

Food Security in Malaysia: Literature Review

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Abstract

The security of a country can be affected due to lack of food, and it is even more serious because it can threaten global stability. Rice is a staple food that is a security crop in Malaysia. Although various initiatives are being worked on until now the level of rice self-sufficiency has never reached 100 percent. Current conditions driven by the uncertainty of the political climate and international security make the issue of food security more serious. This study focuses on the literature of food security in Malaysia. This research aims to present a holistic view of food security in Malaysia and its impact on human security. Using a systematic literature review approach with 20 books, journal articles, and papers, this research identified the non-competitive food in the commodity-based agricultural sector in Malaysia due to its inability to supply food. This food commodity is also affected by various obstacles which hampered the country's food production. This study suggests that exposure to knowledge related to nutrients and health in human assets needs to be increased among rice farmers through related education programs.

Keywords: Malaysia, Food Security, Rice Security

Introduction

Rice crops are no stranger to the development of the country. In addition, as the main food supply this crop also provides a source of employment among the population, especially the rural population. As a staple food, this plant gets protection and priority from various parties, especially the government. It aims to ensure that this food supply is always sufficient. The importance of this crop is not only to provide income to farmers but also to play a role in ensuring the country's food security.

In Malaysia, paddy and rice are commodities that are given protection and priority by the government. This food resource is categorized as one of the commodities necessary in achieving the country's self-sufficiency rate. In 2009, the country produced 3,720 million metric tonnes of rice compared to 3,471 million metric tonnes in 2005. Of this amount, 1,620 million metric tonnes of rice were successfully produced. The rest is accommodated through imports, which is 1,130 thousand metric tonnes. The largest source of imported rice is from Vietnam which amounts to RM1,413 million (77 percent) and Thailand RM 381 million (21 percent) for the period 2009 (Malaysia 2010b).

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In the 10th Malaysia Plan, the government has targeted local rice production to be at a rate of 70 percent self-sufficiency level. During the period of the plan, a strategic approach was also carried out by the government to ensure a sufficient supply of rice, including maintaining the rice storage stock at the level of 292,000 metric tons or able to cover the needs for 45 days. This strategic approach was also implemented through the signing of a long-term contract agreement to import rice through palm oil and oil export matching agreement. In addition, efforts to increase productivity in the paddy granary areas as well as outside the granary were also carried out through the improvement of infrastructure facilities. Actions taken by the government are aimed at guaranteeing and ensuring that food supplies, especially rice, are always available, easily accessible, and affordable for the general public (Malaysia 2010).

The basis of life of every person on this earth is food. In addition to food, humans also need clothing, shelter, work, and other necessities to continue life. Food is the heart that moves people towards the well-being of life. Food shapes the human mind towards physical and mental fitness. A society that gets enough balanced food will give birth to healthy and active people who will in turn contribute to the progress and development of the country. The sophistication and intelligence of the human brain through thinking has advanced the world with skyscrapers, new knowledge, and so on is the result of the food they consumes. Humans are willing to do anything to get a bite to eat. Therefore, the State is the main actor responsible as a provider or supplier of food to all its citizens. The ability of a country to provide sufficient food supply is guided by its food security situation. The food security policy implemented in a country is decisive for human security in ensuring that the rights of every citizen are protected

The issue of food security is considered very important in universal human development since the World Food Crisis that hit the world in 1972. As a result, the thought of food security has begun to receive the attention of researchers globally. This food security guarantees that every person will get enough nutritious food. This food security cannot be separated from the agricultural sector which is based on food commodities because the two are interrelated. The agricultural sector is fundamental to an economy. Therefore, it plays an important role especially in the preparation of basic food ingredients and also raw materials for industrial use. Humans and agriculture cannot be separated because, since the existence of this world, humans have been carrying out agricultural activities in various ways to obtain their food.

The discussion about the term food security is not a new issue in the world. However, among Malaysians, many still do not understand or are confused about what it means by the term food security and their importance to the country. The term food security is often equated or misunderstood with the term food safety. Usually, the discussion about these two terms has very close connection and focuses on the same issue, which is food. Food security can be defined as the need for sufficient food for the people of a country, while food safety refers to the level of food and water security from any contamination such as pesticides or chemicals. Food security refers to the ability of a country to ensure enough food for all its people either by producing it or importing it. While food safety prioritizes the security features found in certain foods by looking at the content of chemical poisons, the use of fertilizers, and the like that can be harmful to humans. Therefore, food security and food safety have an important bond in dealing with agricultural issues in a country.

