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An Exploratory Study on Issues of Food Security and Legal Remedies in Malaysia and Thailand

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Abstract

Food security and law are two interrelated concepts essential for ensuring that individuals and communities have access to safe, nutritious, and sufficient food. In recent years, there has been growing recognition of the importance of food security and law in achieving sustainable development and addressing global challenges such as climate change, poverty, and inequality. This article explores the challenges and issues on food security in Malaysia and Thailand that aim to identify legal resolutions to ensure the sustainability of the food supply. The study focuses on the critical components of ensuring that individuals and communities have access to safe, nutritious, and sufficient food, meeting the diverse needs and priorities of different stakeholders, and addressing the complex economic, social, and environmental challenges facing the global food system as the significant consideration. The study adopts a qualitative methodology utilizing doctrinal, library-based research. The data were analyzed using content and thematic analysis on developed coding and theme. The study's findings benefit the stakeholders, government and policymakers for both jurisdictions in specific and other relevant stakeholders in general.

Keywords: Food Security, Legal Remedies, Malaysian Law, Thailand Law, Sustainable Development Goals

Background of Food Security

Food security refers to having reliable access to enough safe, nutritious food at all times (World Food Summit, 1996). It is a complex issue that encompasses a range of factors, including agricultural production, food distribution, economic and political stability, social inequality, and environmental sustainability. Close to 12 per cent of the global population was severely food insecure in 2020, representing 928 million people – 148 million more than in 2019 (Rome: Food and Agriculture Organization of the United Nations, 2021). In 2019, the high cost of healthy diets and persistently high-income inequality put healthy diets out of reach for around 3 billion people worldwide, especially people with low incomes.

According to the Food and Agriculture Organization (FAO), food security is a situation where most people, at all times, have access physically, socially and economically to sufficient, safe and nutritious food that caters to their dietary needs or food preferences for an active and

healthy life (FAO, 2002). As Peng & Berry (2018) described, the definition of food security is relative and subjective. This definition refers to the various determinants of food security that may differ from country to country. For example, excess usage of pesticides and fertilizers that contribute to food being unsafe for consumption is a significant issue in Thailand (Jankhotkaew et al., 2022), and the issue of droughts that impact farming activities is pertinent in the African continent. In 2009 the FAO refined the definition by inserting the element of stability. Currently, there are four dimensions to the definition of food security, i.e., food availability, physical and economic access to food, food utilization and the stability of food supply (FAO, 2010). Most of the definitions made in previous studies adopted these components of food security. Sundaram & Gen (2019), aside from adopting similar components, had made minor modifications to the components in highlighting that there are four (4) characteristics of food security, i.e., food availability, physical & economic access, food utilization, and stability of food supply. Two additional pillars of food security were recommended in 2020 by the High-Level Panel of Experts for the Committee on World Food Security, including agency and sustainability. In contrast to food security, food insecurity refers to a situation when the people in a household cannot consistently access sufficient food to live an active and healthy lifestyle (United States Department of Agriculture, 2018).

Table 1

Four (4) dimensions of food security

Physical availability of food	It addresses the supply side of food security determined through the food production level, stock levels and net trade.
Economic and physical access to food	It addresses the accessibility by the people to the food in terms of income, expenditure, markets, and prices.
Food utilization	It addresses the consumption of the food
Stability	It addresses the adequacy of the food.

Source: Food and Agricultural Organization

Food Insecurity

Food insecurity is a state where there is a lack of physical or economic access to safe, nutritious and sufficient food. Over the past year, food insecurity has become a global challenge. Aiming to "end hunger, achieve food security, improve nutrition, and promote sustainable agriculture," the 2030 Agenda for Sustainable Development, adopted by all U.N. Member States in 2015, urges urgent action. However, 135 million individuals in 55 countries and territories reported acute food insecurity in 2019 (Food Security Information Network, 2020). According to the Food Agriculture Organization (FAO) report, 650 million people were undernourished in 2019 (FAO, 2021). Based on the prediction, at least 280 million people to experience severe food insecurity in 2020 due to the COVID-19 pandemic (WFP, 2021).

