

FOOD SECURITY PARADOX IN PANDEMIC ERA: INDONESIA CONTEXT

Adis Imam Munandar, School of Strategic and Global Studies, Universitas Indonesia, Jakarta, Indonesia

Kurniana, School of Strategic and Global Studies, Universitas Indonesia, Jakarta, Indonesia

ABSTRACT- The COVID 19 pandemic is changing the global and local social and economic order. Food security has encountered a significant change worldwide – including Indonesia. This paper explores the food security paradox on the dimensions of accessibility, availability, and affordability when a pandemic occurs. This study employed a qualitative method through a literature review. The result of the study showed a contradiction in the situation between consumers and producers. The accessibility dimension dominates the affordability and availability dimensions of food security. Accelerating improvements in the national logistics system is the key to food security in the Indonesian context.

Keywords: Food security, COVID 19 pandemic, accessibility

I. INTRODUCTION

The world has experienced various pandemic influenza, namely Spanish flu (1918-1920), Asian Flu (1957-1958), Hong Kong flu (1968-1970), and Swine Flu (2009-2010) [1]. This condition has claimed much death in the last 100 years [1,2]. This millennial era was shocked by the COVID19 pandemic, a derivative of Severe Acute Respiratory Syndrome (SARS), which originated in China [3]. As of 1 Nov 2020, 1,200,366 COVID-19 in the world have died [4], and in Indonesia, 13,943 people have died [5]. Anticipatory measures are taken by various countries to prevent the increasingly widespread COVID 19. In Indonesia, the Government of Indonesia adopts policies related to COVID-19, starting from health protocols, communication protocols, border surveillance protocols, area protocols for educational institutions, and protocols for public areas and transportation.

Since the end of March 2020, Covid-19 sufferers and the mortality rate is relatively high. They have implemented a Covid-19 emergency response period by taking significant steps, including (i) Social Distancing; (ii) Isolation; (iii) Quarantine; (iv) Implementing the work from the home system (WFH); (v) the closure of tourist and entertainment venues; (vi) Prohibition of holding large gatherings of people/activities; (vii) limitation of operational time for transportation [6]. The Government's various steps have made Indonesians panic about food availability [7,8]. Food is the primary basic need for humans and is also a human right. Food security becomes a central issue when a pandemic occurs.

Previous researchers regarding food security have carried out various studies on food protectionism during covid19 [9], food consumption in a pandemic [7], and the impact of covid19 on food production [10]. Other research has also reviewed the study of food security in Indonesia during the pandemic [11,12]. However, there are still few studies on the dimensions of food security in the Indonesian context. Food security studies also focus more on the producer side [13], but not many have contrasted food security on the consumer and producer sides during this pandemic.

Various literature regarding food security definition focuses more on consumers [14,15]. Based on the purpose, food security has five elements that must be fulfilled: (i) Oriented to households and individuals; (ii) The time dimension at which food is available and accessible; (iii) Emphasizes family and individual food access, both physical, economic and social; (iv) Oriented to the fulfillment of nutrition; and (v) Aimed at a healthy and productive life.

II. METHODS

The study conducted a desk study and literature review of various data and information from related and relevant institutions. Also, research focuses on the definition of food security in Indonesia based on Law No.18 of 2012. Food Security is a condition of the fulfillment of food for the state to individuals, which is reflected in the availability of adequate food, both in quantity and quality, safe, diverse, nutritious. Evenly distributed, affordable and does not conflict with the community's religion, belief, and culture, to live a healthy, active and productive life in a sustainable manner [16]. By exploring deeper and extracting the dimensions of availability, affordability, and accessibility in the Indonesian context.

III. RESULT AND DISCUSSION

Food security has various definitions from WHO, FAO, GFSI (Global Food Security Index), and food laws in Indonesia. FAO, which states that food security is a condition in which everyone, at all times, both physical and economic, has access to sufficient, safe, and nutritious food to meet their daily nutritional needs according to their preferences [17]. In this study, security is the same as resilience. The definition of food security in Law No. 18 of 2012 above is an improvement and enrichment of the scope of the meaning in Law No. 7 of 1996, which includes individuals and according to the nation's religious beliefs and culture. The definition of Law No. 18 of 2012 is substantively in line with the description of food security. The dimensions of food security consist of four pillars of food security: availability, access, utilization, and stability, and some are extracted into three dimensions: availability, accessibility, and affordability [16–18].