The issue of food security is studied repeatedly. The highlight of this submitted work is a study on food security. The highlight of this work will discuss previous studies which are the background issues, problems, and approaches to dealing with food security as a research problem. In looking at the highlights of previous studies on food security in Malaysia the

researcher has divided it into three parts namely, first looking at the importance of food security at the global level, secondly about food security in Malaysia, thirdly about sector position agriculture in Malaysia and rice cultivation in Malaysia.

Food Security at the Global Level

Farhad Mazhar (1999), in his study titled "Popular Strategies of Food Security in the Context of Globalization" asserts that food security is an official global issue. The world, especially the United Nations (UN) under its agency Food and Agriculture Organization (FAO), takes this food security issue seriously. Therefore, FAO wants to give awareness to all countries in the world that food security policy should be prioritized. Every country in the world should strive to ensure that its food policy does not affect food security and cause its people to suffer from food insufficiency. Therefore, the UN has held many conferences internationally to ensure that food security agenda gets the world's attention. In addition to the world food conference that was held on November 13-17, 1996 in Rome, the question of food security has also been raised at other world conferences. Among them is the "World Summit for Children (1990); the Conference on the Nutritional Rights of Man (Barcelona Declaration, 1992); the United Nations Conference on Environment and Development (1992); the FOA/World Health Organization International Conference on Nutrition (1992); the Final Act of the General Agreement on Tariffs and Trade (GATT) Uruguay Round (1994); the United Nations Conference on Population and Development (1994); the World Summit for Social Development (Copenhagen Declaration 1995); the Fourth World Conference on Women (1995); the International Conference on Sustainable Contributions of Fisheries to Food Security (Kyoto Declaration 1995); and the Fourth Technical Conference on Plant Genetic Resources (Leipzig Declaration 1996). Through these conferences, Farhad proved how much the world cares about food security issue.

According to Chisholm and Rodney Tyers (1982), awareness of how important food security is to the world and especially to developing countries started in the early 1970s. Especially after the world food crisis that occurred from 1972 to 1974 which saw food shortages and the prices of world staples such as rice, wheat, soy, and corn skyrocketed. In search of a way to this crisis, in 1974 in Rome under the management of the UN, the World Food Conference was held where the main theme of this conference was on the issue of food security. According to Anthony and Rodney, the global food crisis has made the world aware of how important food security is for all countries in the world. This crisis is more complicated for developing countries and poor countries which previously depended on other countries for food.

Brown and Eckholm (1985), in their research, think that this food crisis happened because in the middle of 1974 the balance between the supply and demand of world food has become critical. The decline in production in major producing countries such as the United States, Russia, India, and China has resulted in an economic shock wave. As a result, most countries have adopted various methods to obtain or guarantee sufficient food supply for their respective citizens. For example, Russia monopolized the world wheat market followed by the United States which announced an embargo on soybeans in 1972. Thailand, as the leading rice producer in the world, has banned its rice exports. These actions helped the countries concerned but has left other countries languishing due to food shortages and extreme price increases. This crisis has given rise to a new dimension called the 'world food shortage politics'. Therefore, according to Brown and Eckholm, the issue of food security is becoming increasingly important to debate.

The importance of food security became more apparent when the Committee On World Food Security (2005), which was established by the FAO on the state of global food security, *Res Militaris*, vol.12, n°2, Summer-Autumn 2022

estimated that 852 million people around the world suffered from malnutrition in 2000 to 2002 and among them, 815 million people were among developing countries, 28 million in transition countries and the remaining 9 million in industrialized countries. It is estimated that in March 2005 the number of countries experiencing serious food shortages is 36, namely 23 in Africa, 7 in Asia, 5 in Latin America, and one in Europe. In this report, FAO has also given several factors that cause instability to food security, including conflicts that occur in a country, natural disasters, disease and pest attacks, HIV or AIDS, and climate change.

This situation worsened when the world food crisis that happened in 1974 happened again in 2008. The world that is still looking for a new direction in solving the problem of food security, especially in backward countries, had to once again face this situation where the global food crisis of 2008 brought implications which are worse. According to Sarojeni V. Rengam (2008), the emergence of this crisis is due to the practice of excessive liberalization of world trade which is related to the food crisis of 1974. World food prices rose sharply and as a result countries such as Haiti, Mexico, Cameroon, the Philippines, Indonesia, and Bangladesh experienced riots. People and farmers in these countries can no longer access food because the price is too high. The world's food stocks have experienced a significant decrease that has not been experienced in the last 30 years.

