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Food Security and Nutrition for the New World

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Abstract

This paper attempts to address food security and nutrition issues faced by the world and in developing countries such as Malaysia. Food security is defined when people have physical and economical access to sufficient and nutritious food that meets their dietary needs for an active and healthy life. Close to 800 million individuals do not have access to enough food, more than 2 billion individuals experience key micronutrient deficiencies, and about 60% of individuals in low-income countries are food insecure. A major social and environmental disruptor for our planet is food insecurity, negatively affecting social, emotional, physical and cognitive development. Moreover, causing serious repercussions for planetary health (i.e., the health of human civilization and the state of the natural systems on which it depends). A correlation is seen between food security and the United Nations Sustainable Development Goals (SDGs). Sound equitable and sustainable food systems resulting from modern technology are essential for countries to meet the SDGs. Osel Group, a private healthcare organisation, headquartered in Malaysia, with an extensive presence in therapeutics and innovative medical research in Malaysia, Hong Kong, Singapore and United States of America; is a member of United Nations Global Compact and

subscribes to United Nations Sustainable Development Goals. Osel Group advocates public-private-people (PPP) collaboration towards solving global problems.

Keywords

Hunger and malnutrition; Nutritious food; Global food security

Introduction

Hunger and malnutrition have been a long-term challenge for humanity. This has brought to light the serious implications of food security, as to be “food secure” physical, social and economic access to safe and sufficient nutritious food is essential for the dietary needs of an individual. It is also needed to provide for an active and healthy lifestyle [1]. At the present moment, food security has reached a crisis, where communities across the world face food insecurity; unable to determine when their next meal will be. Food security is identified when families are financially able to afford and obtain healthy food at all times while maintaining a healthy lifestyle. Approximately 750 million people face extreme levels of food insecurity, which is defined as 1 in 10 people throughout the world [2]. This is due to the high prices of healthy foods, making them unaffordable for many [3]. According to the United Nations Food and Agriculture Organisation (FAO), 920 million people are undernourished with large percentages of these people living in Asia, the Pacific Islands and Sub-Saharan Africa. Agriculture, economy, the availability, accessibility and utilisation of food are important aspects to potentially solving food insecurity. Championed by United Nation, Sustainable Development Goals (SDGs), as seen in (Figure 1), is working towards bringing poverty and other deprivations that must work hand-in-hand with other strategies that will combat health and educational issues [4]. These goals are implemented to bring the world to a greener and more resilient society, [5] which are what our organisation, Osel Group, is part of.



Figure 1: United Nations Sustainable Development Goals. (United Nation, 2015).

Problem Statement

The main objective of this paper is to determine how food security affects nutrition on a global and national scale in Malaysia. Considering the current situation in the world, the Covid-19 pandemic is also included in having a role in affecting the food security situation; affecting people's livelihood and the possibility of their health. Looking into factors such as agriculture, climate changes and the availability, accessibility, utilisation and stability of food systems, it can be determined how food security and insecurity issues could potentially be solved.

Literature Review

Global food security is being threatened by climate changes, air pollution, a growing population, an increase in food prices and monetary income [6]. Affecting the four pillars of food security (accessibility, affordability, utilisation and stability), climate and non-climate changes are important factors that should be considered and action implemented to help global food security to improve to meet the Sustainable Development Goals (SDGs) by 2030 [7]. Climate change and air pollution have a great effect on crops, affecting food availability. As mentioned by Wheeler and Braun,⁸ climate change could affect the progression of the global project of advancing towards a world without hunger; "Zero Hunger" [7]. Various determinants of climate changes include greenhouse gas emissions (air pollution) and global warming; affecting the density and the product of the produce, social and environmental determinants of health such as clean water, fresh air, sufficient food and shelter, [8] and potentially reducing the food production by more than 10% by 2050 [9]. Every year, around one-third of food produced for human consumption gets wasted or lost due to weather changes causing food and nutrition insecurity [10,11].

