



Policy to Achieve Self Sufficiency on Rice Production in Indonesia

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INTRODUCTION

Enhancing national food security has been one of the strategic policy goals of the current administration. Based on the Food Law No.18/2012, the state has an obligation to secure the availability and access, to adequate, balanced, safe, and nutritious food consumption at the national, regional, and individual levels in all regions of the country. This is done by utilizing local resources, institutions and culture. Some important elements of the law are: (a) the state should pursue food sovereignty and food self reliance; (b) based on this principle, food import is only allowed when domestic production cannot meet domestic consumption.

Based on the above-mentioned principle, the Ministry of Agriculture (MoA) has launched the policy to achieve self sufficiency on five strategic commodities, namely rice, maize, soybean, sugar, beef cattle. Among the five commodities, rice always attracts the primary attention interm of policy debate and priority of public spending. Therefore, the purpose of this brief is to review current policy framework to achieve self sufficiency on rice, and what policy implications for the future development of the rice sector.

Overview of the rice sector

Among the staple foods, rice is one of the most strategic crops accounted for about 18.8 % of the total value of agricultural production in Indonesia. In terms of crop area, rice is accounted for around one-third of the total, but the share declined slightly in the 2000s (OECD, 2012). Rice production has grown at a rate of 3.4 %/year during 2005-2015. This was due to 1.8 % growth on harvested area and 1.6% growth on yield (Table 1). After a modest declined in 2014, rice production showed an impressive growth of 6.5% in 2015 which was due to 2.2% growth of planted area and 3.9% growth of yield. An exceptional growth of rice production in 2015 was partly the result of relatively high support to this sector, which will be discussed in later part of the brief. Productivity of rice at around 5.3 mt/ha in 2015 was higher than that in Thailand and the Philippines, but lower than China and Vietnam. The last two countries have adopted hybrid rice extensively, whereas in Indonesia this type of rice is still at an early stage of development.

Accelerated growth of planted area to rice has caused negative impact to the growth of other staples, particularly, maize, and soybean, because the total arable land relatively constant. According to Hermanto (2015) the share of planted area to rice has increased from 65% in 1994 to 72% in 2004. This indicate much higher incentive for the farmer to plant rice compared to other staples.

Regional distribution of rice production has shown a declining share of Java from 48.3% in 1994 to 46.4% in 2014. Similar trend was also observed on the share of planted area in Sumatra which declined from 26.0% in 1994 to 25.1% in 2014. On the contrary, the share of planted area in Sulawesi has increased from 10.4% in 1994 to 12.3% in 2014. Furthermore, the share of rice area in other regions of the country was relatively constant during that period.

Despite strong growth of rice production, efficiency and viability of the sector remains one of major issues. The cost of rice production in Indonesia is higher than that of other South East Asian Countries. As a consequence, rice farmers do not receive sufficient income despite the fact that the price of rice is relatively high.

For purposes of price stabilization policy, Indonesia still imports rice which fluctuated significantly from the lowest of 189,600 MT in 2006 to the peak of 2.8 million mt in 2011. Relatively large import of rice in 2007, 2011 and 2012 was due to severe drought coupled with food crises in international market in 2011-2012. However, on average the ratio of import to production during the last 15 years was relatively small, only around 2.7% (Suryana, 2015).

Table 1. Trend of rice production, consumption, and trade, 2005-2015

Year	Harvested area (mill ha)	Yield (mt/ha)	Production (mill mt, paddy)	Consumption (mill mt, rice)	Import (thousand mt)
2005	11.8	4.6	54.2	33.7	236.9
2006	11.8	4.6	54.5	34.2	189.6
2007	12.1	4.7	57.2	36.8	1406.8
2008	12.3	4.9	60.3	37.4	286.7
2009	12.9	5.0	64.0	39.9	250.5
2010	13.3	5.0	66.5	41.2	687.6
2011	13.2	5.0	65.8	43.3	2750.5
2012	13.4	5.1	69.1	43.5	1810.4
2013	13.8	5.2	71.3	45.4	472.2
2014	13.8	5.1	70.8	46.2	844.2
2015	14.1	5.3	75.4	48.1	*)
Growth (%/year)	1.76	1.55	3.41	4.01	-

Note:*) data is not yet available, but MoA claims that there is no import at all during 2015

Source: Central Bureau of Statistic

Policy framework

To achieve self sufficiency in rice, the government has implemented comprehensive policy measures which consist of: investments on infrastructures, application of new technologies, price and trade, input subsidy, credit provision, and risk management.