According to the World Bank report (Eric Holt, Gimenez & Loren Peabody 2008; Eugenio S. Bobenrieth & Brian D. Wright 2009), world food prices have increased by 83 percent and the FAO also stated a 45 percent increase in the world food index since the 2008 food crisis occurred. For economists, the increase in this index is the highest since it was introduced in 1845. World wheat prices rose 130 percent, soybean prices rose 87 percent, and rice rose 74 percent. The main factors of the global food crisis in 2008 were prolonged drought, low grain stocks, sharply rising oil prices, double per capita consumption of food in developing countries, and 5 percent of the world's grain was channeled to agrofuels. Therefore, the 2008 food crisis increasingly threatens the political stability of the world and most countries of the world are beginning to take this threat to food security seriously.

The statement above is reinforced by a study by Thompson (1999), who stated that 1.3 billion people in the world only get a daily income of approximately one US dollar a day. As result of this poverty, it prevents them from getting food and brings problems to global food security. Mahathir Mohamed (2000), the former prime minister of Malaysia, also saw this trend by saying that the inequality between rich and poor countries in the world is now becoming more apparent. Rich countries have a per capita income of US\$30,000 while poor countries only get US\$300. Out of six billion people in the world, one billion do not have nutritious food, are not educated, and do not have a home, and many more struggles to get food, clothing, and other necessities for their protection. The study conducted by Per Pinstруп-Anderson (2004), is also interesting where he estimates that approximately 800 million people do not get enough food but more than 1 billion people get too much food and they suffer from obesity.

According to Shaikh Mohd Saifuddeen (2006), food security is a field that includes the production, distribution of food, and food consumption. According to him, food security issues in Third World countries are different from issues in developed countries. The problems faced in Third World countries are poverty, hunger, unhealthy food, food shortages, and inefficient food distribution. Meanwhile, in developed countries, food security issue is quite different where they look at food hygiene, food security, side effects from food production methods, food ethics issues in terms of distribution, and health problems from food consumption such as heart disease, high cholesterol, obesity, diabetes and so on.

Gilland (2002) through his research, stated that a country or region is safe in terms of food security when "all the people, at all times, have both physical and economic access to sufficient food to meet their dietary needs for a healthy and productive life". Next, for him, food security depends on three principles, namely, obtaining food, using food in a perfect diet, and using appropriate food to obtain nutrients and ensure hygiene.

Paarlberg (2000), through his study classified this food security into three important dimensions, firstly, that food is available or ready for use (availability). It also refers to sufficient production to sustain human life for a short or long time. The second is sufficient food (adequacy) which refers to the different nutritional needs found among humans. In terms of the concept, it can be translated as a balanced diet and consuming different foods throughout the year. The third is food that is easy to obtain (accessibility). It refers not only to transportation and marketing but also food that is needed. Sufficient food production alone is not enough; consumers must be able to buy or obtain the necessary food. For the poor population, the market is not an effective place in the distribution of food because food security for the poor requires an assessment of community values and a commitment to ensure that they get food fairly.

Food Security in Malaysia

In Malaysia, several studies have been done about food security. Since rice is a security food in this country, the study of food security focuses on rice production. Studies conducted by Ahmad Sarji Abdul Hamid (1975), Van Thean Kee (1975), Tan Siew Hoey (1986), Wan Ibrahim Wan Daud (1986), and Ang Kok Jee (1986) stated that in Malaysia farmers face difficulties with food production and this causes the country to experience food shortages. Rice, which is a staple food in Malaysia, cannot be produced enough and this makes it difficult for the country to reach the target of self-sufficiency. Rice production in the country is linked to a lack of farmers, a lack of agricultural knowledge among farmers, old farming practices, and policy implementation problems. Even so, for Van Thean Kee (1975), rice production per hectare in Malaysia at that time was the highest in Asia, but the rice was still insufficient for domestic consumption and had to be imported. Thus, all these studies argue that rice production in the country faces problems and causes the country to lack food supply.