Nutrition is the fundamental basis to accessing quality food. It comes into consideration when people are threatened by food insecurity, not having enough monetary means for healthy food. With a 4.3% increase in the prices of sugar, cereal and vegetable oil as per the FAO Food Price Index (FFPI), [12] vulnerable groups such as immigrants, households with children, and the elderly, are unable to have access to healthy food. Aside from affecting vulnerable groups, increase in food prices limits the ability to purchase nutritious food. This may lead to poor efficiency affecting daily lifestyle, consequently lowering the resistance to various diseases [13]. While access and affordability could potentially be the major issue for vulnerable groups, other factors such as availability, utilisation and stability should also be taken into consideration, as they define how adequate healthy food supplies are within a reasonable distance, how beneficial the availability of fresh, healthy food will be for the household and if a household is able to sustain themselves at all times [14]. Nutrition is essential to battle food security as it determines the health costs exerted overtime for a country. A good and healthy diet is part of good nutrition which prevents malnutrition in varying forms including preventing non-communicable diseases (NCDs) such as diabetes, obesity and cancer to name a few [2]. However, to ensure good nutrition, one must be aware of food availability in the country, based on cultural, environmental and dietary customs of the country as seen in (Figure 2).



Figure 2: Different food groups available for human consumption differ across country income groups. (FAO et al., 2020).

Nutrition, agriculture and food are closely linked as agricultural activity in its sustainable form provides good crop yields that can be cultivated into provisions, benefiting the society, leading to good nutrition. Without agriculture, food and nutrition is unavailable and good nutrition will not be ensured, which is why a strong nutrition-agriculture alliance is necessary to give us a better perception of the advancement of nutrition and agricultural technologies [15]. Nutrition-sensitive agriculture (NSA) provides us with the agricultural development combined with food-based approach to creating dietary diversity [16]. NSA are interventions with specific nutrition objectives, as seen in (Figure 3), that are related to undernutrition such as malnutrition and micronutrient deficiencies and have specific pathways on reaching the outcome [17]. Such specific pathways include having nutritionally rich food, dietary diversity and food fortification at the expense of enjoying a variety of foods, while recognising the nutritional value of food for nutrition and an agricultural approach of supporting rural livelihood [16]. With this in mind, agriculture is seen as the main source of income in developing countries for 70-80 percent of the population and this is reflected in discussions in the United Nations' 2030 Agenda for Sustainable Development [18]. Agriculture can be combined with nutrition as both terms are inter-related and determines whether a country is food secure. Hence, it can be seen in various developing countries, such as Malaysia, where nutrition-sensitive agriculture programs (NSAP) are developed that looks into biofortification, homestead food production systems, livestock transfer programs, value chains for nutritious food and irrigation programs [18]. With these programs, issues regarding under nutrition can be addressed. Looking forward, urban agriculture is also important to address food

security by decreasing the rates of urban poverty and providing urban society access to nutritious, acceptable and cost-efficient food [19].