Several factors cause food insecurity. Several studies have shown that agricultural production, nutritional status, and food consumption lead to food insecurity (Martin-Shields et al., 2019, Brück et al., 2019). Awad (2023) further identifies weak government, poor income growth and inadequate educational access as contributing to food insecurity among developing countries. Other factors include food waste Zhang et al (2022), the influence of food trade-export and import Rogachev et al (2015) and food prices (Akbari et al., 2022).

Therefore, ensuring food security is a priority for all countries, regardless of whether developing or developed countries, because of its difficulty in delivering adequate food to the national and worldwide population (Breene, 2016). An overview of food security in Malaysia shows that Malaysia has faced several critical issues relating to the food supply, such as a supply shortage of eggs and chicken due to the global crisis (Hanif & Amin, 2023). Malaysia is ranked 41st among 113 countries based on the Global Food Security Index (GFSI) 2022 (The Edge Markets, 2023).

The uncontrol increase in food prices was the major contributing factor to this phenomenon. Following this, the incumbent government introduced many initiatives making reducing food prices a vital mission for the government. Heavy reliance on food imports for food supply also threatens food security in Malaysia. According to the Department of Statistics Malaysia, the Import Dependency Ratio (IDR) shows Malaysia still heavily relies on food imports. Malaysia imported food for RM 55.5 billion in 2020 (DOSM, 2020). Malaysia might face food insecurity if the government does not take proactive action.

In summary, ensuring food security necessitates improving food system governance, inclusive and responsible investments in agriculture and rural regions, health and education, empowering small producers, and increasing social protection measures for risk reduction. We must ensure that it involves a variety of stakeholders, including governments, international organizations, NGOs, and the private sector (FAO, 2020)

Research Methodology

This research is designed based on the doctrinal study comprising the primary and secondary data and investigating the legal framework governing food security in Malaysia and Thailand. The basis of the analysis is on guided themes that include an overview of global food security issues, legal remedies adopted by Malaysia and Thailand in resolving food insecurity issues, and how the current legal system upholds rights to food and health, which are essential in providing consolidated analytical findings for reformation. Data acquired through literature reviews and doctrinal study were analyzed using thematic and content analysis.

Literature Review

Food security issues are now part of the United Nations' sustainable development goals. Many authors have recognized food insecurity as a global issue that contributes to, among others, deterioration in rights to health and rights to food (Jankhotkaew et al., 2022). It calls for the intervention of the world's human rights institutions like the United Nations to resolve food insecurity issues. The literature shows that factors contributing to food insecurity differ from country to country. However, the focal point of food insecurity is similar. Addressing factors contributing to food insecurity requires the commitment of various parties. If unresolved, it may lead to mental health issues, malnutrition that jeopardizes the creation of healthy and productive future generations and issues of stunting (Ke & Ford-Jones, 2015). Concerning the main pillars of food security, namely accessibility, availability, utilization, stability, agency and sustainability, it is acknowledged in many writings (Sundaram, 2019; Jankhotkaew, 2022; Isvilanonda & Bunyasiri, 2009) that some of these pillars might be more prevalent factors in selected countries. Jankhotkaew et al (2022), in their study, mentioned that the issue of stunting and malnutrition among Thailand's population is a significant outcome of food insecurity. Although Thailand is known as a food surplus country, issues of accessibility of food remain a critical issue in this country (Isvilanonda & Bunyasiri, 2009). The accessibility of food is more prevalent to rural and remote populations, and among the

contributing factors is the increase in food prices. To this matter, the Thailand government has introduced some solutions whereby small farmers and the rural underprivileged should be given access to off-farm jobs and microcredit together with technical assistance and appropriate farm management plans to help them cope with the effects of future increases in food prices and production costs.