The COVID-19 pandemic disrupts the dimension of food security in Indonesia. Especially in the availability of foodstuffs, including the logistics distribution process, it is one of the main problems for regions that impose large-scale social restrictions (PSBB). At least four possible impacts affect the food sector for some time to come, including a) market and agricultural prices; b) supply chain shortages; c) farmer condition; d) agrarian labor. Handling the impact of Covid-19 on food in Indonesia by carrying out the second economic stimulus package, namely: (i) The Government continues to ensure the availability of main and strategic food supplies for the population at affordable prices; (ii) The primary and strategic foods referred to are rice, corn, shallots, garlic, large chilies, beef or buffalo, chicken meat, chicken eggs, sugar and cooking oil; (iii) Within the next 6 months (March to August 2020), including facing Ramadan and Eid al-Fitr, the projected availability of 11 strategic commodities is certain to be safe; (iv) Most of the food fulfillment is supplied from domestic production, only the items of garlic, beef or buffalo, and sugar are partly fulfilled through imports; (v) For some commodities whose fulfillment is still through imports affected by Covid-19 globally, the anticipatory step taken is to accelerate the process of issuing import recommendations; (vi) As of March 10, 2020, the Ministry of Agriculture has issued 37 Horticultural Product Import Recommendations (RIPH); (vii) The Government also continues to look for garlic producing countries besides China, including India, Egypt and Bangladesh [19].

In its normal condition before the pandemic, Indonesia was classified as a country with food problems related to hunger. According to the 2019 Global Hunger Index data, Indonesia is ranked 70 out of 117 countries with 20.1 and is severe hunger [20]. It is inseparable from the food condition in Indonesia [20], including:

- Reliance on imports. The high value of Indonesian food imports every year. There are three reasons for Indonesia's dependence on imports: the increased threat from nature to crops planted by farmers in Indonesia. Second, the reduction in the amount of agricultural land is due to the change in land use from agriculture to other business and residential sectors. Third, the Government's policy of not taking sides with steps to develop the agricultural industry, especially in applying new technologies in the farming sector, such as genetic engineering of food seeds, makes it increasingly difficult for Indonesia to meet domestic food needs.
- Dependence on the production of rice is the island of Java. It applies both for our staple food, rice, and other foods such as soybeans and corn. It is estimated that half of Indonesia's current rice needs (staple food) are supplied from rice fields on the island of Java, an island with an area less than one-tenth of Indonesia's land area. Most of the population is concentrated in Java Island and with high population growth, which implies the increasing need for non-agricultural land use.
- Land conversion on the island of Java was high an existing food production center. Changes in land use are inevitable to meet the space requirements for development. Conversion of agricultural land to non-agricultural land can be one of the causes of the food crisis. This land conversion will eliminate the function of rice fields as land intended for producing rice.
- Lack of attention to farmers. The condition of farmers in Indonesia is that their lives are far from prosperous. Although the price of food produced by farmers in the market is high, it does not affect their lives. Farmers do not have direct access to selling their products and forcing them to sell it to middlemen who have more access to the market.
- High dependence on rice. Rice is indeed a staple food for most people in Asia, especially Indonesia. Every year, the rice consumption level is always higher than the level of production, even though there have been many programs that have been promoted by the Government for food diversification.

The Government has committed to maintaining and meeting the primary commodities needed for food during the Covid-19 pandemic. One of them is the distribution chain that must be held smoothly. Even though foodstuffs' production and stock have been guaranteed, it will still create vulnerabilities if the distribution is disrupted. Individuals make profits sneakily by hoarding the food stock. Also, what the Government needs to pay attention to is affordability or a reasonable price. The desk study results and literature review summarize the dimensions impacted on food security in table 1.

Table 1. Food Security: Before pandemic and after pandemic in Indonesia Context

Dimension of food security	Before Pandemic	After Pandemic
Accessibility	<ul style="list-style-type: none"> • Product supply chain, people, and activities are normal • Use of the IT supply chain has not attracted many users • Consumers prefer to see in person and find out • Producers sell via traders/intermediaries 	<ul style="list-style-type: none"> • Health protocol regulations and policies limit supply chain • Developing the use of IT during a pandemic • Consumers use IT more in finding food products • Producers use social media in marketing their products
Affordability	<ul style="list-style-type: none"> • Prices of goods are in line with demand and supply, tend to increase • Consumer purchasing power increases with economic growth • Producers earn profits by selling products (abnormal return) 	<ul style="list-style-type: none"> • Prices of goods rise in line with hampered access to goods to consumers • Purchasing power decreases in line with layoffs and a reduction in the workforce • Producers find it difficult to sell products and tend to sell at a loss (cut loss)
Availability	<ul style="list-style-type: none"> • Product availability can be fulfilled • High food-waste • Consumers can choose products diversity 	<ul style="list-style-type: none"> • Availability of manufactured products increases but can't be sold • Low food-waste • Availability of products to consumers has decreased

IV. CONCLUSIONS

Food security cannot be separated from the nature of food commodity production itself, which is seasonal and fluctuates due to climate/weather. This climate-influenced production behavior affects national food availability. Suppose the production behavior that is vulnerable to climate change is not equipped with strong food security. In that case, it will be detrimental to both producers and consumers, especially small-scale producers and low-income consumers. Characteristics of perishable food commodities, limited production land for farmers; Inadequate agricultural supporting facilities and infrastructure, and weak harvest and post-harvest handling have prompted the Government to intervene by realizing food security. The dimensions of food security, especially accessibility, were most affected by the COVID-19 pandemic with large-scale social restrictions. The affordability dimension is affected by decreasing purchasing power, while the availability dimension is relatively stable with Indonesia's food policy.