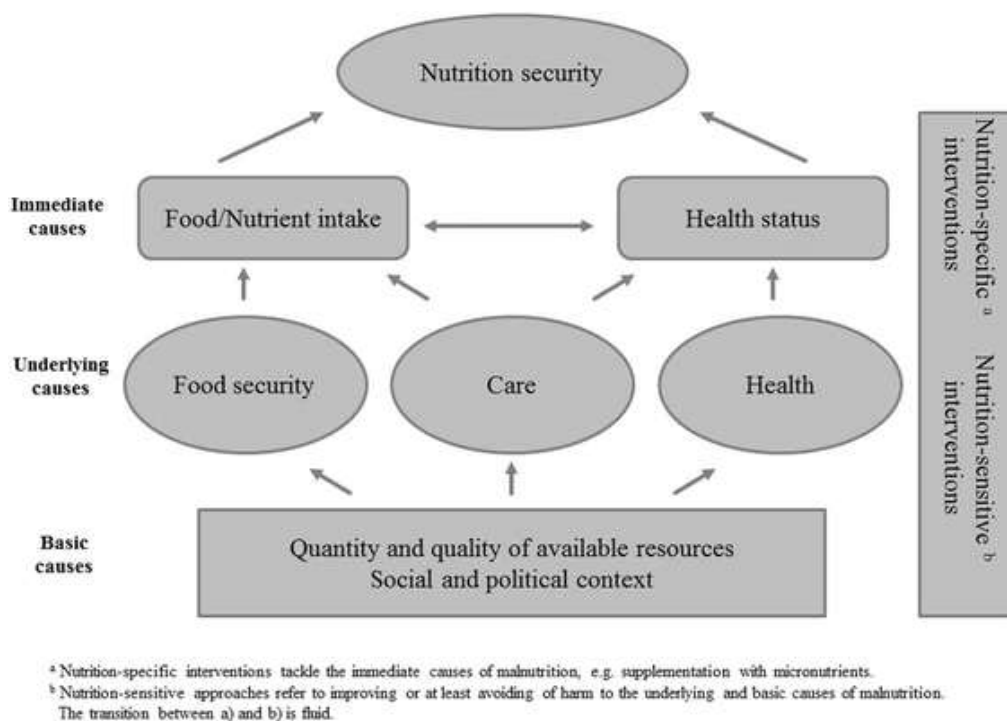


Figure 3: UNICEF Conceptual Framework on Nutrition-sensitive agriculture. (Balz, Heil, and Jordan, 2015).

Malaysia, being one of the fast-developing countries in Southeast Asia, is considered an upper-middle income country as its Gross National Income (GNI) per capita is RM42,531 (US\$10,513) in 2020. It is located in the equatorial region. It has an equatorial climate, typically hot and humid throughout the year, with rainfalls following the Northeast Monsoon period (November to March). Flash floods were recorded due to heavy rainfalls in several states. It not only destroys household property of the population, but also the farmer's crop yields. The major concern of Southwest Monsoon period that occurs between late May till mid-September were the hot and dry weather conditions that resulted in haze problems, affecting numerous Southeast Asia countries including Malaysia, Singapore, Brunei, Indonesia, Thailand and Philippines [21]. Primarily due to forest fire burning in Indonesia, there is a remarkable increase in the Air Pollution Index (API) in neighbouring countries such as Malaysia. The haze deteriorates the health of the population, which in turn affects the productivity and economy of the nation. There is also plenty of land for farming in Malaysia. However, planting food crops requires more effort and manpower compared to palm oil plantations, [22] which contributes 5% to 7% of the country's GDP [23]. Manpower for the agriculture sector is low, as the wages are not captivating to lure workers into this industry, with only RM1,200 monthly. The amount is far from the desirable living wage

for a single adult to afford basic living standards in the capital, Kuala Lumpur. According to Bank Negara Malaysia, in 2016 monthly living wage estimates for a single adult in Kuala Lumpur is RM2,700; couples without children would need RM4,500, while couples with two children need RM6,500 [24]. An individual or household with below average income would have to make several compromises in life, including choosing food that is cheaper and unhealthy.

2020 has been a tough and challenging year to the world. The world's first human case of COVID-19 was identified in Wuhan, Hubei Province on 31st December 2019. COVID-19 was first detected in Malaysia on the 25th of January 2020. For the following month, reported confirmed cases were relatively low, with 22 confirmed cases on the 25th of February 2020. However, the situation took a turn for the worse when a four-day religious event took place at Masjid Jamek Sri Petaling, between the 27th of February and the 1st of March 2020. A cluster was formed. By the 16th of March, the Government of Malaysia announced the implementation of the Movement Control Order (MCO) starting on the 18th of March until the 31st of March, 2020. This Order was meant to prevent the further spreading of this virus within the population and community. On the 19th of March, it was reported that 48% of the total Covid-19 cases in Malaysia were linked to the religious event held in Sri Petaling, with a total of 3,347 confirmed cases.