A study conducted by Mohammad Hj Alias and Chamhuri Siwar (1978) suggested that Malaysia gives priority to planting rice three times a year. With this method, rice production in the country can be increased to overcome the shortage of rice that occurs in the country and can reduce dependence on foreign countries. Since the introduction of rice twice a year by Muda Agricultural Development Authority (MADA) in 1970, the country's rice production has increased and has brought great returns to farmers and landlords. Agricultural lands have been fully optimized with better drainage systems. Therefore, they think that the government and farmers should think positively about practicing the rice production system three times a year in increasing the country's food production.

In addition, the study conducted by Zulkifli Hj. Mustapha, Chamhuri Siwar, and Nik Hashim Nik Mustapha (1986) studied the point of view of the food economy in Malaysia as well as the problems and policies in dealing with food security. In Malaysia the demand for foodstuffs is high and food is considered the most important national resource. This is translated in national policies and five-year development plans as well as in the budget to ensure that agricultural areas and rural areas are developed. The government plans to ensure that the country's rice production increases, which is in line with the basic food needs of the people in this country. In addition, short-term food crops, fisheries, and animal husbandry (milk and meat) are also improved in achieving food needs in the country itself as well as food

security in production. This is because Malaysia is relatively dependent on imported food, it is estimated that 26 percent of the country's total gross imports in 1983 were food items and this will cause an outflow of national money.

Tan Siew Hoey (1987), has analyzed the rice policy in Malaysia. His research has discussed the environmental aspect of the government's decision to make the national rice policy, the evolution in the development of the rice industry, the need for self-sufficiency, and the importance of food security. The national rice policy has three main objectives, firstly to ensure food security, secondly to increase farmers' income and productivity, and thirdly to ensure that food reaches consumers at a reasonable price. High subsidies are given by the government to increase the country's rice production but this factor still cannot help solve the problem. He also proved that in making policies related to rice, the government focuses on rice producers (farmers), consumers, manufacturers, traders, and the government itself, namely the National Paddy and Rice Board (LPN). For him, the country's rice policy is not consistent in determining the level of self-sufficiency. The high cost of rice production in the country caused the government to not want to achieve a high level of self-sufficiency and made a policy to continue buying rice from outside.

According to Chamhuri Siwar (1988), food security is a question that is no less important than the question and stability of the country in terms of politics and the military. Although Malaysia does not have an uncontrolled food security situation, the Green Book program that was introduced after the hunger strike in Baling emphasizes the need for Malaysia to produce more food. For Chamhuri Siwar, the policy to further increase food production has never been a distinct goal in the government's development plan. It can only be observed from agricultural policies, in general, to modernize the agricultural sector and increase the income of rural farmers. For him, although Malaysia has never experienced a terrible famine like African countries, Bangladesh or India, the country is still dependent on food imported from outside. Rice is the main import and it is clear that the country faces insecurity of rice supply if it wants to continue to depend on foreign countries. Therefore, he emphasized a more comprehensive government policy change than just not prioritizing agricultural commodities based on plantations, but rather it should emphasize food commodities. For him, the aspect of food security should not only be emphasized on rice but it should be extended to other food sectors as well.

Fatimah Mohd Arshad and Mad Nasir Shamsudin (1997), in their study, stated that the goal of achieving food security, especially rice, was the main theme in the development of this sector from the 1960s to the 1990s. It's just that the target level of self-sufficiency has been reduced from 80 percent to 65 percent and the approach and strategy have been modified. This change is necessary because of the rapid transformation of the country's economy from an economy guided by agricultural commodities to an economy oriented to export goods, namely the manufacturing sector. The rapid development of the manufacturing sector has drawn factors of production, especially land and labor, out of agricultural enterprises. The wide opening of land in the 1970s and 1980s and the activities of the manufacturing sector have made agricultural land limited. Malaysia is a net importer of not only foodstuffs but raw materials for the food industry and agricultural base. The food import bill has reached 10 percent of total imports. The concept of food security has also been defined to include several other food items such as rice, fish, poultry, livestock, milk, vegetables, and fruits. The National Agricultural Policy (DPN) 1984 and the new DPN 1992-2010, each emphasizes food security to include not only staple food but also the details of these food.

Ahmad Sabri Ibrahim's study (1998), proves that Malaysia is too dependent on food sources from foreign countries. Malaysia imports approximately RM4-RM5 billion of raw and processed food every year. This gives the impression that the dependence on imported foodstuffs is high. Therefore, if there is any incident that affects the supply of export goods, it will have an impact on our country's economy. Aware of this negative effect, he suggested that the country's agricultural sector should play its role by ensuring that the food supply is always guaranteed.

