



LIVE MONITORING DISTRIBUTION AS AN EFFORT TO ACHIEVE FOOD SELF-SUFFICIENCY

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ABSTRACTS

Fulfilling food needs in Indonesia faces various problems such as scarcity of food commodities, high prices, difficulty in access. These problems include the high number of food imports, so that price competition is increasingly difficult for local products. On the other hand, technological developments have entered various fields including distribution, sales and food consumption. This challenge is an opportunity for Indonesia's food distribution to be able to meet the needs of various food commodities. This study aims to find a solution and strategy in an effort to realize Indonesia's Food Self-Sufficiency. This study uses the Literature Review method, which uses sources of scientific articles from various sources of national and international journals. The results obtained show that the Live Monitoring Distribution system can be used as an alternative tool used to determine the availability and distribution of food needs to all regions in Indonesia in real time using three colour indications. This system can meet food needs in the right quantity, right quality, on time, and the most efficient food distribution logistics costs based on the information available in real time. Thus, the availability of food in Indonesia will be evenly distributed throughout the region and Indonesia will be able to realize the welfare of the people through Food Self-Sufficiency.

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1. INTRODUCTION

The main key for the Indonesian people to fulfill food needs which is the basic need of every human being is the potential of natural wealth which includes agriculture, plantations, livestock, to fisheries. Indonesia as an agricultural country can logically meet its food needs properly and sustainably (Nugroho & Rahardjo, 2018). However, in reality the fulfillment of food needs in Indonesia faces various problems such as the scarcity of food commodities, high prices, and difficulties in access. As well as the growing population, the need for food continues to grow, and economic inequality becomes a challenge to realize food security in Indonesia (Elizabeth, 2017).

According to the Food Security Law No. 18 of 2012, food security is "the condition of fulfilling food for the state to individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, evenly distributed and affordable and does not conflict with religion, belief, and culture of the community, to be able to live a healthy, active and productive life in a sustainable manner" (Ardani, 2020). Food security includes 3 components, namely food availability, food access, and food utilization (Reddy, 2016). However, commodities and the potential of food distribution in Indonesia are not evenly distributed. Adequacy of food availability in some areas is still quite minimal.

At the Limited Meeting follow-up to the anticipation of the need for basic commodities on April 28, 2020, President Joko Widodo said that there was a deficit in several food commodities in the provinces, including deficit rice in 7 provinces, corn deficit in 113 provinces, cayenne pepper deficit in 19 provinces, and chicken eggs deficit in 22 provinces. So the President asked for a quick count to find out in detail which areas have surplus and deficit stocks of basic ingredients (<http://bkp.pertanian.go.id/blog/post/kementan-terus-pantau-ketersediaan-dan-distribusi-pangan-di-daerah>). As a result of the existence of staple goods which experienced a surplus and a deficit in several regions, so that in several regions in Indonesia prices rose and fell at the same time. In addition, the location factor has an important role. Access and facilities in a location can facilitate the mobility of food, goods, and people needs effectively and efficiently. Meanwhile, if the location is difficult to reach, whether constrained by geographical factors, distance, infrastructure or others, it will result in hampered mobility which will result in quality and quantity which can harm various related parties (Adi, 2021).

On the other hand, technological developments have changed the way humans do various jobs ranging from communicating, interacting, producing, innovating, and traveling (Ranga & Etzkowitz, 2015). The development of industry 4.0 has also encouraged various adjustments such as implementing digitality in various sectors such as the logistics sector (Li L, 2020). So that the current logistics 4.0 era has participated in various companies to be able to provide more significant process speed, increased accuracy, productivity, and efficiency (Bantacut, 2018).

Since in Indonesia the implementation of free markets, goods and services from other countries, as a consequence, products from other countries will be found in many places (Fauzin, 2021). In addition, the unequal distribution of food will result in Indonesia's dependence on imports. The 2018 Central Bureau of Statistics (BPS) data also shows that Indonesia is still importing food commodities such as wheat seeds, sugar commodities, garlic, soybeans, and other food commodities. For example, Indonesia is targeting food self-sufficiency in soybeans and garlic by 2020.

However, in reality, there has been an increase in soybean prices and the loss of production in the market has resulted in Indonesia having to import soybeans to meet its needs (Machfiroh, 2019). Soybeans that are still imported from China are 1.27 million tons in 2020. This dependence on imports will become a problem in food security in Indonesia. Indonesia's position in the 2020 Global Food Security Index (Global Food Security Index 2020) fell from position 62 to position 65, out of a total of 113 countries (Helmi & Ali, 2020). Indonesia's position in the Global Food Security Index indicates that one or several pillars of food security have not been fulfilled. If Indonesia is still in this zone, then Food Self-Sufficiency will be increasingly difficult to achieve due to difficulty in accessing food needs, high market prices, loss of production in the market, farmers' losses, and increasing food scarcity. Thus, a research is needed to find and find solutions and strategies to answer these problems in an effort to realize Indonesia's Food Self-Sufficiency.

