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The Government's Role in the Indonesian Rice Supply Chain

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Rice Supply Chain**

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GLOSSARY

- Bappenas : Kementerian Perencanaan Pembangunan Nasional Republik Indonesia/
Badan Perencanaan Pembangunan (National Development Planning Agency)
- Bernas : Padiberas Nasional Bhd
- BKP : Badan Ketahanan Pangan (Food Security Agency)
- BPK : Badan Pemeriksa Keuangan (State Audit Agency)
- BPS : Badan Pusat Statistik (Statistics Indonesia)
- Bulog : State-owned enterprise on food
- GKP : Gabah Kering Panen (Paddy), harvested rice paddy with maximum water level of 25% and foreign materials maximum 10%
- GKG : Gabah Kering Giling (Dried Unmilled Rice), dried ready-to-mill rice paddy with maximum water level of 14% and foreign materials maximum 3%
- HET : Harga Eceran Tertinggi (Price Ceiling)
- HPP : Harga Pembelian Pemerintah (Rice Purchasing Price)
- KPPU : Komisi Pengawas Persaingan Usaha (Indonesian Competition Commission)
- KSA : Kerangka Sampel Area (Area Sampling Frame Method)
- KUR : Kredit Usaha Rakyat (Micro credit program)
- MOA : Ministry of Agriculture
- MOT : Ministry of Trade
- NFA : National Food Authority
- VFA : Vietnam Food Association

EXECUTIVE SUMMARY

The national rice consumption in Indonesia is among the highest in the world, reaching 29.13 million tonnes in 2017. It has been estimated that it might increase to 31.7 million tonnes by 2045 along with the increase in population. In contrast, Indonesia has seen a decline in rice production in recent years. The combination of increased demand and declining production is likely to cause a widening imbalance between rice supply and demand.

While Indonesia still imports rice, the country fulfills the largest share of its rice demand domestically. The domestic supply chains are therefore of utmost importance for stable, affordable and accessible rice supplies. However, distribution channels vary in each province throughout Indonesia. From farmers to consumers, the chains may include middlemen, millers, wholesalers, and retailers, each with their own unique function. Regulating the number of intermediaries involved in the distribution and processing chain of domestically produced rice is not desirable as these intermediaries are required to connect farmers with consumers.

Bulog is supposed to help ensure food security by being involved in the domestic supply chain. However, they face their own challenges on both upstream and downstream levels. Bulog is obliged to maintain national rice stocks and distribute them for direct welfare assistance. However, since the new Non-Cash Food Assistance (BPNT) program relies largely on private suppliers, the distribution of public rice stocks has been compromised. Furthermore, the poor quality of rice stocks in Bulog warehouses cannot compete with those of private suppliers.

Under these circumstances, Bulog's role needs to be reconsidered. The private sector should play a greater role in domestic rice markets and Bulog should only participate in rice distribution during emergency situations. Presidential Regulation 48/2016 Article 8 needs to be revised to allow Bulog to focus on protecting consumers through disaster-relief programs.

As a practical short-term solution to lower rice prices and improve the efficacy of Bulog, Bulog's monopoly on imports of medium-quality rice should be removed. Private companies should be eligible to access an automated licensing system and to import medium-quality rice to Indonesia.

CURRENT SITUATION: INDONESIANS' HIGH DEPENDENCE ON RICE AND HOW THE GOVERNMENT REGULATE RICE PRICE TO PROTECT FARMERS AND CONSUMERS

Rice is an essential staple food for the vast majority of Indonesian. The nation's per capita rice consumption was calculated at 97.6 kilograms in 2017, much higher than the average yearly consumption of maize and potato as carbohydrate substitutes which are recorded at only 2 kilograms (Arifin et al., 2018) and 2.6 kilograms per capita (Food Security Agency [BKP], 2017) respectively. This amounts to an annual rice consumption of around 29.13 million tonnes in 2017 according to the national statistics agency Statistics Indonesia (Statistics Indonesia [BPS], 2018).

Indonesia's rice consumption per capita is higher than in neighboring countries where rice is also a staple food, such as Malaysia (87.9 kilograms per capita) and Brunei Darussalam (75.1 kilograms per capita) (Ministry of Primary Resources and Tourism, 2017). It is slightly lower than in Thailand at 103.5 kilograms per capita (Khazanah Research Institute, 2019).

Although a trend appears to switch from rice to wheat consumption, Indonesia's rice consumption will likely increase along with the growing population of the country and the general rise in

Indonesia's rice consumption will likely increase along with the growing population of the country and the general rise in income levels.

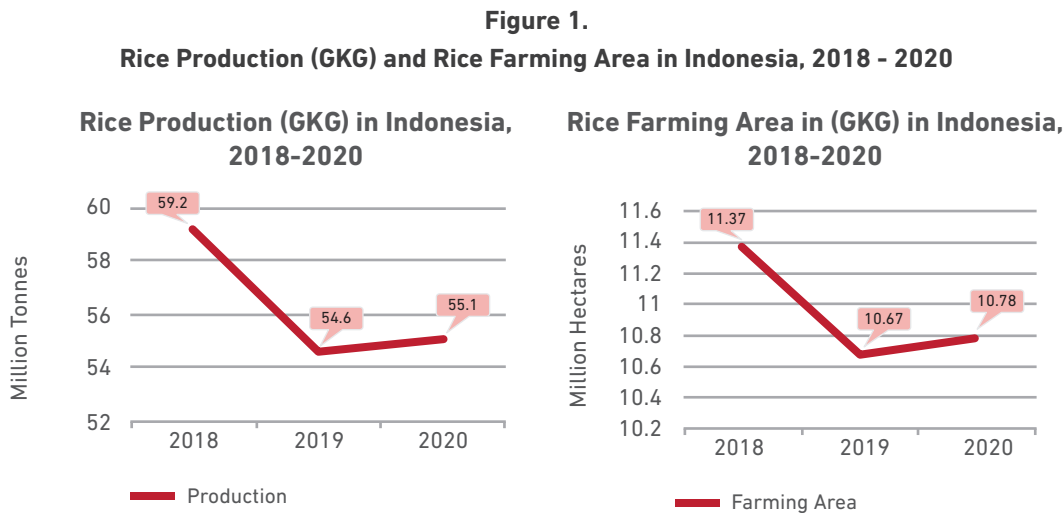
income levels. From 270 million people in 2020, the population is projected to increase by nearly 12 million people over the next five years and to reach 319 million people in 2045 (BPS, 2018). This future population will also have stronger purchasing power. Thirty percent of the Indonesian population in 2020 (85 million people) is part of the nation's middle-income group. It is estimated to more than double by 2045 to 70% of population or nearly 223 million people (National Development Planning Agency [Bappenas], 2019).

An increase in population along with the rise in incomes means an increasing demand for food, in particular rice as a staple food. Arifin et al. (2018) estimated that the national rice consumption will increase by 1.5% annually to 99.08 kilograms per capita in 2025 and further gradually increase by 2% to 99.55 kilograms per capita in 2045, amounting to a predicted total annual rice consumption of 31.7 million tonnes by 2045.

However, in contrast to the growing demand, Indonesia's rice production has been declining. According to data from the US Department of Agriculture, Indonesia's milled rice production has been declining from 38.31 million tonnes in 2008 to 33.5 million tonnes in 2019.¹ Based on estimations using the Area Sampling Frame (*Kerangka Sampel Area/KSA*) method conducted by Statistics Indonesia in 2018 and 2019, the total national rice production (Dried Unmilled Rice/GKG) in 2019 was at 54.6 million tonnes, a decrease from 59.2 million tonnes in 2018 (BPS, 2020). In the future, this reduction could be exacerbated either by the uncertainty of climate change,

¹ Retrieved from: <https://www.indexmundi.com/agriculture/?country=id&commodity=milled-rice&graph=production>

land conversion from agrarian to industrial, or other use. Statistics Indonesia (2020a) estimates showed that there was a noticeable fall in the total area of rice farming by as much as 700,000 hectares (6.15% decrease) in 2019 compared to the year before.