Acknowledgments This research was supported by the University of Indonesia Directorate of Research and Community Service (DRPM) through the PITMA grant on the fiscal year of 2019/2020 NKB-1035/UN2.R3/HKP.05.00/2019.

REFERENCES

1. Saunders-Hastings PR, Krewski D. Reviewing the history of pandemic influenza: understanding patterns of emergence and transmission. *Pathogens*. 2016;5(4):66.
2. Martini M, Gazzaniga V, Bragazzi NL, Barberis I. The Spanish Influenza Pandemic: a lesson from history 100 years after 1918 War and disease: the spread of the global influenza pandemic. *J Prev Med Hyg [Internet]*. 2019 [cited 2020 Nov 2];60(1):E64. Available from: <https://doi.org/10.15167/2421-4248/jpmh2019.60.1.1205>

3. Yang Y, Peng F, Wang R, Guan K, Jiang T, Xu G, et al. The deadly coronaviruses: The 2003 SARS pandemic and the 2020 novel coronavirus epidemic in China. Vol. 109, *Journal of Autoimmunity*. Academic Press; 2020. p. 102434.
4. JHU. COVID-19 Map - Johns Hopkins Coronavirus Resource Center [Internet]. 2020 [cited 2020 Nov 2]. Available from: <https://coronavirus.jhu.edu/map.html>
5. Satgas COVID. Gugus Tugas Percepatan Penanganan COVID-19 [Internet]. 2020 [cited 2020 Aug 18]. Available from: <https://covid19.go.id/>
6. Satgas COVID. Satgas Penanganan COVID-19 [Internet]. 2020 [cited 2020 Nov 2]. Available from: <https://covid19.go.id/>
7. Paganini N, Adinata K, Buthelezi N, Harris D, Lemke S, Luis A, et al. Growing and Eating Food during the COVID-19 Pandemic: Farmers' Perspectives on Local Food System Resilience to Shocks in Southern Africa and Indonesia. *Sustainability* [Internet]. 2020 Oct 16 [cited 2020 Nov 2];12(20):8556. Available from: <https://www.mdpi.com/2071-1050/12/20/8556>
8. Workie E, Mackolil J, Nyika J, Ramadas S. Deciphering the impact of COVID-19 pandemic on food security, agriculture, and livelihoods: A review of the evidence from developing countries. *Curr Res Environ Sustain*. 2020 Oct 1;2:100014.
9. Espitia A, Rocha N, Ruta M. Covid-19 and Food Protectionism: The Impact of the Pandemic and Export Restrictions on World Food Markets [Internet]. The World Bank; 2020 [cited 2020 Nov 2]. (Policy Research Working Papers). Available from: <http://elibrary.worldbank.org/doi/book/10.1596/1813-9450-9253>
10. Gregorioa GB, Ancog RC. Assessing the impact of the covid-19 pandemic on agricultural production in Southeast Asia: toward transformative change in agricultural food systems. *Asian J Agric Dev*. 2020;17(1362-2020-1097):1-13.
11. Elsi ZRS, Pratiwi H, Efendi Y, Rusdina R, Alfah R, Windarto AP, et al. Utilization of Data Mining Techniques in National Food Security during the Covid-19 Pandemic in Indonesia. In: *Journal of Physics: Conference Series*. IOP Publishing; 2020. p. 12007.
12. Rozaki Z. COVID-19, Agriculture, and Food Security in Indonesia. *Rev Agric Sci*. 2020;8:243-60.
13. Masudin I, Safitri NT. Food Cold Chain in Indonesia during the Covid-19 Pandemic: A Current Situation and Mitigation. *J Rekayasa Sist Ind*. 2020;9(2):99-106.
14. Shaw DJ. *World food security a history since 1945*. Springer; 2007.
15. Pinstруп-Andersen P. Food security: definition and measurement. *Food Secur*. 2009;1(1):5-7.
16. Kemenkumham RI. UU RI No.18 Tahun 2012 tentang Pangan. Jakarta: Kementerian Hukum dan HAM; 2012.
17. FAO. An Introduction to the Basic Concepts of Food Security [Internet]. 2008 [cited 2020 Nov 2]. Available from: www.foodsec.org
18. GFSI. Global Food Security Index 2019 [Internet]. 2020. 2019 [cited 2020 Aug 17]. Available from: <https://foodsecurityindex.eiu.com/Index>
19. Kemeneko. Stimulus Ekonomi kedua untuk dampak covid-19 [Internet]. 2020 [cited 2020 Nov 2]. Available from: <https://www.ekon.go.id/publikasi/detail/183/pemerintah-umumkan-stimulus-ekonomi-kedua-untuk-menangani-dampak-covid-19>
20. GHI. Indonesia - Global Hunger Index (GHI) - peer-reviewed annual publication designed to comprehensively measure and track hunger at the global, regional, and country levels [Internet]. 2020 [cited 2020 Nov 2]. Available from: <https://www.globalhungerindex.org/indonesia.html>