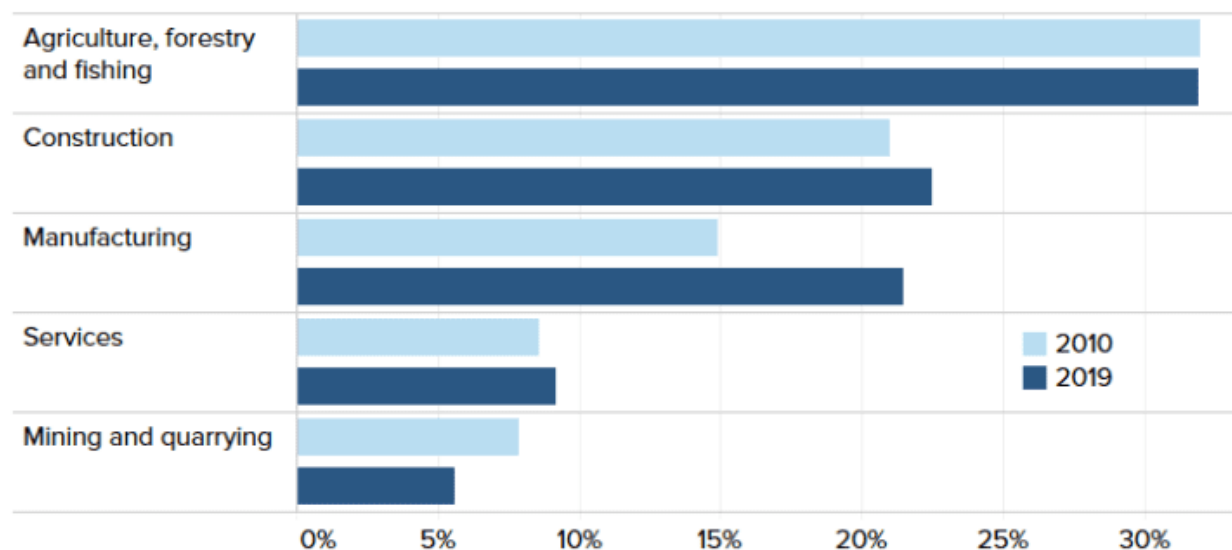
With the announcement of MCO, several restrictions were applied:

1. Complete restriction of movement and gatherings nationwide
2. Complete travel restriction for Malaysians heading overseas, as well as foreign visitors and tourists into Malaysia.
3. Closure of all educational institutions.
4. Closure of all government and private premises, with the exception of those providing essential services.

Undoubtedly, these measures taken were to slow down the surge in the number of cases. Daily activities are restricted, new rules are applied.

The nation experienced economic volatility. Most businesses coped with the pandemic economic crisis by cutting wages and job opportunities. According to Labour Force Survey statistics compiled by the Department of Statistics Malaysia (DOSM), unemployment was increased to 772,900 people with a rate of 4.8 percent in December 2020, as compared to the unemployment of 508,200 people, with a rate of 3.3 percent in pre-COVID times in the year 2019 [25]. The numbers of unemployment include both local and foreign workers. Malaysia is undeniably highly dependent on foreign workers in fields of agriculture, construction, manufacturing, services and mining as seen below in (Figure 4).

Percentage of migrant workers in Malaysia by industry



SOURCE: Department of Statistics Malaysia, Tan and Jarud (2020)



Figure 4: Migrant workers are essential for the economic development of Malaysia. More than 30% of migrant workers have predominated in agriculture sectors since 2010 (Lee, 2020).

When the nation went into lockdown starting from 18th March 2020, the welfare of foreign workers was even more at stake [27]. Business owners violated foreign workers' rights to reduce labour costs. These include abrupt termination of contract, unpaid or reduced wages, and overcrowded living conditions among others. Losing employment turned them into undocumented workers at the risk of getting arrested. Many were repatriated to their home country. With the loss of the labour force, the nation's economy and supply chain was largely affected.

Problem with food security starts to worry the population. Domestic production and distribution of fresh foods and vegetables were significantly affected. This is mainly due to reduced labour for agriculture and restricted transportation from farms located at the outskirts of cities. Large amounts of produce were being wasted too, due to a shortage of labour to harvest. Malaysia was forced to heavily rely on food imports such as dairy products, cocoa, sugar, beef and seafood [28]. However, as logistics industries were challenged worldwide, food imports to Malaysia were affected too. This causes a rise in food prices.