Source: (BPS, 2020)

*Data 2020 is an estimation as it has not included data from October to December

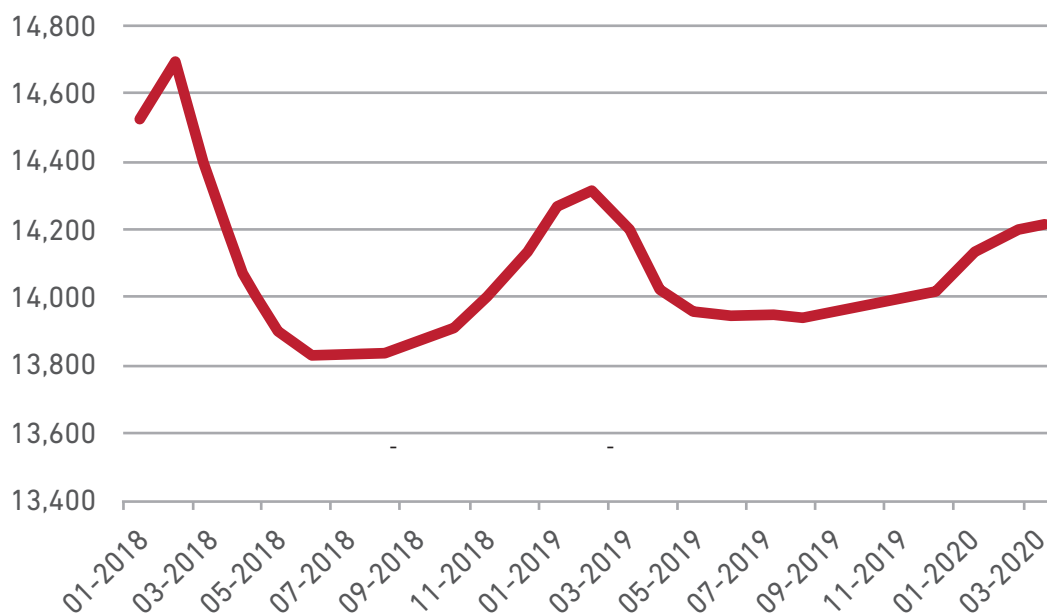
The combination of increased rice demand and declining rice production is likely to cause an imbalance between rice supply and demand. Simatupang and Timmer (2008) argued that the widening gap between rice supply and demand in Indonesia was primarily caused by decelerating growth in rice production. This argument is still relevant given the decreasing rice production in 2018 and 2019. Meanwhile, rice imports remain severely restricted, and hardly allow Indonesia to meet its domestic needs through foreign production.

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Statistics Indonesia (2020) reported in its CEIC database² that the average retail price of medium-quality rice, the most consumed type of rice in Indonesia, is aligned with harvest seasons (Figure 2). Rice prices are generally lower during harvest season, from around February until April, and gradually increases towards the end of the year and early the following year due to reduced supply.

² CEIC database is a global macroeconomic database that can be accessed from: <https://www.ceicdata.com/en/indonesia/retail-price-by-major-commodities>

Figure 2.
Monthly Medium-quality Rice Prices (IDR/kg)
(January 2018 – March 2020)



Source: Statistics Indonesia (BPS) via CEIC Database

In light of this, the Indonesian government has imposed a minimum purchase price policy for farmers and a maximum retail price policy for consumers in an effort to control prices (Hermanto, 2017). A rice purchasing price (*Harga Pembelian Pemerintah/HPP*) policy for Paddy³ (*Gabah Kering Panen/GKP*) and Dried Unmilled Rice⁴ (*Gabah Kering Giling/GKG*) was introduced through Presidential Instruction No. 09/2002 (BKP, 2013). This regulation prohibits buyers from purchasing rice from farmers below the mandated price. The rice purchasing price aims to safeguard domestic farmers especially when supplies are abundant during harvest seasons. The mandated price has been adjusted over the years in subsequent regulations.

Meanwhile, a maximum rice retail price for milled rice⁵ (*Harga Eceran Tertinggi/HET*) was stipulated in the Ministry of Trade (MOT) Regulation No. 27/2017 to avoid unexpected rice price surges (Aryani, Thirtawati, & Sufri, 2019). The regulation was then upgraded in MOT Regulation No. 57/2017 to reflect the diversity of rice markets in Indonesia by including a range of rice varieties, qualities and price discrepancies between regions (Hermanto, 2017a). The evolution of rice price regulations is shown in Table 1.

³ Paddy is also known as *Gabah Kering Panen (GKP)*, harvested rice paddy with maximum water level of 25% and foreign materials maximum 10%

⁴ Dried Unmilled Rice is also known as *Gabah Kering Giling (GKG)*, ready-to-mill rice paddy with maximum water level of 14% and foreign materials maximum 3%

⁵ Milled Rice has been processed for human consumption by removing the husk, bran and germ.

Table 1.
Rice Purchasing Price and Maximum Rice Retail Price, 2002-2020

No.	Regulation	Rice Purchasing Price (IDR per kg)			Maximum Retail Price (IDR per kg)
		Paddy (GKP)	Dried Unmilled Rice (GKG)	Milled Rice	
1.	Presidential Instruction (Inpres) No. 09/2002	1,230	1,725	2,790	2,790
2.	Inpres No. 05/2015	3,700	4,600	7,300	-
3.	Ministry of Trade (MOT) Regulation No. 63/2016	3,700	4,600	7,300	9,500
4.	MOT Regulation No. 27/2017	3,700	4,600	7,300	9,500
5.	MOT Regulation No. 57/2017			-	Medium-quality rice: <ul style="list-style-type: none"> • 9,450 for Java, Lampung, South Sumatera, Bali and West Nusa Tenggara, East Nusa Tenggara, Sulawesi • 9,950 for Sumatera except Lampung and South Sumatera, and Borneo • 10,250 for Maluku and Papua
6.	MOT Regulation No. 24/2020	4,200	5,250	8,300	-

Sources:

1. Presidential Instruction (*Inpres*) No. 5/2015 on Rice Procurement Policies and Rice Distribution
2. MOT Regulation No. 63/2016 on Reference for Government Procurement and Maximum Retail Prices
3. MOT Regulation No. 27/2017 on Reference for Government Procurement and Maximum Retail Prices
4. MOT Regulation No. 57/2017 on Reference for Maximum Retail Prices for Rice
5. MOT Regulation No. 24/2020 on Reference for Government Procurement for Rice

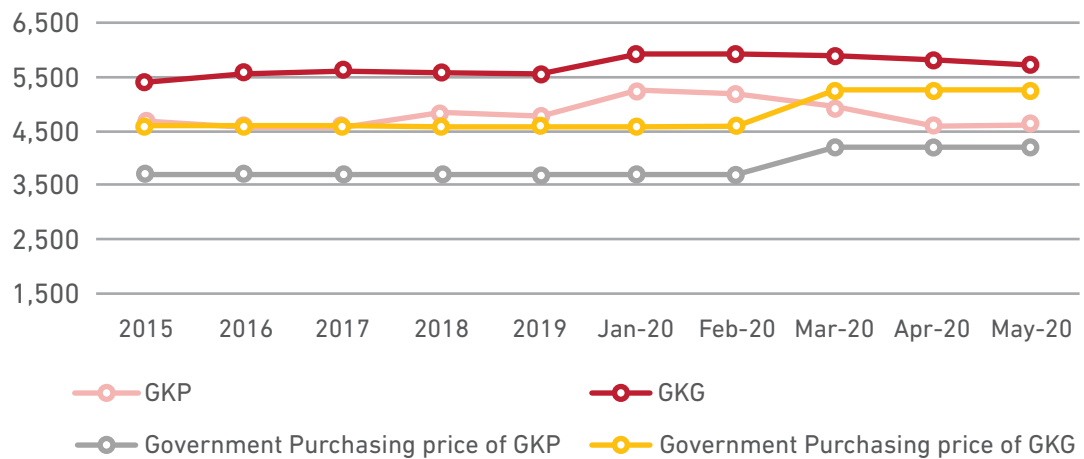
The state-owned logistics company Bulog manages the national rice stock by purchasing GKP, GKG, and milled rice from farmers at the regulated price. Moreover, on the retail side, once Bulog detects prices above the maximum reference price (HET), it conducts Market Operations (*Operasi Pasar*) by supplying more rice from its own warehouses. It also tries to force rice retailers to sell their rice within the price limits. Bulog collaborates with the special Food Task Force of the National Police to track down rice retailers who sell above the government-set maximum retail price. This is not an easy task given the immense number of rice retailers and traditional markets in Indonesia (Fatimah, Arifin, & Tey, 2019). Based on the MOT Regulation, retailers who sell above the maximum retail price will receive warnings that can be escalated to getting their license revoked and having to stop operation.