Mohd Effendi Norwawi (2006), on the other hand, stated that food security is an important issue and involves all countries in the world and it is no exception in Malaysia. According to him, there are three dimensions of food security, namely production, distribution, and consumption. Production generally refers to the cultivation of food crops and food commodities related to agriculture. This production involves many issues including how to increase food production as well as the techniques and technology used in the production of food. Distribution involves food storage, price policy, and the role of the private sector. The government and the private sector should work together to ensure that food is widely distributed to all levels of the population and also ensure that reasonable prices are offered. Consumption, on the other hand, refers to the reception of sufficient food, aspects of nutritious food, and also food security. According to Effendi, Malaysia does not experience serious food shortages or malnutrition like most Third World countries, but Malaysia is still dependent on other countries for its food needs. The agricultural sector in Malaysia is not marginalized as a result of industrialization policies but has been combined between the two (industrialized agriculture). The involvement of the private sector in food production is also encouraged by the government in addition to the use of information technology, research (R&D), and so on to ensure food security is guaranteed.

According to Mohd Ghazali Mohaiyidin and Ismail Abdul Latif (2006), food consumption in Malaysia is high when compared to other developing countries and not much different from developed countries. Although Malaysia could produce its food in the past decades, it still relies heavily on imported food. A rapid increase also occurred in the consumption of all foodstuffs where the demand is very high among consumers. However, domestic food production has declined for all types of food produced. Taking into account the consumption and production of foodstuffs, Malaysia is expected to be further behind in achieving self-sufficiency in its food production. If this situation continues, the country will further depend on foreign countries to meet its food needs. Therefore, the government should emphasize the importance of food security for several reasons including; the weakness of the Malaysian ringgit will make food imports more expensive, the uncertainty of imports is based on political instability and uncertain weather conditions in the producing countries, and the world market surplus for rice is only 4 percent compared to 20 percent for wheat and 11 percent for other grains which traded in the world market.

Meanwhile, Addyhanis Ahmad (2003), directed his study on food security in Malaysia by looking at the challenges faced in adapting biotechnology. He admitted that Malaysia still depends on domestic food needs from foreign countries. Although domestic food production increased by 5.5 percent from 1985 to 2000, this increase could not meet the growing local needs. This situation is expected to continue and in the long term, the increased dependence on food from outside can cause problems because there is no guarantee that this food can continue to be distributed or that the price will remain affordable. This factor also depends on the country's ability in terms of economy. Thus, it is found that the use of biotechnology is a tool that can solve the issue of food security in Malaysia, especially in increasing its food production.

The global food crisis of 2008 has brought a change in the landscape of food security in Malaysia. Fatimah Arshad (2008) emphasized that Malaysia needs to find a new perspective to guarantee sustainable food security for the sake of its people, resources, and ecology. For her, the world's food security is beginning to experience serious pressure where it is not only the issue of insufficient production but more fundamentally the variable that affects both equations, supply and demand. Decreasing productivity, dwindling resources such as land and water, global warming, and extreme climate change as well as the introduction of biofuels put the world's food security at risk and certainly, this effect is felt in Malaysia. Therefore, for her, the food crisis in Malaysia can be controlled by increasing the productivity of rice fields, opening up new land, reducing the consumption of rice land, more integrated agriculture, and reducing the number of foreign immigrants.

Meanwhile, Larry CY Wong (2008), Mad Nasir Shamsudin (2008), and Zahari Awang (2008) emphasized that food security has become increasingly important in Malaysia due to the world food crisis of 2008. They think the previous food security practices should be reviewed with the importance of the level of Food self-sufficiency, especially rice, given serious emphasis. For Zahari Awang, since the global food crisis harms the country's food supply, the National Food Security Policy needs to be enacted. The main purpose of this policy is to increase production and productivity to ensure adequate, quality, and safe food supply.

