stipulation limit, along with the availability of rice supplies in the market.

The second scheme in the rice distribution chain involves large corporations. In the context of Banten Province's harvest distribution, PT Wilmar Padi Indonesia and several large companies from Kerawang are suspected of dominating the distribution process. Their large, modern machinery capacity and market dominance make these corporations' distribution costs cheaper and more effective, allowing them to purchase grain from farmers at higher prices than local milling companies. However, the Highest Retail Price (HET) also makes it difficult for large corporations to adjust their production costs to meet government regulations. The scarcity and adulteration of premium and medium-grade rice circulating in the market can be seen as a form of market dominance by large corporate networks. The third scheme directly involves the government, in accordance with Presidential Instruction No. 6 of 2025, Perum Bulog is tasked with absorbing farmers' unhusked rice of various qualities at the Government Purchase Price of Rp 6,500/kg. Perum Bulog is tasked with managing the availability and stability of food supplies by maintaining the rhythm of rice reserves. Absorption of community unhusked rice in accordance with the HPP is intended to increase the Farmer's Exchange Rate, while maintaining the availability of national food reserves. Perum Bulog DKI-Banten region claims to have met the absorption target of 45,000 tons by the August 2025 harvest season or 8-10 percent of the total unhusked rice production throughout Banten Province (Bulog, 2025).

Debating Strategies for Influence

After mapping the stakeholders and issues within the rice distribution supply chain, the CORE model entered the second phase, debating strategies for influence. In this phase, a dialogue was conducted to address issues within the rice distribution supply chain, identify the roles of each party, and manage potential conflicts within cross-sector collaboration (Ratner et al., 2017). The dialogue yielded several policy recommendations and guidelines for regulating the rice distribution supply chain, as follows: First, the government is expected to be more proportional in setting the Cost of Goods

Sold (HPP) and Highest Retail Price (HET), considering the increasing burden of rice production faced by the rice milling industry due to market competition. The HPP increases the price of unhusked rice, increasing production costs. Meanwhile, the HET limits traders' ability to regulate profit margins. Rigid HPP and HET, coupled with repressive measures by authorities to control potential price fluctuations, have led the industry to opt out of production.

Second, the government is expected to intervene by providing high-quality rice production facilities as close as possible to community rice production centers. Assistance schemes for rice milling machines and all supporting instruments can be implemented through Cooperatives or Village Business Units (BUMDes) by involving the Rice Milling Association, thus creating a mutually beneficial collaboration for all parties. In the context of rice distribution governance, the Banten Provincial Government can revitalize the role and function of food-owned enterprises (BUMDs) to be directly involved in providing production tools, as well as managing rice distribution until it is consumed by the community. Government intervention is also expected to protect the local rice milling industry from unfair price competition from large corporations, both within Banten Province and outside the province, such as the rice milling industry from Kerawang, which frequently penetrates rice production centers in the interior of Banten Province. Oligopolies, however, not only harm small industries but also the wider community, given that these large corporations harbor the same potential problems but with far-reaching destructive power.

Third, technological innovations are needed to improve the quality and quantity of food crops, especially rice. Innovation is also essential in the field of digital information technology to improve the quality of data and information on food crop production and distribution channels. Information asymmetry among stakeholders can lead to unhealthy competition, which leads to a monopoly of information in the rice distribution system (Pietrzak et al., 2020), (Miller, 2021). One form of information asymmetry that occurs in the rice distribution supply chain in Banten Province is the lack of knowledge of rice absorption data by large corporations when many local and small-scale rice milling industries have closed production due to a lack of rice supply. Even though at the same time data from the Regional Government and BPS shows a surplus of rice production. Inaccurate information on agricultural production indices can also lead to the creation of incorrect government policies. The policy of importing food when food production is abundant in the field is a form of misinformation that not only opens up opportunities for corruption but also undermines the resilience and stability of food agriculture. Therefore, it is necessary to establish data and information centers at the smallest level within the food agriculture ecosystem, such as cooperatives or village-owned enterprises (BUMDes), to obtain detailed and precise data and information that will benefit not only stakeholders in the food agriculture ecosystem but also government policymaking.