Rice prices in the Indonesian retail markets consistently hover significantly above the government's maximum retail prices.

In the end, setting minimum GKP and GKG prices for farmers has proven unnecessary because market prices at the farmgate remained continuously higher than the price set by the government (Figure 3). The farmers prefer to sell rice to private buyers who are willing to pay more than the mandated price. As a result, Bulog's total rice procurement from farmers has also declined from 2.96 million tonnes of unmilled rice in 2016 to 1.48 million tonnes in 2018 as Bulog is unable to compete given its budgetary restrictions (Bulog, 2020c). Meanwhile, rice prices in the Indonesian retail markets consistently hover significantly above the

government's maximum retail prices. While the maximum price of medium-quality rice is set to be around IDR 9,450-10,250 per kilogram in MOT Regulation No. 57/2017, the average domestic rice price between January 2018 to March 2020 was at IDR 14,076 per kilogram.

Figure 3.
The Average Prices of GKP and GKG at the Farmers Levels and Government Purchasing Price, 2015 - May 2020 (IDR/kg)



Source: Statistics Indonesia (2019, 2020)

High consumer rice prices disproportionately affect low-income Indonesian households who spend 25% of their income on rice (World Bank, 2015). Farmers also bear the burden. Purchase prices may be higher than the minimum price set by the government, but farmers do not benefit from high retail prices and rice farming incomes remain too low for farmers to escape poverty. Almost two thirds of all subsistence farmers or poor households who produce their own rice are net consumers and eat more food than they produce. Hence, they are among those suffering from high rice prices (SMERU, 2015; World Bank, 2015). A study by Ilman and Wibisono (2019) found that high expenditures for rice as the main staple food prevent poor people from consuming protein-rich food, such as chicken or eggs, which can potentially lead to malnutrition and health problems.

Indonesia fulfills the largest share of its rice demand domestically, but still imports rice to complement domestic production. In 2019, Indonesia produced 33.5 million tonnes of milled rice and imported 444,508 tonnes of rice, which means that almost all of Indonesia's rice is produced domestically (BPS, 2018). The domestic supply chains are therefore of utmost importance for stable, affordable, and accessible rice supplies. However, inefficiencies in the domestic rice distribution system are regarded as one of the prominent reasons for high rice consumer prices in Indonesia. Rice passes through the hands of four to six actors and accumulates transaction costs at each stage of the distribution process before reaching the consumer (Respatiadi & Nabila, 2017; Firdaus, 2018; Silalahi et al., 2019). Indonesia's specific geographical conditions as a vast archipelago, along with its insufficient infrastructure, contribute to the complexity of this rice supply chain.

INDONESIA'S COMPLEX STRUCTURE OF THE RICE SUPPLY CHAIN

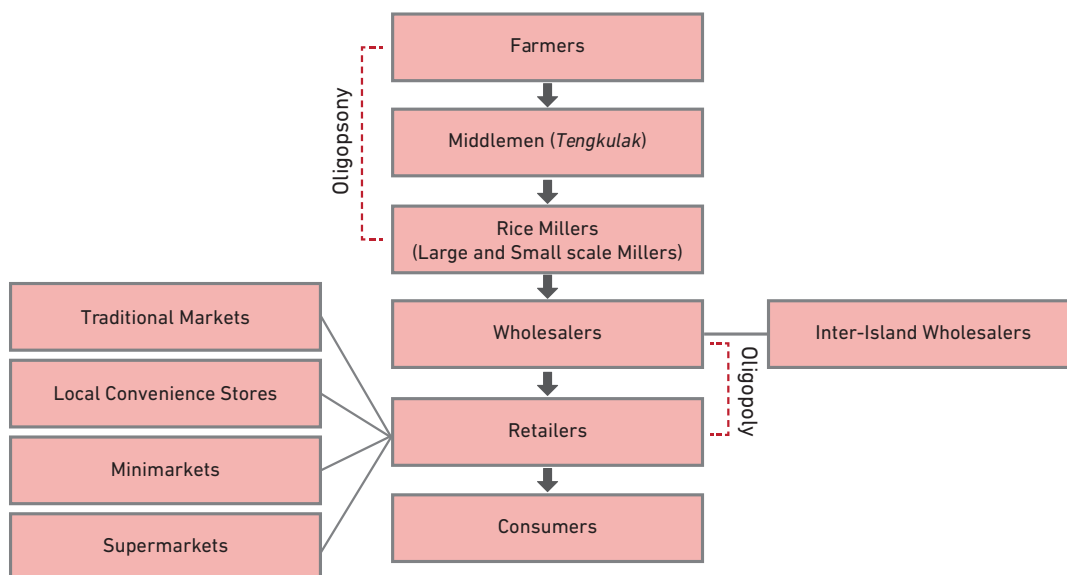
“ While rice is being consumed in all regions of Indonesia, its production is concentrated on Java island.

While rice is being consumed in all regions of Indonesia, its production is concentrated on Java island. Statistics Indonesia (2019) recorded that in 2018, the main rice producers in Indonesia were the provinces of East Java, West Java, and Central Java with total Dried Unmilled Rice (GKG) production of 10.52 million tonnes, 9.54 million tonnes, and 9.51 million tonnes respectively. The output from the top three rice paddy (GKP) producing regions had contributed to as much as 47.70% of total paddy (GKP) production in Indonesia. They are then followed by regions outside Java, including South Sulawesi (5.74 million tonnes) and South Sumatera (2.65 million tonnes).

Different regional levels of rice production make inter-regional rice trade in Indonesia inevitable. As a consequence, rice from the production centers is not only distributed on the same island but also throughout Indonesia. Trading therefore shapes the rice distribution channel from farmers to consumers. Each region has different or even multiple processes creating a complex rice supply chain. A field survey conducted in Karawang district, West Java province, revealed that even one of the biggest rice-producing districts in Indonesia had six supply chain channels (The Institute of Research and Community Empowerment of Bogor Agricultural University/LPPM IPB, 2018). Generally, the distribution process between farmers and consumers includes middlemen, millers, wholesalers, and retailers (Figure 4) and is characterized by oligopsonistic (small number of buyers) structures upstream and oligopolistic (small number of sellers) structures in the downstream markets, which will be explained later in this paper.

Research has shown that wholesalers and large-scale rice millers earn the largest share of income (61.1%) from rice production in West Java, but the situation differs in other parts of Indonesia. In East Java, 80.4% goes to middlemen and rice millers. In North Sulawesi farmers gain most, while middlemen and rice millers only capture 15.7% of the income (Respatiadi & Nabila, 2017).

Figure 4.
Indonesian Rice Supply Chain



Farmers

As the first actor in the rice supply chain, farmers produce rice in the form of GKP or GKG. Being the main player, however, does not guarantee that farmers receive the highest benefit from rice. High retail rice prices do not result in increased income for farmers. Farmers remain among the lowest income earners in Indonesia, with those producing staple crops at the bottom end of the pyramid. In 2018, the poverty rate for smallholder farmers was at 18%, almost double the national poverty rate of 9.8%. Additional on-farm activities only contributed 49% to their annual incomes (FAO, 2018). Looking at the upstream level, farmgate prices only partially influence consumer prices. GKP and GKG price increases will be passed on to consumers and retail prices will also increase. However, lower farmgate prices will not necessarily lead to a decrease in consumer prices (Swastika & Sumaryanto, 2012).

High retail rice prices do not result in increased income for farmers.