Recommendations

Agriculture is key to food security and nutrition. It is an important sector to cultivate natural resources for a country, regardless of the import or export nature of the products. It plays a crucial role to address underlying conditions of malnutrition through the access to nutrient-rich food [17]. However, climate

change affects the natural resources that agriculture depends on causing serious implications towards food security, especially in developing countries that heavily rely on agriculture [29]. Sustainable forms of agriculture could be a step towards solving hunger and poverty issues. These sustainable forms would provide nourishment to the land and people, creating job opportunities and gender-equality roles. Furthermore, farmers should be seen as agricultural commodities producing eco-systems, integrating environmental health, profitability of the economy and social equity [29].

Agricultural technology has innovations that are able to sustain agriculture and increase food production with methods such as drought-tolerant seeds, precise application of fertilisers and agrochemicals, water efficacy, soil fertility and improved soil management are among few options [30]. Such technologies could improve food security through the process of organic farming, low external input of sustainable agriculture, bio-dynamic production system, integrated livestock and crop farming [29]. This process to improve technological advances in the agriculture industry has the potential to improve the country's self-sustainability rate (SSR). At the same time, high value agricultural products (HVAP) such as livestock, dairy products, fish, vegetables and fruits could be cultivated and sold through specific markets [31]. In the context of Malaysia, high value farming has also been considered; producing items such as roselle, figs, pineapple, papaya and banana to name a few [32]. This will help to increase the gross domestic product (GDP) of the country [33]. Thus, advanced technologies and practices are critical measures to create an environmentally sustainable method of agriculture in aims to resolve food security.

More than 30% of the agriculture industry comprises of foreign workers [26]. One of the main reasons the agricultural industry, especially in Malaysia, consists mainly of foreign workers is due to the low wages the industry offers, deterring a majority of younger people from joining and exploring further. According to Hirschmann, [34,35] the average monthly salary of employees in Malaysia is around RM3,200. However, the average monthly salary in the agriculture, forestry and fishing industry is around RM2,000 with the agriculture sector having the lowest average monthly salary which is below the national average. To battle this, a minimum wage policy is necessary to address the inefficiencies in the market and to improve the welfare of lowly-paid workers [36]. By establishing a minimum wage policy, it will alleviate market distortions and maximise efficiency of the labourers as well as encourage workers to have better productivity. This will then create more employment possibilities, as jobs with higher wages and skills would encourage participation in an industry that was previously avoided. Such changes facilitate the multi-faceted development of industries of Malaysia, raising the value, income and overall economy of the country [36].

Food production has been flourishing in developed countries, growing as fast as the world's population while production in developing countries is fluctuating [37]. Poverty and fluctuating rates of food production will affect the physical and economical accessibility to food. Due to poverty in developing countries, under nutrition or malnutrition issues arise. This can be battled by following the above recommendations that could enhance employment opportunities, which creates a domino effect of increased purchasing power for households, creating a positive relationship with food and nutrition and ensuring food security for a family when there is job security. While the above recommendations may have already been implemented in certain countries, they could be considered to be implemented

within Malaysia, taking into deliberation the economic and climate status of the country and the perception of advanced technologies for advanced farming.

Conclusion

The United Nations' 2030 Agenda for Sustainable Development can be seen as a resolution. General Assembly in 2015 is focused around achieving 17 goals within 15 years, with Ending Hunger as SDG number 2. This Agenda provides two key aspects; committing to eradicating poverty and achieving sustainable development while sharing a global vision towards a sustainable development for all, leaving no one behind. Progress in our world is advancing, however, not at the speed or scale required to be able to achieve the Goals set. 2021 needs to usher in a decade of ambitious action to deliver the Goals by 2030. The Decade of Action (2021 - 2030) calls for accelerating sustainable solutions to all the world's biggest challenges — ranging from ending hunger, eradicating poverty and gender equality to climate change, and closing the finance gap. The rate of food security and nutrition is alarming as many people are still facing malnutrition and hunger every day even when there is enough food in the world to feed the population. Underprivileged families are forced to accept their situation as they lack monetary income. This issue could be solved by following the recommendations given and preventing food wastage. There are however, limitations to this paper. For example, this paper did not take into account geopolitics, cultural issues with diverse countries especially around ASEAN. More studies and data need to be done on diverse cultures in different settings. Our group is committed to champion the issue of food insecurity and malnutrition in Malaysia and ASEAN region.

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