Planning Collaborative Actions

In this phase, a collaborative governance framework model is proposed. The primary objective of this collaboration is to build governance by equally involving all parties involved in the rice supply chain and distribution, enabling them to adapt (resilience) to one another, creating a healthy agri-food ecosystem. The CORE collaborative model distinguishes it from other models by emphasizing the participation, optimization, and adaptation of existing stakeholders, without requiring the creation of a new entity to manage this cross-sector collaboration. The Collaborative for Resilience (CORE) model offers a cross-sector collaboration

framework involving several parties, including the government (central and regional), the private sector, civil society/NGOs, academics, the media, the community, and farmers. These six parties complement the existing rice distribution system. The local government, in this case the Department of Agriculture and the Department of Food Security, is the leading sector in this cross-sector collaboration program. The Regional Government, as a representative of the state, is required to proactively initiate activities in this collaboration, including facilitating and preparing the necessary facilities and infrastructure to establish a forum/institution to accommodate the activities of the stakeholders involved (Lu & Carter, 2023). In the context of cross-sectoral collaboration in Banten Province, the necessary institution already exists, namely the Agro-Owned Enterprise (BUMD Agro), established in 2018. One of the missions of the Banten Province-Owned Enterprise (BUMD) is to build a new trade system to support national food security. In accordance with this mission, the BUMD also functions to maintain the stability of food distribution and availability. In this regard, the BUMD plays a central role in managing the rice supply chain, both as a representative of the state and as a business partner for other stakeholders. Functions that BUMD can play in the rice supply chain include coordinating cooperatives and BUMDes to manage state-owned rice production equipment, which is expected to be available at centers closest to farmers' grain production, standardizing and controlling the quality of farmers' grain production, accelerating technology and digitizing information, diversifying agricultural products, and promoting and marketing. Regionally-owned enterprises (BUMD) also serve as a conduit for activities and information for stakeholders involved in cross-sectoral collaboration.

Meanwhile, the private sector is the most vulnerable party in such cross-sectoral collaboration (Dubbeling et al., 2016). The tug-of-war between the egos and interests of the private sector and those of the public will frequently arise in forums. Within the CORE model, the private sector can be guided to adapt to the program's intended environment, namely an agricultural ecosystem that supports national food security. Small and medium-sized milling industries can be assisted in adapting to the demands of modernizing production equipment and information technology, enabling them to survive and compete with

large-scale industries. Meanwhile, large corporations can be asked to align themselves with government programs to create an agricultural ecosystem conducive to food security programs (Iis Kartini, Hilmiana, 2022). Civil society, non-governmental organizations (NGOs), and the mass media are parties that have rarely been involved by the government in cross-sectoral collaboration, particularly in food security programs. Yet, these two groups can be directly involved as representatives of the public in the food supply and distribution chain. They can play a role of social control, particularly overseeing the distribution system to ensure it aligns with the public's interests. Reports and contributions of ideas from civil society, NGOs and the mass media related to food stability, for example, can serve as a basis for the government to immediately take policy decisions.

From the three schemes mentioned above, this study identified several problems, challenges, and opportunities faced by stakeholders involved in the rice distribution supply chain. First, the determination of the Government Purchase Price (HPP), which is the minimum standard price, is suspected to have caused the price of unhusked rice to skyrocket. Both collectors and millers face price competition, ultimately reducing the supply of raw materials to the milling industry. Several rice milling industries in Serang, Pandeglang, and Lebak Regencies admitted to preferring to close their milling businesses and switch to becoming rice distributors, as the price and scarcity of unhusked rice have increased

production costs. Meanwhile, selling prices are constrained by government regulations regarding the Highest Retail Price (HET). In this case, the determination of the HPP is like a double-edged sword, increasing the income of farmers as unhusked rice producers, but also impacting the milling industry as distributors of unhusked rice. In a world of soaring grain prices, only large-capital industries can survive. The Wilmar Group, the Japfa Group, and several rice milling and processing companies from Kerawang are key players in the rice distribution supply chain in Banten Province. These rice producers are able to purchase grain from farmers at prices ranging from Rp 6,500 to Rp 8,500 per kilogram, depending on the quality of the grain. In addition to the higher purchase price, these large corporations are also supported by large-capacity milling machines and modern transportation to collect the grain from community-based grain production centers. This means that all costs beyond the price of the grain are covered by these large-scale rice industries.