Indonesian paddy fields generally comprise of irrigated areas and non-irrigated areas (MOA, 2018). Most farmers in irrigated area sell the entire harvest during the rainy season to cover farming costs, and sell only half of their harvest during the dry season to stock the rest for personal consumption. Farmers on dry and swamp tidal land, on the other hand, sell 30% of GKP at most. The income is then used to finance the next planting season. The income of farmers mostly relies on the farmgate prices of rice since they do not spend anything on transportation. The transactions are usually happening in the middle of the paddy field (Adam et al., 2017).

With generally low levels of education, farmers have difficulties adopting new technologies and to gather market information (Wiratno & Wajayanti, 2011). They also cannot access markets directly when selling their harvest, so they depend on middlemen (Apriantono, 2006; Alimoeso, 2020). If they could sell their paddy in the form of milled rice, they could receive larger incomes, but most Indonesian farmers do not own adequate milling, drying, and storage facilities (Supriatna, 2003) and prefer to directly sell their harvest to middlemen.

Farmers face an oligopsony⁶ when dealing with these middlemen, the next players of the supply chain (LPPM IPB, 2018), who purchase the harvest from farmers. There is a huge number of farmers but only a few middlemen. In Karawang district, for instance, there are only up to 10 middlemen among 250 farmers (LPPM IPB, 2018). Facing only a few buyers, farmers do not have much bargaining power to determine the price of GKP and GKG and heavily depend on the middlemen. Farmers act only as price-takers and not price-makers.

A majority of farmers in Indonesia practice *ijon/tebasan*, a traditional method of contract farming which means they sell their paddy to the middlemen before it is harvested. That way they get the necessary funds for expenses during the planting season (Makbul & Ratnaningtyas, 2017). Most small-scale farmers do not have enough capital to buy necessary equipment for farming (Mulyaqin, Astuti, & Haryani, 2016; Alimoeso, 2020a) and leave the harvesting process to the management of the middlemen. A study in West Java has showed that selling through *ijon* has decreased farmers' incomes by about IDR 1-2 million per hectare, compared to selling their yield after harvest. Middlemen often prefer to hire cheap farm workers, who use traditional ways of harvesting and threshing, which results in lower rice yields (Swastika & Sumaryanto, 2012).

Middlemen (*Tengkulak*)

Middlemen are important players in the supply chain as they connect farmers and rice millers. Middlemen operate on either the village level or the inter-village level. If the middlemen buy GKP through *ijon/tebasan*, they usually determine the price by estimating the production of paddy on the total planting area. The first payment will be in the form of *down payment* after the price is fixed, then the remainder will be paid after the paddy is harvested (Swastika, 2010). The time, labor, and the way of harvesting will be decided by middlemen. Alternatively, middlemen can purchase the paddy after it is harvested.

Farmers are attached to middlemen as they often offer higher prices than Bulog, which buys paddy at the government purchasing price (Al Ayyuby, 2016). For that reason, farmers have usually developed a special connection with their middlemen (Swastika & Sumaryanto, 2012). On one hand, middlemen are seen as players who can help farmers with quick loans needed for purchasing agriculture inputs. On the other hand, it creates a vulnerable relationship where farmers depend on middlemen to be able to operate (Megasari, 2019). Consequently, they prevent an updated knowledge of farmers on the rice prices and alienate them from market mechanisms (Ariwibowo, 2013; Aminah, 2015; Megasari, 2019).

Middlemen usually prefer to purchase GKP or GKG from farmers and directly sell it to rice millers. Most middlemen are not rice millers because they do not have milling machines to process dried unmilled rice (GKG) into milled rice. Because there are few middlemen who purchase from a large number of farmers, the middlemen have greater bargaining power to set price. At the same time, the middlemen also face a relatively small number of rice millers (Swastika & Sumaryanto, 2012).

⁶ An oligopsony is a market where a small number of buyers exert control over the market price of a commodity. In an oligopoly, on the other hand, few sellers exert control over the market of a commodity.

Middlemen across Indonesia, especially in Java, receive varying income margins from connecting farmers to millers. A survey conducted by Bhinadi (2012) reported that middlemen in Yogyakarta gained a margin of 115% when they bought paddy from farmers at only IDR 2,975 per kilogram and sold it to rice millers at IDR 6,400 per kilogram. In another case, middlemen in Cibeber sub-district, West Java, secured a margin of 108% from selling rice to millers at IDR 8,300 per kilogram where they bought it at IDR 3,600 per kilogram from farmers (Saragih & Tinaprilla, 2019). These income margins do not consider their expenses for transportation, loading, packaging rice in sacks, storage etc. Profit margins after expenses, taxes and fees to the government will be significantly lower.

Rice Millers

Rice milling holds a key function as the center of rice processing and often contributes the biggest value-added in the whole rice supply chain. According to a report by Statistics Indonesia in 2012, there were 182,199 rice millers throughout Indonesia and only 1% of those were classified as large-scale millers, while the majority (92.78%) are small-scale rice millers.⁷ The ten largest rice mills in Indonesia are located in the rice producing provinces of East and Central Java (LPPM IPB, 2018).

Large millers can produce more than three tonnes of rice per hour using milling equipment that consists of dryers, cleaners, huskers, separators, and polishers (BKP, 2018). Small-scale rice millers lack technological equipment and instead process their rice manually, with a rice processing capacity of less than 1.5 tonnes per hour (BPS, 2012). Most small-scale millers are using very old machines that have been operating for more than 15 years. Grains are conventionally dried in direct sunlight which results in lower quality (Sawit, 2014). When supplies are short due to droughts or floods, large rice millers source their GKP or GKG from other villages. This threatens the business of small millers with limited budgets and forces them to close the operations (Arwini, 2018).

Rice millers that are in a partnership with Bulog receive orders to provide a certain quota of milled rice to the government (Putri, Kusnadi, & Rachmina, 2013). In a study in 2004, it was estimated that 93% of the government's rice procurement has been sourced from private rice millers instead of Bulog's rice processing units (Patiwiri, 2004). Statistics Indonesia reported in 2018 that Bulog only owns 132 rice processing units throughout Indonesia (BPS, 2018). Usually rice millers sell the milled rice to wholesalers but they also sell directly to retailers, if those are located in rice production areas, such as Central Java.

Calculating profit margins of rice millers is complicated because data is usually not disclosed. A case study among rice millers in West Java pointed to their high production costs and found that millers actually incur losses from selling milled rice for human consumption. Their actual profit came from selling the byproducts, such as bran (*dedak*) and groats (*menir*) as chicken feed (Swastika & Sumaryanto, 2012).

⁷ There is no more recent data regarding the number of rice millers, which shows that Indonesia still does not have reliable data on the capacities of rice millers.

Wholesalers

Rice from millers is sold to wholesalers to be kept in their warehouses for distribution throughout Indonesia. Some rice wholesalers are vertically and horizontally integrated. Vertical integration involves combining the business of purchasing paddy, paddy processing into milled rice, and rice sales. Horizontal integration involves cooperation in the rice trade between traders who are familiar with each other or even have a kinship between them (Firdaus, Baga, & Pratiwi, 2008). These activities can take the form of cartels (Makbul & Ratnaningtyas, 2017). Pasar Induk Cipinang in Jakarta is one of the major markets in Indonesia that house several wholesalers. Rice from this market is distributed to Sumatera, Kalimantan, or even sold back to rice-producing villages in Java.

Wholesalers usually operate in rice production areas and in big cities (LPPM IPB, 2018). For example, rice produced in Karawang can be sold through wholesalers in Pasar Johar Karawang, which then distributes it to wholesalers in Pasar Induk Cipinang. Rice millers also sell their produce directly to wholesalers in Pasar Induk Cipinang.

The involvement of wholesalers varies between provinces in Indonesia. In ten Indonesian provinces with relatively little rice production⁸, including Bengkulu, East Nusa Tenggara, South Kalimantan, and Papua, most rice is passed directly from farmers to millers to retailers. In 11 other provinces⁹, including all major rice producers on Java as well as Lampung and Central Kalimantan, the rice distribution mainly goes through wholesalers (BPS, 2019). In Gorontalo province, Sulawesi, there are both types of distribution channels, with and without wholesalers.