2. METHODS

This research used Literature Review method, which is research used to collect and evaluate research related to a particular topic (Triandini, E, *et al.*, 2019). This research was conducted by searching for data and collecting actual information using the keywords distribution and condition of food self-sufficiency in Indonesia.

The procedures carried out in this research are compiling the background and objectives, identifying problems, searching for literature data, screening literature, assessing quality, extracting data, and synthesizing final data. The literature data used is scientific article sources from various national and international journal sources.

3. RESULTS AND DISCUSSION

The study entitled "Strategies for Facing the Threat of National Food Scarcity in a Pandemic Period (Adi, 2021)" states that the government can reactivate food storage barns in all regions in Indonesia. In the digital era like today, all activities will be easier with a device that is equipped with the required information system. However, by alternating planting times and calendar atlas, there are different information systems that are less integrated and the food barns in the application only contain information related to grain (Apriyana, *et al.*, 2021; Frits Z., 2018; Beres B., L, 2020).

The study entitled "Analysis of the Effect of Location and Distribution on Food Supply Chain Management during the Covid Pandemic (Bantacut, 2018)" states that the food supply chain needs to pay attention to distribution factors that can affect the quality of food to consumers, especially basic needs that cannot last long and must be immediate. distribution and consumption. In addition, the location factor also needs to be considered to strengthen a more effective supply chain, such as saving transportation costs and speeding up food distribution (Oktalia *et al.*, 2020).

The Center for Agricultural Data and Information Systems in 2019 has developed a method of collecting data on buying, selling, and food prices, especially rice at traders through improving data collection methods by utilizing the results of the listings of rice traders in the 2016 Economic Census, BPS, which is used as a sampling frame in election.

Samples/respondents, as well as perfecting the “Food Security Monitoring System” which has been prepared and used for monitoring the reporting of data on purchases, sales and prices of rice from the regions to the center every week. However, this system will take a long time because it takes a week to update the listings on food available in certain areas.

Therefore, the researcher offers a system as a solution in overcoming food problems in Indonesia, namely Live Monitoring Distribution. Live Monitoring Distribution is a system that is able to provide information on food availability in all regions in Indonesia in real time to meet food needs in the right quantity, right quality, on time, and the most efficient food distribution logistics costs.

This system will display a digital-based map of the State of Indonesia with three different color indications, according to the availability of food in each region. The color indications are red for areas with low food availability, yellow for areas with sufficient food availability, and green for areas with abundant food availability. The color indication information regarding the mapping of food distribution will be adjusted to the data on the availability of food stocks that are in surplus and deficit in each region in real time.

The solution for Indonesia as an archipelagic country, when the Live Monitoring Distribution system is used, food in Indonesia will be more evenly distributed through an even distribution of food availability for all types of food commodities as a whole (Rozaki, Z., 2021). However, it takes the role of the government which is the formal and main person in charge of implementing and implementing this system in realizing Food Self-Sufficiency. In addition, the university has a role to contribute to various scientific analyzes and inputs as well as decision making for public policy (Emigawaty, 2021). There is also a need for the role of Non-Governmental Organizations (NGOs), to increase the recognition of traditional communities and efforts to reach out and implement the no one left behind principle, as well as bridging the farmers who provide information about food availability in the area.

In addition, this system can improve the economic welfare of the community in a sustainable manner and development that can improve the quality of life of the community. This system also ensures that there are no economic and food disparities, particularly in areas with limited infrastructure and resources, as well as high price disparities between regions. This hope is in line with the road map to the world's food barns, the Ministry of Agriculture has set a target for achieving food self-sufficiency.

If the problem of equitable distribution of food availability has not been resolved within the next 10 to 20 years, it is very dangerous if this system does not exist. Through innovation and technology, Indonesia's future food availability will be maintained, Indonesia will no longer be dependent on imports, and Indonesia can achieve food self-sufficiency (Nurjismi, 2021).

4. CONCLUSION

Based on the results of the research conducted, the idea of the design of the Live Monitoring Distribution system is expected to make it easier for the public and related parties to easily find out information on the distribution of food availability and security in all regions in Indonesia. All regions in Indonesia can meet food needs equally. So that food conditions in Indonesia will be completely evenly distributed and welfare for all Indonesian people will be met and there will be no more losses for farmers, high food prices, difficulty of access and hunger problems. Therefore, Indonesia can achieve food self-sufficiency.

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