Second, although this study failed to obtain data on the amount of large-scale industrial absorption of local farmers' rice, however, if seen from the downward trend of local small- and medium-scale milling industries that have gone bankrupt due to a lack of rice supply, as well as the absorption of rice production by the State Logistics Agency (Bulog), which is only around 8-10 percent of rice production in Banten Province, then an analysis can be drawn that there is a suspected control of the rice distribution supply chain by a handful of large corporations. Unfortunately, large milling industries that are also rice producers are also faced with the same problem faced by local industries, namely the too small gap between production costs and the selling price determined by the Government through the HET. Therefore, the scarcity of premium and medium rice in the market resulting in retail prices far exceeding the HET, as well as the discovery of adulterated rice, suspected of involving large corporations such as Wilmar and the Japfa Group shows the chaos of the supply chain system at the large industrial level. Oligopoly in the rice distribution supply chain has also indicated to caused more serious problems in the national food security system (CASA Programme, 2023).

Third, problems in the rice distribution supply chain are inextricably linked to governance within the food security program, particularly in the problematic distribution sector. The government appears to be playing it safe by only engaging in upstream and downstream activities, establishing a minimum rice price (HPP) and a maximum rice retail price (HET). Meanwhile, the supply chain system is left to the rule of law, with large capital owners surviving (Afferdhy Ariffien, Iman Sudirman, 2024), (Wuwuh Andayani, Aramia Fahriyah, Rochland Yoseph, Dessy Andamisari, 2022). The government's problems are also evident in the governance of the national rice supply and reserves by the Logistics Agency (Bulog). The HPP policy, which absorbs all types of farmers' rice at the same price, places a heavy burden on the state-owned company, particularly in processing low-quality rice. The Indonesian Ombudsman's findings regarding the accumulation of SPHP rice in Bulog's warehouses, which

has the potential to degrade in quality and cause the state to lose trillions of rupiah, are inextricably linked to the weak governance of the supply and distribution of national rice reserves.

Given the various issues and challenges faced by stakeholders involved in the rice distribution supply chain, it is crucial to develop participatory policies and programs to support food security programs.

Furthermore, challenges to food security programs extend beyond supply chain issues, including land conversion and the availability of infrastructure to support agricultural production. Therefore, the proposed cross-sectoral collaboration is one that integrates and adapts across sectors. The CORE concept is considered relevant because it can simplify and effectively manage long and complex supply chains.

Conclusion

Indonesia's food security program, particularly for rice, faces a long-standing problem that remains unresolved. Although the government claims to have achieved a rice surplus and even projects self-sufficiency, classic issues related to rice distribution persist. Prices of premium and medium-grade rice have risen above the Highest Retail Price and are often scarce on the market, rice adulteration, and the collapse of many small-scale rice mills are some of the perennial problems. The most crucial issue lies in the poorly integrated governance of the rice supply chain. Each party involved, particularly the government, operates according to its own agenda, creating a seemingly never-ending problem. The Collaborative for Resilience (CORE) model designs a rice distribution governance system that involves various stakeholders, both directly and indirectly, in the supply chain. Cross-sector collaboration can be carried out in a forum or institution at the level of a Regionally-Owned Enterprise (BUMD) initiated and facilitated by the Regional Government, where the institution acts as a channel for information, communication, work design, and the embryonic birth of state policies related to food security programs. BUMD with the CORE framework involves the adaptive and equal participation of all stakeholders, where the stages in the CORE model can be passed through, thus creating a rice supply chain ecosystem that is conducive to food security programs.

Author contributions

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