Retailers

Retailers purchase rice directly from rice millers or from wholesalers to sell it to consumers. They include traditional markets, local convenience stores, and modern retailers such as supermarkets, hypermarkets, and minimarkets. The number of traditional markets has declined since 2002 due to competition from supermarkets, but they remain the dominant retailer option for many Indonesians (Najib & Sosianika, 2017; Prabowo & Rahadi, 2015). In 2019, there were more than 4.5 million traditional grocery retailers across the country including wet market sellers or mom and pop stores that captured 82% of all retail grocery sales, down 2% from the number of traditional retailers in 2014. Within that same time period, the number of modern retailers grew from about 26,000 outlets in 2014 to more than 36,500 in 2019 (Yuningsih, 2020). Given the number of retailers compared to wholesalers, the market structure between wholesalers and retailers is regarded to be an oligopoly where a small number of businesses control the supplies to retailers with similar rice products (LPPM IPB, 2018).

Modern retailers sell rice in packages with standardized labelling. They are often harder to access than traditional markets and local convenience stores because of additional fees, limited space, and demand for higher quality products. Hence, only the most competitive rice millers/

⁸ The 10 provinces are Bengkulu, West Nusa Tenggara, East Nusa Tenggara, West Kalimantan, South Kalimantan Selatan, North Sulawesi, Gorontalo, West Sulawesi, Maluku, and Papua

⁹ The 11 provinces are Aceh, West Sumatera, Lampung, DKI Jakarta, West Java, Central Java, East Java, Central Kalimantan, D.I. Yogyakarta, Southeast Sulawesi, and North Sumatera

wholesalers supply rice to modern retailers (Aji, 2012; Vetter, Larsen & Bruun, 2019). Modern retailers, especially supermarkets and hypermarkets, have undertaken efforts to simplify their supply chains. They have built distribution centers and sourced from farmer groups to build a shorter link to farmers. They also negotiated supply contracts with wholesale firms, farmer groups, or even individual farmers (Dyck, Woolverton, & Rangkuti, 2012). In practice, a case study in West Java and South Sulawesi found that farmers faced quality constraints and could not meet the modern retailers' demands, and therefore voluntarily opted out of the modern market supply chain (Vetter, Larsen & Bruun, 2019).

Most traditional retailers re-dry the rice, remove rice that was broken during transportation, and repackage it to sell it at a better quality and in smaller quantities (Rachman, Agustian, & Syaifudin, 2019). Some traditional retailers also sell unpackaged rice in bulk, which often mixes several rice brands (Dyck, Woolverton, & Rangkuti, 2012; Yusuf, Amrullah, & Tenriawaru, 2018).

Consumers consider different factors when purchasing rice from modern retailers versus traditional retailers. A consumer behavior study in Makassar found that consumers in both traditional and modern markets consider the physical characteristics of rice (aroma, grain shape and size, broken level, and brightness). Consumers in modern markets tend to have higher income and expect to pay a higher price for rice (Yusuf, Amrullah, & Tenriawaru, 2018). Rice prices in modern markets are indeed higher than in traditional markets. In December 2020, the national average price of medium-quality rice in traditional markets stood at IDR 11,800 compared to IDR 14,000 in modern markets (PIHPS Nasional, 2020).

In the end, the rice distribution from farmers to consumers varies in each province throughout Indonesia. As an archipelago of more than 17,000 islands, some with highly insufficient infrastructure, rice distribution must inevitably pass through several actors who each play significant roles in the process, including middlemen, wholesalers and retailers. The more actors taking part in the distribution system, the higher the transaction costs and the consumer prices. Especially low-income families will be the ones suffering the most from high rice prices.

The idea of shortening the rice supply chain looks promising yet difficult. For farmers, access to information, capital and markets are the most challenging issues. If they are unable to access micro credit programs by the government (*Kredit Usaha Rakyat/KUR*) or to join well-established farmer cooperatives, they depend on middlemen. Middlemen are also needed to aggregate rice from farmers and sell it to millers, who pass their produce to regional and local distribution chains of wholesalers and retailers. This chain can only be shortened if farmers had more market information and better access to millers directly.

State-owned logistics company Bulog also has its own supply chain in procuring rice from farmers, separate from private players. As such, Bulog also plays an important role in the rice supply chain.

Rice distribution must inevitably pass through several actors who each play significant roles in the process, including middlemen, wholesalers and retailers. The more actors taking part in the distribution system, the higher the transaction costs and the consumer prices.

THE GOVERNMENT'S ROLE IN INDONESIA'S RICE SUPPLY CHAIN

Bulog is the state-owned logistics company and has been assigned by the government to ensure food security in the country. For that, it implements a public stockholding policy. Established over five decades ago, Bulog has gone through many transformations and changing regulations in managing food stocks. In order to improve its performance, President Joko Widodo's administration issued a Presidential Regulation No. 48/2016 concerning Assignment to Public Company (*Perum*) Bulog in the Framework of National Food Security.

In managing rice as the staple food, Article 3(2) of the regulation mandates Bulog to stabilize rice price at the farmer and consumer levels; to manage Government Rice Reserves (*Cadangan Beras Pemerintah/CBP*); to conduct rice procurement, rice distribution, and rice imports; and to develop rice-based industry as well as managing rice warehouses. Besides stabilizing food prices, Article 9 of the same regulation also mandates Bulog to allocate CBP for other significant matters, such as natural and social disaster and any emergency situations.

Assigned with such complex tasks, Bulog must maintain national rice stocks to avoid rice shortages. Any threat of rice scarcity will lead to a public backlash against Bulog. Rice stocks at Bulog warehouses are obtained from domestic procurement and imports (Table 2).

However, this public stockholding has been found to affect the rice price in Indonesia. A study by the Organisation for Economic Co-operation and Development (OECD) on public stockholding programs for rice in Asia found that the share of rice in public stockholding in the total national rice supply in Indonesia is higher than in China, Bangladesh, Japan and Thailand, making it a large public procurement effort with effects on market prices (OECD, 2018a).

Extensive procurement by a single government entity may raise international prices, as global suppliers respond to increased demand, and increases public expenditure (Caballero-Anthony et al., 2015). A study by Timmer (2010) showed that public stockpiling of Malaysia, the Philippines, and Indonesia during the 2007/2008 economic crisis met with limited supplies available on the world market and potentially contributed to a rise in rice prices. On the other hand, lower stocks involve lower procurement levels, lower domestic and international rice prices, and lower public expenditure (OECD, 2018).

Table 2.
Rice Procurement and Distribution by Bulog 2016–2018 (in tonnes)

