



Agriculture Technology

FOOD SECURITY: THE PATH TOWARDS SELF-SUFFICIENCY

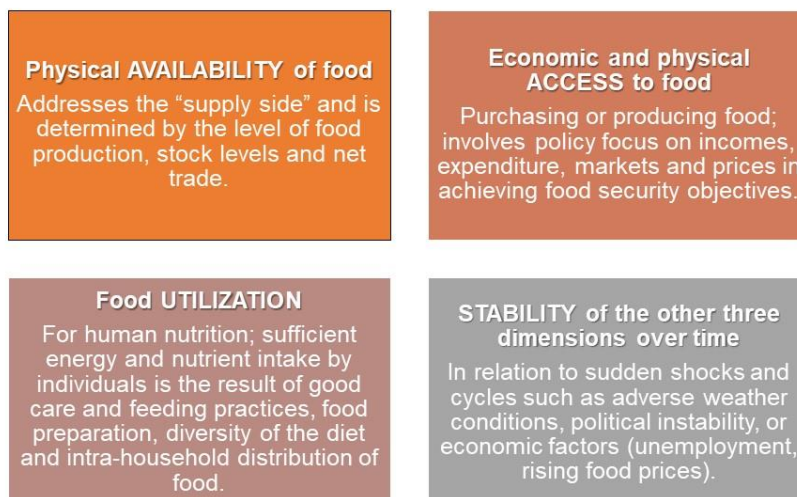
August 2024

Food security is defined as “when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.” According to the Food and Agriculture Organization, four main dimensions of food security can be identified: physical availability of food, economic and physical access to food, food utilization and stability of food supply. For food security objectives to be realized, all four dimensions must be fulfilled simultaneously. With the world's population estimated to reach 9.8 billion people by 2050, food and agriculture are crucial in determining food security. Food and agriculture are both central in shaping food security and nutrition; with food produced and supplied by farmers and fisherfolk needed to be adequate to feed the needs of a growing world population.

Where Malaysia Stands on Self-Sufficiency

This is important as the gross output for the agriculture sector in Malaysia alone amounted to RM122.3 billion (USD 27.56 billion) in 2022 according to DOSM. However, the value of food import into Malaysia was approximately RM78.79 billion in 2023, a value that has been steadily increasing over the years. The government is targeting to reach 80% self-sufficiency ratio (SSR) by 2030 and 100% SSR by 10 years for basic food commodities such as rice, fish, chicken and vegetables.

MAIN DIMENSIONS OF FOOD SECURITY



Adapted from FAO 2008

Another frequently used indicator for food security is the Global Food Security Index (GFSI). The GFSI considers the core issues of food affordability, availability, and quality among 113 countries. Malaysia’s GFSI score indicates that food security has been improving in the Malaysian context, moving from 43rd place in 2020 to 39th place in 2021 and 41st place in 2022. Since independence and especially during the 1970s, Malaysia has a positive record of

reducing, if not almost eliminating hunger and poverty, and this can be largely attributed to efforts to raise the incomes of the poor, as well as stipends for smallholder agriculture and better employment conditions in modern agriculture, industry and services. However, in recent times the country faces challenges in sustainability and adequacy of food production, as well as the implications for economic development, food security and nutrition.

Malaysia is more food secure today by various internationally accepted criteria, compared to the past, especially during the colonial period. All major foods are available in sufficient quantities to meet market demand. The increases in food supply in Malaysia since 1961 has provided more than sufficient dietary energy for every person in the country, as total and per capita food supply have increased greatly for many major food categories. However, agricultural productivity in Malaysia is low and less than half of that of high-income countries, especially among small-scale farmers. This is influenced by a variety of factors, such as reliance, inadequate and inappropriate use of technology, high production costs, labour shortages, pests and diseases that affect crops and livestock, and poor agricultural and fisheries resource management practises. A lack of investment in the sector, inadequate funding, and a high cost of credit also negatively impact the output of agriculture.

More glaringly, food affordability remains an issue in the country. In general, physical access to food for most throughout Malaysia in both rural and urban areas are ensured. Social, economic, and physical factors, such as one's health, the cost of food, and one's proximity to food sources, all have an impact on one's ability to acquire food. A crucial aspect that impacts access to food is income. Incomes play a major role in determining spending, affordability and ultimately, household and personal access to food. Generally, food prices have been rising faster than average incomes and the food price index has also been rising faster than the general consumer price index. In Malaysian households earning less than RM5,000, more money is being spent to purchase food, but the quantity of food being purchased has decreased. Furthermore, certain food items, such as beef and milk, have experienced price anomalies with domestic prices not running parallel to international trends. Income inequality and related spending patterns also mean that higher prices adversely impact poorer households more, as such households spend relatively more on food. Consumption patterns also differ among households, due to cultural and behavioural preferences besides having different means.

Impact of Climate Change and Policies on Food Security

While the preceding points are solely centred on Malaysia, climate change is a factor that affects food security on a global scale. The United Nations Foundation (2023) predicts that by 2030, global food output could drop by 30% if the climate changes by 30%. The effects of climate change on food security are the consequences of climate changes themselves and the underlying vulnerabilities of food systems. They can be defined as “cascading impacts” from climate to biophysical, then economic and social, and to households and food security. At each level, vulnerabilities worsen the effects. The looming threat of climate change affects crops, livestock, forestry, fisheries, and aquaculture. Thus, climate change indirectly affects the socio-economic conditions of people through changes in agricultural incomes, food markets, prices and trade patterns, and investment patterns. Additionally, climate change also affects safe water and sanitation facilities, leading to diarrheal disease and an increase in various vector-borne diseases. Increased frequency and intensity of drought and flood periods would also be a great threat to food stability, whether at the domestic or local level or through the global food market.