The position of the agricultural sector in Malaysia

In Malaysia, many studies highlight the development and reforms as well as the problems and effects on the agricultural sector. Among them are the studies of Jamal Ali (2003), Abdul Aziz Abdul Rahman (1998), Tengku Mahmud Mansor (1998), Abdul Khaled Ibrahim (1998) Chamhuri Siwar and Abdul Aziz Abd. Rahman (1998), Abdul Malik Ismail (1998), Chamhuri Siwar, Abd. Hamid Jaafar and Abd Malik Ismail (1998). All of these studies agree that the agricultural sector plays an important role in the development of the country's economy, and its contribution until now cannot be denied. However, their study also agreed that the contribution of the agricultural sector to the country's GDP has begun to decline. The contribution of this sector in 1960 was as much as 60 percent and in 1970 it decreased to 29 percent and then in 1990 to 18.7 percent and in 2000 to 8.7 percent and even the latest in 2005, it decreased to 7.2 percent. The employment rate has also decreased from 80.3 percent in 1966 and subsequently in 1970 to 51 percent, 37.2 percent and 26 percent respectively in 1980 and 1990. In 2000 the contribution of this sector decreased to 15.2 percent and subsequently to 14.5 percent in 2005. The contribution of this sector is expected to decrease in the coming decades. The agricultural sector export income also decreased from 60 percent in 1970 to 17 percent in 1990 and further decreased to 7.2 percent in 2000. The scenario of the declining contribution of the agricultural sector is a universal phenomenon in the transformation process from an agricultural country to an industrial country. The necessary attention is so that the development of the agricultural sector does not lag too far behind compared to other sectors. On the other hand, in this transformation, the agricultural sector must also develop and be balanced between the development of the manufacturing sector and the agricultural sector.

The above statement is reinforced by Zulkifli Senteri (1997), that changes in the economic structure or agriculture in a country are changes that will happen whether they are needed or not. This factor is based on the desire of a country to advance or accelerate its economic growth. Therefore, in this issue, the policymakers feel that the agricultural sector alone is not able to develop more advanced techniques to accommodate the current economic needs, especially the unemployment problem. Therefore, developed developing and underdeveloped countries take various initiatives so that they are not dependent on just one

sector. However, according to Zulkifli, no matter what the weaknesses in the agricultural sector are, they cannot be eliminated or ignored. This is because the agricultural sector is of great importance to a country, especially in the matter of food security or security. Therefore, many countries including the United States, European countries, and Japan have given high subsidies to the agricultural sector to ensure its survival.

Meanwhile, the issues and problems of agricultural reform are not new in Malaysia. The need for agricultural reform has been stated since the beginning of independence, among others by Ungku Aziz (1959) and Chamhuri (1978). The two main forms of agricultural reform are land reform and agrarian reform. Land reform is implemented in several countries, for example in Japan, Taiwan, and Philippines as a prerequisite for agricultural development in addition to fulfilling the distribution of wealth and eradication of poverty. Agrarian reform is comprehensive and includes any improvements to institutions, infrastructures, and agricultural technology. Agrarian reform also includes various agricultural reforms such as the green revolution, land clearing, land consolidation, integrated agricultural development, agricultural modernization, and so on. It is also known as institutional reform and covers the improvement of various agricultural institutions such as credit, marketing, research, extension, irrigation, and various support and aids. They see the agricultural sector (farming, animal husbandry, forestry, and fishing) as a traditional sector of the Malaysian economy, so it should be strengthened. This is because we are aware of the importance of the agricultural sector as a source of raw materials, food, and energy and is the center of the problem of poverty, so studies related to development, problems, and measures that have been taken to overcome the problem needs to be done. However, in terms of value-added, the agricultural sector is still performing well. For example, the value added produced by the agricultural sector in 1990 was as much as RM14.8 thousand million while in 1995 it increased to RM 16.4 million.

According to Mohd Nasir Sukani (2000), the rapid development of the Malaysian economy based on the manufacturing and industrial sectors seems to have set aside the role and contribution of the agricultural sector. The agricultural sector, which was once the driving force behind the country's development, has gradually lost its contribution rate and role to the country's economic growth. Nevertheless, the fact that food is needed to keep the industrial sector moving shows that no matter how rapid the development of an industrial-oriented economy is, the role of agriculture cannot be neglected. According to him, the demand to advance the industrial sector in parallel with the changing times is drowning the plans to advance the agricultural sector. Although Malaysia has a large area of land, especially land for agriculture, most of it has been converted into industrial sites and the rest into wasteland. According to Mohd Nasir, the existing system needs to be changed if the continuity of economic development is to be maintained. Malaysia in its name is still known as a country based on agriculture but in reality, this sector has been slowly sidelined. As a result, Malaysia still relies on a major portion of food imports even though the same goods are produced in the country.