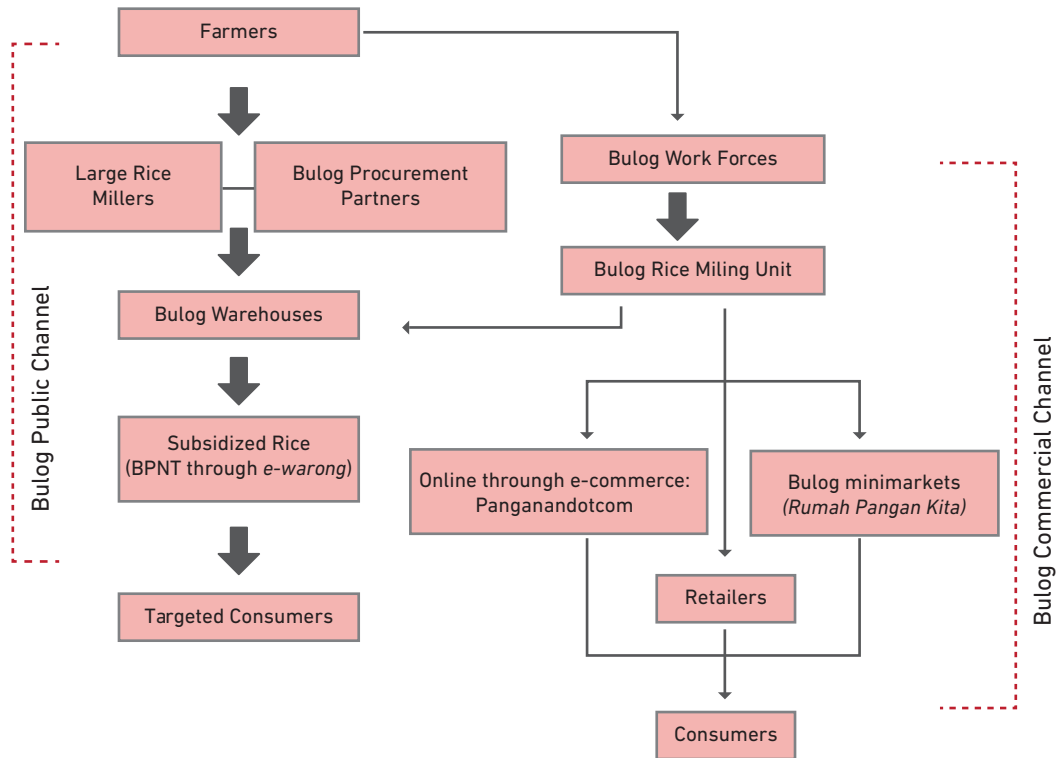
No.	Description	2016	2017	2018
1.	Initial Stock	1,439,000	1,672,000	921,000
2.	Grain/Rice Procurement	3,640,000	2,161,000	3,273,000
	a. Domestic Procurement	2,963,000	2,161,000	1,488,000
	b. Imports (Foreign Procurement)	677,000	-	1,785,000
3.	Distribution (Public & Commercial)	3,407,000	2,912,000	2,000,000
	a. Rice Assistance program (<i>Raskin/Rastra</i>)	2,787,000	2,541,000	1,188,000
	b. Budget Group	110,000	103,000	101,000
	c. Government Rice Reserves (CBP)	312,000	60,000	551,000
	d. Commercial Channel	198,000	208,000	160,000
4.	End stock	1,672,000	921,000	2,194,000

Source: Bulog (2019), as cited in Rusono (2019)

In February 2018, rice assistance through the Rice for the Poor (*Raskin/Rastra*) program for underprivileged beneficiary families was transformed into Non-Cash Food Assistance (*Bantuan Pangan Non-Tunai*/BPNT). The BPNT program encourages the participation of all suppliers, including private suppliers, to provide rice. By receiving transfers to an e-money card, beneficiaries can choose their preferred rice and other food items in kiosks (*e-warongs*) which operate under the supervision of the Ministry of Social Affairs. With this reform, Bulog is not the only agency anymore that distributes rice to the poor. That explains the drastic fall in the amount of rice distribution at the end of 2018 (No. 3). Bulog also failed to meet its annual target of procuring three million tonnes of domestic rice between 2016 and 2018.

Bulog uses its own channel for procuring rice (Figure 5). In other cases, it connects with private players of the rice supply chain.

Figure 5.
Bulog's Rice Supply Chain



Source: Retrieved and processed from Bulog (2020) and Aji (2012a)

Bulog Supply Chain at the Upstream Level

Bulog obtains rice from farmers by purchasing GKP and GKG at all levels of quality, especially during harvest season (Fatimah, Arifin, & Tey, 2019) in order to protect farmers from income losses (Ramadhani, Sudiyarto, & Sumartono, 2017). As a state-owned enterprise, Bulog has two channels in procuring rice: a public channel and a commercial channel. The commercial channel operates through procurement partners including some large rice millers that have also engaged in public rice procurement contracts with Bulog (Aji, 2012b). Meanwhile, in the public channel, local Bulog working units purchase GKP and GKG from farmers and processes it in Bulog's own rice mills.

Bulog has to compete with private buyers in the process of procuring rice, especially when it comes to the most popular medium-quality rice. The procurement process generally follows the principle of income maximization (Rusono, 2019), so farmers offer better quality rice to whoever can pay them more. In most cases, private suppliers are in advantageous positions as Bulog needs to buy rice at government mandated prices which are lower than what private suppliers can offer.

Since Bulog intends to protect farmers and buys also low-quality rice, it is often publicly criticized for the low quality of rice stocks. Others have argued that Bulog tries to improve its rice procurement scheme to increase the quality of rice stocks (Rusono, 2019).

Being aware of Bulog's disadvantages compared to the private sector, the government, through Coordinating Ministry of Economic Affairs Regulation No. 05/2018, allowed Bulog in 2018 to absorb rice for Government Rice Reserves (CBP) at flexible market prices. Bulog must still keep selling it at government-mandated prices. The government, therefore, offered to make corresponding allocations in the state budget to cover the price difference and compensate Bulog for carrying out the government program. However, this creates another concern as Bulog is not only working to fulfill public stockholding and distribution efforts but also to maximize its revenues. This remains a challenge when the government-mandated price is lower than the market retail price.

It makes matters worse for the state-owned enterprise that, when Bulog procures rice from farmers to fill CBP reserves, there is no guarantee that the rice will eventually be needed for distribution. After all, the *Raskin/Rastra* rice assistance program where Bulog was the sole provider, has been replaced by the BPNT program that involves private distributors (Rusono, 2019). Meanwhile, Bulog is obliged to maintain a minimum stock of rice in its warehouses and Bulog needs to raise the funds to maintain these stocks by taking loans from banks with commercial interest rates. The government will pay for the price difference only if the rice is sold in the market. As a result, Bulog faces financial instability if the rice is not used and the debts need to be serviced. In September 2019, Budi Waseso, Director of Bulog, claimed that Bulog reached a deficit of almost IDR 1 trillion (USD 70 million) due to its difficulty to compete in the rice distribution of the BPNT program.

When Bulog procures rice from farmers to fill CBP reserves, there is no guarantee that the rice will eventually be needed for distribution.

Bulog Supply Chain through Imports

Although the government prioritizes domestic supplies, Indonesia also fulfills its rice demand from imports, particularly when there is a possibility of shortages. Bulog must still import to stock up the CBP and to stabilize prices when domestic supplies are insufficient. However, imports are intensely restricted.

Bulog holds a monopoly on the import of medium-quality rice, which is by far the most widely consumed rice in Indonesia. This blocks imports by the private sector, but complex bureaucratic procedures for Bulog to get import licenses create costly delays. Coordinating Minister of Economic Affairs Regulation No. 5/2018 stipulates that the quantity of rice imports by Bulog is decided through a coordinating meeting involving several ministries. Any decision or revisions of the import quota require such meetings, which can invoke disagreements between government agencies that cause import delays. A CIPS study calculated that Bulog could have saved more than IDR 303 billion had it been able to purchase rice more flexibly when the international price was lower between January 2010 and March 2017 (Respatiadi & Nabila, 2017).

Compared to the domestic rice supply chain, the supply chain for imported rice is simpler, only engaging three distribution actors at most. From Bulog as importers, rice goes directly to the wholesalers or supermarket, which then can also be sold to retailers. Since imported rice has already been processed, it does not have to go to middlemen or rice millers. However, a tariff of IDR 450/kilogram is applied to all imported rice types, as stipulated in the Ministry of Finance Regulation No. 6/2017.

For imports to effectively help lower domestic rice prices, private importers need to be allowed to import and compete with Bulog.

For imports to effectively help lower domestic rice prices, private importers need to be allowed to import and compete with Bulog. This requires the removal or relaxation of Bulog's import monopoly on medium-quality rice. This was previously done in 1998 when Bulog's monopoly was abolished following the Asian Financial Crisis. The private sector was allowed to import rice until 2004 when rice imports were monopolized again in government hands (Warr, 2005).

Bulog Supply Chain at the Downstream Level

At the downstream level, Bulog distributes rice from national reserves to fulfill its public obligations. According to MOT Regulation No. 4/2012 and Presidential Instruction No. 5/2015, the purpose of CBP reserve is to control rice price spikes through market operations; to provide food aid in times of emergencies due to national disasters; and to secure stock for food aid to foreign countries as part of the ASEAN Plus Three Emergency Rice Reserve (APTERR). Rice provisions for the BPNT program also stem from the national buffer stocks.