Food security can be enhanced through various means; ranging from change in agricultural practices, to better technology and innovation and revamps of existing policies and governance. In many regions of the world, agricultural land is producing only 50 per cent of its productive capacity. If this yield gap is closed, then the yield could be increased without further land development into natural habitats. Fertilizer can be utilized more efficiently as there are reports that fertilizer use on wheat, rice and maize crops could be reduced up to 13-29 per cent with the same production output. Irrigation systems should be improved to grow crops using less water. It has also been suggested that it is not necessary to produce more food, rather steps need to be taken to reduce food waste of food already present.

There should be good policies to combat food insecurity, at both government and private sectors. By accounting for vulnerability, food security policies and programs should broaden their efforts from not only addressing current constraints to food consumption, but to also include actions that also address future threats to food security. Currently, Malaysia’s food security is under the Ministry of Agriculture and Food Security, and the policy in place is the National Food Security Policy Action Plan 2021-2025, which is an action plan to strengthen national food securities that “been developed taking into account issues and challenges along the food supply chain ranging from agricultural inputs to food waste.” There have been several policies enacted the past few decades with the goal of increasing Malaysia’s rice production self-sufficiency since the colonial era, and especially following the Japanese occupation in World War Two. Though this isn’t only seen in Malaysia; heavy protection of and subsidies for food agriculture in developed countries like those in Europe and Japan also appear to be consequences of the experience of food shortages and insecurity during times of war. It would be remising to think that increasing rice production for self-sufficiency equates secured

national food security. There is a lack of food production diversity today, leading to the country becoming increasingly reliant on imports to increase food supply and ultimately dietary diversity.

The National Agrofood Policy 2021-2030 (NAP 2.0) aims to transform Malaysia's agrofood sector into a sustainable, resilient, and technology-driven industry that prioritizes food security and nutrition while driving economic growth and improving the well-being of the population. Developed through extensive stakeholder engagement, NAP 2.0 focuses on modernizing agriculture, enhancing market access, developing human capital, and promoting sustainable practices. It also emphasizes increasing self-sufficiency in key food commodities like rice, fruits, vegetables, and livestock. By leveraging advanced technologies and fostering public-private partnerships, the policy seeks to ensure that Malaysia's agrofood sector remains competitive and capable of meeting the challenges posed by global events such as climate change and economic disruptions.



National Food Security Policy Action Plan 2021-2025 and The National Agrofood Policy 2021-2030 (NAP 2.0) are two main documents related to food security in the country.

Reconsideration of food security policies must also consider alternative employment, crops and income opportunities for those engaged in farming. Crop specific analysis could result in specific policy directions for alternative food production, including adoption of new agronomic technologies to improve production. Additionally, food safety should get much greater policy consideration as, even if abundant, food unsafe for human consumption can cause poisoning and other diseases. Unsafe practices, especially in the use of harmful chemicals and excessive use of pesticides in food production, not only risk consumer food safety, but also threaten the occupational health and safety of food producers. The extensive use of pesticides not only poses a risk to people, but also to the environment. For example,

excessive insecticides in farming has not only succeeded in eliminating most insect pests, but also many of their natural predators. New innovative technologies need to be adopted in order to increase the yield of agriculture while being more sustainable to the environment.

Sustainable Food Security

It should be emphasized that food security and sustainability are linked. Food security needs of the present and future generations need to be met while taking into account the environment, society, and the economy. Protection of the environment, crop insurance against drought, and sustainable use of water, soil, and other natural resources are a few examples of sustainable measures. However, the activities involved in food systems account for some 20%–30% of all human-associated greenhouse gas emissions, and, as such, contribute to climate change. Hence there is a glaring trade-off between decreasing human associated greenhouse gases and guaranteeing food security under current food systems. Though what sustainable food systems actually look like still remains unclear, with our understanding constantly evolving, hopefully there will soon be a much needed systematic and integrated approach to mitigate the negative environmental impact due to activities involved in food system itself.

In summary, food security in Malaysia has seen significant improvements over the decades, but challenges remain in areas such as agricultural productivity, food affordability, and the impacts of climate change. While efforts have been made to enhance food security through policy initiatives and agricultural advancements, issues like income inequality, reliance on food imports, and environmental sustainability need urgent attention. Addressing these challenges is not only vital for maintaining the nation's food security but also for ensuring the well-being of future generations. The time to act is now—by embracing innovative solutions and sustainable practices, Malaysia can secure a resilient and equitable food system that meets the demands of a growing population while safeguarding the environment for the future.

References

1. Esa ZM, Santhanam P, Jaafar J & Zainuddin Z (2023) Feeding the Future: Achieving Food Security in Malaysia Through Trade Mechanism. *Journal of Agribusiness Marketing* 11(2): 13-29. DOI: 10.56527/jabm.11.2.3
2. FAO (2008) An Introduction to the Basic Concepts of Food Security
3. Ahmad N, Shahnawaz SK, Husain M, Qamar S & Alam Z (2021) Food Insecurity: Concept, Causes, Effects and Possible Solutions. *IAR J Huma Soc Sci* 2(1):105-113.
4. Sundaram JK, Gen TZ & Khalidi JR (2019) Achieving Food Security for All Malaysians. Khazanah Research Institute