1. Investment on infrastructures

Irrigation network is the most important set of infrastructures to accelerate rice production. It is reported that roughly 55% of irrigation infrastructures is damaged due to poor maintenance.

Responding to these problems, the government put priority on rehabilitation of irrigation network and building new infrastructures such as dams and reservoir. In 2015 irrigation infrastructures serving 1.6 million hectares of paddy field was built or rehabilitated. This is approximately 52% of the targeted three million hectares of paddy field during 2015-2019 period. The cost of this investment is approximately Rp. 10.2 trillion (US\$ 755.6 million). In addition to irrigation, the MoA also promotes the use of mechanical equipment to increase production efficiency and reduce cost. In 2015, the MoA has delivered 26,100 units of tractors, 5,563 units of transplanters, and 2,790 units of combined harvesters. These equipment were delivered and managed by farmer groups, particularly in major rice producing regions.

2. Application of new technologies

New technology is a key driver to accelerate productivity growth in rice. Integrated Crop Management (ICM) which consists of improved varieties, land preparation, balanced fertilizer, integrated pest management, and post harvest handling is widely disseminated. Demonstration sites to disseminate this technology are established all over the rice producing regions which facilitated by rice scientist and extension specialists. To enhance coordination among stakeholders and facilitate farmers to do rice farming according to the recommended practices, the MoA also mobilize a large number of people, namely: senior officers and staff of MoA from the head quarter office, 51,000 of military army, 8,600 agricultural college students, and 25,400 agricultural extension specialists. There has been some criticism to this approach, particularly on its impact to local wisdom and initiatives. Furthermore, there is also a question as to what extent this approach contributes to achieving a sustainable rice production system.

3. Price and trade

To ensure sufficient incentive for the farmers, the government determines the procurement price for rice higher than its world market price. The procurement price serves as a reference for BULOG (state owned enterprise) to buy rice from the farmers. Even though BULOG only procures around 5% of the total rice production, but this scheme has influenced the market price to move upward than otherwise. According to Erwidodo (2015), the market price of both paddy and rice were always well above the procurement price. On the other hand, this situation makes BULOG in a difficult position because by regulation, if the market price is already higher than the stated procurement price then this agency cannot procure rice from the domestic market.

The stock of rice procured by BULOG is used for two purposes: (a) sell rice at the subsidized price to poor families through RASKIN (rice for the poor) program; (b) open market operation to stabilize rice price at the retail level if the price has reached a certain level. In 2015, the procurement price was set at Rp.4 650/kg (US \$ 0.34/kg) for dried paddy and Rp.7 300/kg (US \$ 0.54/kg) for milled rice.

As an integral part of price stabilization policy, in 2015 through the RASKIN program BULOG distributed 2.7 million mt rice to 15.5 million poor households. Every household receives 15 kg rice/month with 87.8 % subsidy. The expenses for this subsidy in 2015 was approximately US\$ 1.4 billion. There has been some criticism about this policy, particularly those related to poor quality of rice, its impact to local rice market, and leakage of rice to non targeted households.

To complement the role of BULOG in stabilizing rice price at the farm level, the state owned enterprise started in 2015 and the MoA was also established *Toko Tani Indonesia* (Indonesian Farmer's Shop) to buy agricultural products (include rice) directly from the

farmer. In 2015, 36 shops were established, and in 2016 there will be 1000 more shops around the country.

To depend on rice price around the procurement price, rice import is directly controlled by the government. Every year the government decides whether import is needed or not, and if so at what quantity. The import of medium quality rice is implemented exclusively by BULOG. Some analysts argue that tight import control policy has significant impact to accelerate rice price in domestic market.

With this policy framework, coupled with rice import control, domestic rice price has been around 5.9-59.3% higher than the world market price (Table 2). The exception was in the year 2005-2006 and 2008-2009 when the world market price was accelerated, then to stabilize rice price, the domestic price is lower than the corresponding parity price. In 2014-2015 the gap between domestic and parity price was exceptionally high because of much lower rice price in the international market, while domestic price was stable. This observation indicates that domestic rice farmers have enjoyed a moderate protection at the expense of rice consumers (some of them are smallholder farmers). OECD (2015) estimated that price support policy increases the incidence of malnutrition by 2-22%. In relation to poverty, it is commonly understood that 10% increase in rice price will increase 330,000 (1.2%) of poor households.