Bulog's share of the rice provisions for the BPNT program was not big enough to compensate for the lost channel of Bulog's rice distribution in the previous Raskin/Rastra programs. In 2019, then Coordinating Ministry for Human Development and Cultural Affairs Puan Maharani stated to the media that Bulog supplied 47% of rice sold in e-warongs for BPNT (Justiari, 2019). This was a sudden reduction in rice distribution compared to the previous programs. Considering Bulog's continued responsibility to procure rice from farmers, this led to an overstock of rice, which results in high maintenance costs and the decreasing rice quality. At the end of 2019, Bulog had 20,000 tonnes of rotten rice in its warehouses. They needed to be disposed of after almost one year of storage according to Ministry of Agriculture (MOA) Regulation No. 38/2018. The main reason behind this overstock was that Bulog had imported large amounts of rice in 2018 (Table 2) while it lost its monopoly in the BPNT food assistance program. Bulog urged the Ministry of Finance to provide the budget for the rice disposal that was partly executed through auctions.

To compensate for the lost rice distribution in the BPNT program, Bulog plans to explore and intensify its commercial distribution channels. However, Bulog had previously only sold less than 10% of their stocks through commercial channels. In 2016, Bulog commercially sold 198,000 tonnes of rice, in 2017 they sold 208,000 tonnes and the amount went down to 160,000 tonnes the following year (Table 2). This was merely 5.8%, 7.1% and 8% of Bulog's total rice distribution in the respective years.

For commercial purposes, Bulog sells both its medium- and premium-quality rice through its minimarkets called "Our Food Home" (Rumah Pangan Kita/RPK), retailers, and also online through an e-commerce platform in Indonesia. *Rumah Pangan Kita/RPK* encourages the participation of private minimarkets under the supervision of Bulog as food suppliers (Bulog, 2020). Although it is a commercial channel, all commodities are still subject to government-mandated prices. If RPK vendors are found to sell above the government-mandated price, the partnership will be terminated (Bulog, 2017). This is to ensure that RPK do indeed stabilize food prices.

As of 13 December 2020, Bulog claims to cooperate with more than 100,000 RPKs across

Indonesia. An evaluation involving 90 RPK outlets and 450 customers in the five cities of Bandar Lampung, DKI Jakarta, Pontianak, Surabaya, and Palu found that customers were “moderately satisfied”, however they reported poor and inconsistent product quality, problems with product availability, and lack of package size variations (Khairulya, Bantacut, & Cahyadi, 2018). With regard to rice, customers in the study considered Bulog rice sold in RPKs to be superior to bulk rice sold in traditional markets in terms of taste, nutrition content, and consistency of quality (Khairulya, Bantacut, & Cahyadi, 2018).

Bulog’s Rice Distribution in Times of Covid-19 Pandemic

Food security became a major concern of every nation during the Covid-19 pandemic, including Indonesia. When many Indonesian provinces started to impose Large-Scale Social Restrictions (*Pembatasan Sosial Berskala Besar/PSBB*) to limit mobility, people’s physical and financial access to food became uncertain. Ministry of Health (MOH) Regulation No. 9/2020 allowed businesses related to food processing, distribution, and retailing to remain open during the PSBB. For that reason, Bulog claimed it was not necessary to change existing distribution channels of strategic food commodities, including rice (Bulog, 2020) (Table 3). However, Sulandari (2020) found that in the early period of PSBB, Bulog’s rice distribution also faced difficulties due to transportation issues. In May 2020, MOA data showed that almost half of all provinces in Indonesia faced rice supply shortages. 17 provinces were short by more than 25% as logistics were disrupted (MOA, 2020a).

In addition to the availability of rice, price was also an issue especially for millions of Indonesians who lost their income. Statistics Indonesia (2021) estimates 2.67 million Indonesians became unemployed during the pandemic. Meanwhile, rice prices during Covid-19 pandemic stayed constantly above the price ceiling. The national average ranged between IDR 11,850 and IDR 12,000 throughout 2020. Consequently, many households struggled to afford food with their reduced incomes. A World Bank survey (2020) reported 24% of households experienced a food shortage and 30% ate less than they should in August 2020, five months into the pandemic. Households that reported food shortages and ate less are more likely to be those that experienced income shocks, substantiating the affordability issue.

“Households that reported food shortages and ate less are more likely to be those that experienced income shocks, substantiating the affordability issue.”

Table 3.
Bulog's Rice Distribution Channels amid Covid-19

Zone	Regional Office Shipper	Regional Office Receiver				
1.	Lampung	South Sumatera & Bangka Belitung	West Sumatera	Jambi	Bengkulu	
2.	DKI Jakarta/Banten/ West Java	Aceh	North Sumatera	Riau and Kepulauan Riau	West Kalimantan	
3.	East Java	West Kalimantan	Central Kalimantan	East & North Kalimantan	South Kalimantan	Bali
		East Nusa Tenggara	Papua & West Papua			
4.	South Sulawesi	North Sulawesi & Gorontalo	Central Sulawesi	Southeast Sulawesi	Maluku & North Maluku	Papua & West Papua

Source: Bulog (2020a)

The government allocated an additional IDR 405.1 trillion in 2020 to support Covid-19 pandemic countermeasures (State Secretariat, 2020). Out of these funds, as much as IDR 110 trillion was budgeted towards six social assistance programs for low-income households. Two of these programs were supposed to be within Bulog's responsibility. The first program updates the BPNT assistance, which is now called a Staple Food Card (*Kartu Sembako*) program. The allocated budget for this program is IDR 43.6 trillion (USD 3 billion) (TNP2K, 2020). While the implementation is similar to the previous system, the noticeable difference lies in the increased amount of assistance from IDR 150,000 to IDR 200,000 per family per month and the increased number of beneficiaries from previously 15.2 million to 20 million families. The second program is the allocation of IDR 25 trillion (USD 1.7 billion) to fulfill the basic food needs of the poor through market operations and food distribution. In September, Sulandari (2020) argued that Bulog had yet to receive the funds.

INTERNATIONAL EXPERIENCES WITH STATE-OWNED COMPANIES IN THE RICE SUPPLY CHAIN: LESSON LEARNED FROM VIETNAM, THE PHILIPPINES, AND MALAYSIA

Rice is the most consumed staple food in the world. In 2010, 88% (137 million hectares) of the global rice acreage was in Asia and 31% of all paddy fields were in Southeast Asia. They accounted for 48 million hectares of approximately 154 million hectares worldwide (FAOSTAT, 2012). Rice is the major strategic food for over 557 million people in the region (Manzanilla et al., 2011).

The experiences from several Southeast Asian countries who owned similar state logistics agency in handling their rice supply chains can provide a comparison for Indonesia.

Vietnam

From having experienced food insecurity in the past, Vietnam has grown to become the second-biggest rice exporter in the world, particularly when the country started to introduce market-economic reforms of the *Doi Moi* period in 1986 (Agrifood Consulting International, 2002). Quan and Vigil (2011) estimated that the total domestic rice production in 2009 reached 39.99 million tonnes, of which nearly 6.73 million tonnes were exported.

Vietnam also engages a parastatal agency in its rice marketing chain, namely the Vietnam Food Association (VFA). Unlike state-owned trading enterprises in other Asian countries, the VFA is not directly involved in the process of procuring rice from farmers and selling it to consumers. The rice procurement process is mainly executed through market players, such as middlemen, millers, and wholesalers (Dang & Tran, 2008). The intervention of the government in the domestic market is limited and VFA had conducted mostly rice exports purchased from domestic wholesalers. Rice exports followed government-to-government contracts that were mostly agreed one year before the delivery (Agrifood Consulting International, 2002). A regulation in 2010 then started to involve the private sector in conducting rice exports provided that private actors meet the minimum requirements of factory and storage capacities (Dao, Thai, & Nguyen, 2020).

Interestingly, despite being one of the major rice exporters, rice consumed by Vietnamese is also sourced through imports, partly from rice farms in Cambodia that are being owned by Vietnamese farmers. Vietnam also imports rice from Lao PDR with no import duties on rice import quotas (Tobias et al., 2012).

The Philippines

Despite its self-sufficiency goal, rice production in the Philippines always lagged behind demand. To eventually achieve its self-sufficiency goal, the government encouraged rice production from hybrid rice varieties (Bordey et al., 2016). Farmers received subsidized hybrid rice seeds encouraging them to switch to hybrid rice.