Meanwhile in another study, Zulkifli Hj. Mustapha (1988), RT Shand and Mohd Ariff Hussein (1988), Mohd Zain Karim and Abdul Razak (1988), emphasize the need for this agricultural sector to be developed and carefully studied so that the importance of agriculture is maintained. In addition, this study also discusses why the agricultural sector is still unable to become an "engine of growth" in steering the Malaysian economy when many efforts have been made to advance the sector. Therefore, this sector must be empowered by creating a comprehensive development plan including Research and Development (R&D) so that this sector will become a "turning point" in the development of agricultural strategies and the

development of the economy as a whole. If this is not implemented, the dependence on farmers and the problem of poverty will be difficult to contain and as a result, the agricultural sector will continue to be plagued with various problems.

According to Jamal Ali (2003), Chamhuri Siwar (1998), and Mohd Nasir Sukani (2004) obstacles to the agricultural sector are due to several factors. In the country, this sector still face various challenges, one of which is the aging workforce, which is 21.4 percent aged 55 and above. This caused the country to experience a labor shortage in the agricultural sector and had to rely on foreign labor from foreign countries. Most of the farmers do not work full-time, and the size of the cultivated land is small and less economical, that is 65 percent of the rice paddy farmers have a paddy field size of less than one hectare. Private sector participation is less encouraging and young people consider agricultural jobs unattractive. In addition, the lack of suitable land for agricultural activities as a result of development (industry, housing, and so on), lack of knowledge about agriculture, lagging behind technology, and competition from the industrial sector are the main problems. There is still a perception that this sector is backwards and not profitable compared to the manufacturing and service sectors. In the regional arena, the country is faced with the prospect of the ASEAN Free Trade Area (ASEAN Free Trade Area or AFTA) and the Custom Effective Preferential Tariff (CEPT) scheme. AFTA aims to create a more liberal agricultural trade environment in the region by reducing trade barriers among member countries and increasing the exchange of agricultural materials. Once again the country should prepare to face the challenges and competition that will come from neighboring countries such as Thailand, Indonesia, and the Philippines.

Rice cultivation in Malaysia

According to the Ministry of Agriculture and Agro-Based Industry, Malaysia (2010) rice and paddy are commodities that are given protection and priority by the government. This food resource is categorized as one of the commodities in achieving the country's self-sufficiency rate. In 2009, the country produced 3,720 million metric tonnes of rice compared to 3,471 million metric tonnes in 2005. Of this amount, 1,620 million metric tonnes of rice were successfully produced. The rest is accommodated through imports, which is 1,130 thousand metric tons. The largest source of imported rice is from Vietnam which amounts to RM 1,413 million (77 percent) and Thailand RM 381 million (21 percent) for the period 2009 (Malaysia 2010b).

In the 10th Malaysia Plan (2010), the government targeted local rice production at a rate of 70 percent self-sufficiency level. During the period of the plan, a strategic approach was also carried out by the government to ensure a sufficient supply of rice, including maintaining the rice storage stock at the level of 292,000 metric tonnes or able to cover the needs for 45 days. This strategic approach was also implemented through the signing of a long-term contract agreement to import rice through palm oil and oil export matching agreement. In addition, efforts to increase productivity in the paddy granary area as well as outside the granary were also carried out through the improvement of infrastructure facilities. Actions taken by the government are aimed at guaranteeing and ensuring that food supplies, especially rice, are always available, easily accessible, and affordable for the general public (Malaysia 2010).

According to the Lembaga Kemajuan Pertanian Muda (MADA), eight main rice granary areas contribute to the country's rice production. One of them is the Muda irrigation area located in the State of Kedah and part of the State of Perlis, in the northern part of Peninsular Malaysia. Rice cultivation in the Muda irrigation area started about 300 years ago. At that time, cultivation activities depended solely on rainwater. With the transformation of the country's agriculture practices, rice planting activities can be carried out in two seasons a year.

The rice farmers were also introduced to high-quality rice seeds that have a short maturity period of around 110 to 115 days.