4. Input subsidy

To accelerate productivity growth, particularly for staple food, the application of modern inputs such as fertilizers is essential. In promoting the application of fertilizers by smallholders the government provides subsidy, so that the farmers may buy fertilizer at affordable price (exclusively for farmer operating less than two hectares of land). The subsidy is given indirectly to fertilizer manufacturers, which then sell the fertilizer to the farmers at lower price than otherwise. Before the beginning of the planting season, the MoA issues a decree on the estimated demand for different types of fertilizers by provinces along with the reference price of fertilizers at the retail level. Based on this information, the Governor of the corresponding provinces broke down demand for fertilizer in every district. The decree also serves as a reference for the fertilizer companies to distribute fertilizers in the corresponding regions.

Table 2. Comparison of domestic (retail) and parity price of rice, 2005-2015

Year	Domestic price (US\$/kg)*	Parity price (US\$/kg)**	Domestic/parity price (%)
2005	0.34	0.42	81.0
2006	0.47	0.57	82.5
2007	0.56	0.49	114.3
2008	0.59	0.89	66.3
2009	0.59	0.79	74.6
2010	0.72	0.68	105.9
2011	0.86	0.73	117.8
2012	0.85	0.75	113.3
2013	0.84	0.74	113.5
2014	0.85	0.59	144.1
2015	0.86	0.54	159.3

Source: Ministry of Agriculture; *) Medium quality rice; **)Thai broken 5%

In 2016, the demand for fertilizer is estimated around 4.1 million mt of nitrogen (Urea), 850,000 MT of phosphate (SP-36), 1.1 million mt of Zinc Ammonia (ZA), 2.6 million mt

of compound fertilizer (NPK), and 1.1 million mt of organic fertilizer. The reference retail prices of those fertilizers are: US\$ 0.14/kg for Urea, US\$ 0.15/kg for SP-36, US\$ 0.11/kg for ZA, US\$ 0.17/kg for NPK, and US\$ 0.04/kg for organic fertilizer. In 2015, total expenditure for fertilizer subsidy was around US\$ 2.3 billion. According to OECD (2012), expenditure on fertilizer subsidy is accounted for about 37% of the total budgetary support to agriculture in 2006-2010.

Similar subsidy scheme is also used for rice seeds. The seeds are produced by state own enterprises (PT Sang Hyang Sri and PT Pertani) in collaboration with selected farmers. In 2015 the government spent US\$ 55.6 million to finance 100,000 MT of non-hybrid rice seed and 1,500 MT of hybrid rice seeds.

5. Credit provision

One of the major constraints faced by smallholder farmers is limited working capital to finance operational cost of their farming. In addition, they also have limited access to financial services offered by commercial banks. In response to this problem, the government launched a credit program for food security purposes at the subsidised interest rate. In addition the program was launched by the central government, some local government officials also delivered a similar program in view of reaching as many farmers as possible. In 2015, the amount of subsidy on interest rate was US\$ 14.7 million. However, some reports claim that the credit facility is not fully used by the farmers, due to the administrative constraints.

6. Risk management

Rice production is prone to climate change and natural disaster such as droughts, floods, pest and diseases outbreaks, earthquakes, volcano druptions, and tsunami. To cope with climate change, the government extensively promoted the application of Climate Smart Agriculture such as drought and flood tolerance crop varieties, appropriate crop rotation and planting schedule. To anticipate the risk of drought, the MoA provide assistance such as water pump (21953 units), build shallow well (2000 units), and mini reservoir (100 units). To facilitate some farmers suffering from crop lose, the MoA also provided assistance in the form of inputs such as seeds and fertilizers. Furthermore, crop insurance as market friendly instrument is currently being piloted in one million hectares of paddy field in several provinces. The pilot project involves private sector and local government. Under this scheme, any farmer experiencing crop loss, will receive compensation in the amount of US\$ 434.9/hectare.

Conclusion and policy implications

In the short run, the new set of policy to achieve self sufficiency in rice production seems to be highly successfull. However, more fundamental issues related to rice production system remain unresolved, namely: (a) excessive public resources spent on the rice sector create missallocation of resources and inefficient production system; (b) despite large government support, rice farmers do not receive reliable income from the rice sector; (c) heavy emphasis on the rice sector discourages diversification toward higher value commodities such as vegetables, fruits, and livestock products; (d) relatively high rice price at the retail level, reduce access of poor households (many of them are also smallholder farmers) to sufficient nutrient intake.

To achive a modern, sustainable, and resilient rice production system, we need policy reform on the following areas: (i) accelerate productivity growth and better quality by means

of technology innovations; (b) put emphasis on down stream segments of rice value chain to generate value added and open up new income opportunities in the off-farm sector; (c) build resilience of the rice farming to anticipate and cope with climate change and other natural as well as economic shock; (d) reform on government spending policy from subsidy toward higher spending on general services such as research and development, training and extension, standard and certification, natural resource conservation, and market promotion.

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