After 1998, there was a significant change in the rice sector management in the Philippines. With an increase in the population, along with limited land resources to fulfill the demand, the Philippines slowly turned into a net rice importer. Initially, due to the reluctance of the government to import rice, a local rice shortage in 1995 led to price surges. Pledging to not repeat the same mistake, the government then shifted to source its rice reserves from imports (Clarete, 2019). CEIC (2020) recorded that the Philippines imported 1.48 million tonnes of rice in 2015, an amount that put the country among the biggest rice importers in the world.

The National Food Authority (NFA) of the Philippines is a parastatal agency tasked to ensure food security. Similar to state logistics companies in Indonesia and other countries, NFA focuses its work on assuring the availability, accessibility, and affordability of rice (David, 2018). In managing public rice stock, the NFA engages in the procurement of paddy from farmers, rice milling and providing price support to farmers. They are also responsible for delivering subsidized rice to targeted beneficiaries. In order to stabilize rice prices, NFA distributes its rice stock to accredited retailers who sell it to consumers (Clarete, 2019a). Another aspect of their work that is similar to the role of Bulog in Indonesia is that the NFA maintains a buffer stock by establishing warehouses in strategic locations across the country.

NFA initially held a monopoly on rice imports, but it was allowed to legally assign some of these imports to the private sector. In 2011, NFA undertook 35% of the import allocation while the remaining 65% was imported by the private sector (Tobias et al., 2013). Out of 860,000 tonnes of the rice import allocation, 660,000 tonnes of the quota was allocated to the private sector. Through a bidding process, each importer was allowed to bid for a maximum 20,000 tonnes of rice.

The “Rice Tariffication Law” from February 2019 changed this situation. It was introduced after the Philippines experienced a rice shortage in 2018 due to miscalculated import allocations by the NFA. The resulting rise in rice prices pushed inflation temporarily to more than 6% in 2018. The new Law removed quantitative restrictions on rice imports and abolished the sole authority of the NFA to import rice. Private traders were allowed to import rice provided they pay the tariffs levied on imports. Tariffs were set at 35% for rice imports coming from ASEAN member states (Perez & Pradesha, 2019).

Malaysia

Rice trading in Malaysia is assigned to a state-owned trading enterprise called Bernas (*Padiberas Nasional*). Bernas was officially privatized in 1994 to ease the fiscal burden of the government and with the notion that a private sector enterprise will be better equipped to ensure the efficiency of the operations (Fatimah, Arifin, & Tey, 2019). The three main responsibilities of Bernas are to stabilize consumer and producer prices, to determine rice trade volumes, and to act as a canalizing agency. The domestic rice supply chain in Malaysia mostly consists of wholesalers and retailers. Comparable to Bulog, Bernas also has a profit-maximizing goal and is entitled to run commercial activities (Fatimah, Arifin, & Tey, 2019).

Despite Malaysia’s efforts to increase domestic production through dedicated programs and public investments in domestic agriculture, it has been projected that Malaysia’s rice imports will continue to increase (Khazanah Research Institute, 2019). Malaysia’s rice imports is conducted

by Bernas. In 2018, the Malaysian government planned to end its import monopoly in 2021 and open rice imports for the participation of the private sector, but the plan was dropped in 2020 when a new government came into power (World Bank, 2019). Fatimah, Arifin, and Tey (2019) argued that market deregulation and reducing the role of state-owned trading enterprises has proven effective in several other countries. Following those experiences and considering local adjustments, they expect that the liberalization of market activities in Malaysia's rice sector will continue.

POLICY RECOMMENDATIONS

As rice is an important staple food for more than half of Indonesia's population, its lengthy supply chain has long been a concern of many people. Rice from farmers goes to middlemen, rice millers, wholesalers, and retailers before it reaches consumers. Regulating the number of intermediaries involved in the distribution and processing chain of domestically produced rice is not desirable as these intermediaries are required to connect farmers with consumers. Bulog is a key player in the Indonesian rice supply chain. The state-owned logistics company is supposed to help maintain food security by being involved in the distribution channel and ensuring that everyone's basic need of rice is met and upheld. However, Bulog is facing serious challenges. Two recommendations may improve the situation:

i. Redesign Bulog's role to ensure the efficacy of domestic's rice supply chain

Bulog is engaged on the upstream and downstream levels of the rice supply chain as mandated by Presidential Regulation No. 48/2016 article 3(2). Problems exist because, at the upstream level, Bulog has to procure rice from farmers, but it meets with difficulties to disburse rice in markets at the downstream level. Unlike private players, Bulog has to buy rice of all quality categories and keeps buffer stocks as national reserves in its warehouses.

Having been assigned to maintain national buffer stocks without a clear policy on how to disburse rice on the downstream level has long term effects for the management of Bulog. The company uses government funds when it competes with private actors in the procurement of rice. Building national stocks causes additional costs while the quality of rice decreases, and interest payments on bank loans are mounting. It is evident that the current arrangement is financially unsustainable for Bulog. In the end, the burden lies with taxpayers who need to cover the costs of rice disposal.

Under these circumstances, Bulog's role in the rice supply chain needs to be reconsidered. Competing with the private sector will always put Bulog at the losing end. Private actors can offer higher rice prices to farmers and demand better quality of rice. In the BPNT food assistance program, the government has already allowed the private sector to participate and gave consumers the choice to buy privately procured and distributed food commodities. Going forward, the private sector should take over the regular supply chain in the domestic rice market and Bulog should focus on rice distribution for food security during emergencies, such as natural disasters. Presidential Regulation 48/2016 Article 8 (points c, d, and e) needs to be revised allowing Bulog to focus on protecting low-income households through disaster-relief programs. The prevalence of private sector actors in Indonesia's rice supply chain allows to shift supply chain activities from Bulog to the private sector swiftly and without delays.

It is worthwhile studying the experiences of Indonesia's Southeast Asian neighbors. Vietnam leaves the domestic procurement and distribution of rice in private hands and the country has become a leading rice exporter in the world.

ii. Ease import restrictions and encourage import competition to benefit from lower global rice prices

As Indonesian rice prices remain far above world market prices, a practical short-term solution is needed to make rice more affordable for Indonesian consumers. Rice import restrictions should be relaxed by removing quantitative restrictions on Indonesian rice imports and removing Bulog's monopoly on imports of medium-quality rice as stipulated in MOT Regulation No. 103/2015 article 9 (1.b). Imported rice is cheaper because it is sold globally at lower prices and in Indonesia it goes through fewer stages of the distribution process. Imported rice is a processed, ready-to-cook product that does not require paddy cutters, middlemen, or rice millers.

In addition, imports also motivate domestic rice producers, processors, and distributors to be more efficient. The experience of the Philippines shows that quantitative import restrictions disincentivize domestic productivity growth. When the country gave up those restrictions in early 2019, GKP and GKG prices in the Philippines dropped but recent data seems to indicate that farmgate prices recovered so farmers were only at a temporary disadvantage. At the same time, government revenues from import tariffs were collected in a Rice Competitiveness Enhancement Fund (RCEF) meant to increase the productivity of the rice supply chain in the Philippines.

For Indonesian imports to effectively help lowering domestic rice prices, the Ministry of Trade should allow more private importers to receive import licenses. Increased competition forces importers to buy and sell imported rice at the best quality for the best prices. This requires two major policy reforms: firstly, the current dependence of imports on inter-ministerial coordinating meetings should be removed. These meetings decide on quantitative import allocations and take much time because they involve negotiations between different government agencies. The time invested prevents importers from utilizing short-term opportunities and sends signals to global markets to raise prices in anticipation of Indonesian purchases. Secondly, the current licensing system needs to be replaced by an automated approval system for import licenses to remove market entry barriers for other companies. An automated licensing system creates the required flexibility for importers to respond to international market signals for the benefit of Indonesian consumers.

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Interviews

Interview 1 – Epi Sulandari. Bulog. (2020). Personal communication.

Interview 2 – Sutarto Alimoeso. Indonesian Rice Millers and Traders Association. (2020). Personal communication.

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