According to Chamhuri et al. (2009) in Malaysia the average temperature for the growth of rice plants is 25°C, if the temperature increases by 1°C will result in a reduction of grain mass by 4.4 percent and while the yield will decline between 9.6 to 10 percent). Singh et al. in Chamhuri et al. (2009) also found that an increase of 1°C will result in a decline in rice production between 4.6 to 6.1 percent. Mad Nasir (2008) explained that a study conducted by Universiti Putra Malaysia in the Muda irrigation area found that tropospheric ozone (O₃) increased above the Ozone Threshold by 40 ppb (AOT 40) between the period 2003 and 2004. This situation has resulted in a reduction in rice production in the area by 12 percent. This reduction in production directly affects the country's food security position. Meanwhile, the study conducted by Md. Mahmudul et al. (2010) in North West Selangor Project area found that one percent increase in temperature will reduce rice production by 3.44 percent in the current season and 0.03 percent in the following season. The analysis carried out on the amount of rain on rice production in the area also found that an increase of one percent in the amount of rain reduced 12 percent of rice in the current season and 0.21 percent in the following season. A study conducted by Abul Quasem et al. (2010) also found a negative relationship between rice production and temperature changes in Malaysia. An increase in temperature of 1°C will reduce the country's rice production by between 4.6 to 6.1 percent. The results of a study conducted by Radin Firdaus (2012) also explained that climate is one of the determinants of profitability for Malaysian rice granaries. Although farmers have experience in planting this crop, they are often unable to fully overcome the problems of cultivation such as insect attacks, weather changes, prices, and government policy changes. This problem is categorized into the risk and equality of agriculture (Nik Hashim 1991). Concerning that, a mechanism needs to be formed and enacted to protect and ensure the sustainability of rice crop production through government intervention.

Meanwhile, a study conducted by Tey et al. (2010) on rice production in Malaysia in the period from 1961 to 2007 found that there was a significant and positive relationship at the $\alpha=0.01$ level between the government's allocation and the country's rice production in that period. Through Nerlovion's forecast model used, it was found that a one percent increase in government allocations is estimated to increase output by 0.2891 percent in the short term. For the long-term period, it is expected that production revenue will increase by 0.6052 percent with a one percent increase in government allocations.

A study conducted by Radin Firdaus (2012) on rice production in the main rice granary area explains that rice farmers can only survive if a price subsidy is given. Without price subsidies, climate change could force rice farmers to stop planting before 2020 again. By using the Ricardian model method, the results of the study conducted by him also explained that at the current rate of price subsidies received, rice farmers are expected to lose 75 percent of their returns between the period 2020 to 2029, while for the period 2050 to 2059 as much as 97 percent and 140 percent for the period from 2090 to 2099. As a result, the government not only need to maintain the current price subsidy scheme but also need to increase the number of grants to ensure that rice farmers continue to be willing to plant in the future. The study by Fatimah & Mohd. Ghazali (1990) also explained that the rice price scheme has a large impact on the income of rice farmers by 71.5 percent compared to the rice fertilizer scheme by 38.6 percent. While a study by Mohd Anuar (1989) also showed that the implementation of the rice price subsidy scheme was able to increase the income of rice farmers from RM1231.66 to RM1660.75, which is an increase of RM429.09 or about 35 percent per hectare/season. The

findings of the study by the researcher above explain the contribution of subsidies, especially price subsidies, in increasing the income of rice farmers in this sector. Indirectly, the fertilizer subsidy scheme and the price subsidy scheme have a positive effect in terms of increasing production (reducing production costs) and further increasing the income of rice farmers.

Conclusion

From the highlights of this study, it can be concluded that the dynamics of food security in Malaysia guarantee sufficient food needs for all its citizens. The world food crisis of 1972/1974 and the crisis of 2008 have brought a new dimension to the world of the importance of prioritizing food security. Many people around the world starve to death due to lack of food in their country due to production problems, poverty factors, or even natural disaster phenomena. Since then, most countries in the world have begun to focus on this aspect of food security by increasing domestic food production. However, in Malaysia, this reality is very different. Rice, which is a staple food and a security crop, cannot be produced 100 percent. In addition, the agricultural sector which is based on food commodities is not competitive due to its inability to supply food. This food commodity is also hampered by various obstacles to the country's food production. Therefore, this study seeks a new direction in arguing food security in Malaysia by examining it from different angles. Previous studies have only focused on rice production as an element of security food without relating it to human security and no study examined food security in Malaysia and its relationship with human security. With that, this study has examined the food security policy in Malaysia to ensure human security. In addition, this study is also angled from the point of view of political science discipline analysis because most food security studies in Malaysia are studied in the discipline of economics.

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