Other than accessibility, Thailand also faces the issue of food safety, mainly contributed by the use of unhygienic harvesting and handling tools, tainted irrigation water brought on by the excessive and dangerous use of pesticides upstream, sloppy staff personal hygiene, incorrect fertilizer and soil amendment application, and several other blatant examples (Jankhotkaew et al., 2022; Laosutsan et al., 2019). Phytosanitary problems and pesticide residues are problems with Thai vegetable exports due to the country's agriculture sector's reliance on pesticides and chemicals to protect crops and enhance yields (Laosutsan et al., 2019; Supaphol, 2010). In addressing this issue, the focus of the Thailand government then directed toward introducing Good agricultural practices, which led to the introduction of ThaiGAP (Laosutsan et al., 2019).

There are various challenges to sustaining and ensuring agricultural production in Malaysia. Apart from lousy agriculture practices, water resource shortage, land scarcity, environmental pollution, uncontrolled usage of pesticide, and unsystematic usage of land hinders the success of achieving the standard of good agricultural practices among farmers. Non-compliance to Good Agricultural Practices (GAP) is not an offence under Malaysian law. However, it threatens sustainable agriculture activities, leading to food insecurity (Tiraieyari et al., 2014; Barrow et al., 2009; Murad et al., 2008). Malaysia has in place the same practices as Thailand, known as Malaysia Good Agricultural Practices (MyGAP) (Sulaiman et al., 2019). The authors Sulaiman, (2020); Jankhotkaew et al (2022); Laosutsan et al (2009) who write on the implementation of Good Agricultural Practices (GAP) among farmers in Thailand and Malaysia agree that the main obstacle to the adaptation of GAP is the lack of awareness among farmers on the importance of GAP to future food security and health issues (Sulaiman, 2020; Ali et al., 2021; Supaphol, 2010). The ecological dynamics of conventional agriculture do not consider the value of biodiversity or long-term sustainable agriculture (Ali et al., 2021).

Findings and Discussions

Food Security in Malaysia

Malaysia has made significant progress in food security over the past few decades because of its well-developed agricultural sector, efficient food distribution networks, and strong government policies. According to the Global Food Security Index 2022 (GFSI), Malaysia is ranked 41st globally (The Economist Group, 2022). However, challenges remain, particularly in ensuring that all population segments have access to sufficient and nutritious food. The government has implemented several initiatives to address food security in Malaysia, including programs to improve agricultural productivity, increase food reserves, and promote sustainable food systems like Malaysian Agricultural Practice (MyGAP), Malaysian Sustainable Palm Oil (MSPO), and Malaysian Organic (MyORGANIC) (Unit Perancang Ekonomi Malaysia, 2021). However, these efforts still need to fully address the underlying challenges facing the country's food security.

One of Malaysia's main challenges to food security is poverty, which affects a significant proportion of the population, particularly in rural areas. The study conducted by Alam et al (2016) on the level of food security among the selected income households in the east

economic region of Malaysia shows that most poor and hard-core households are food insecure.

Another challenge to food security in Malaysia is climate change, which affects agricultural productivity and food production. For instance, rising sea levels that result in reduced land area and salinity intrusion, stress on water resources, changes in the peak temperature that may lower crop yields, changes in the concentration of rainfall which could result in droughts or floods, and an increase in the frequency and severity of natural disasters are all ways that global warming may endanger farming techniques (MAFI, 2021). Moreover, Alam et al (2011) conducted an empirical study on the effects of climate change on agricultural production by examining the data from Integrated Agriculture Development Areas in Northwest Selangor and interviewing several farmers in that area. Therefore, they concluded that climate change is the major contributor to food insecurity due to decreased paddy production yield, directly impacting climate change. To mitigate the impact of climate change, the government is investing in sustainable agriculture practices, such as organic farming, and promoting the use of renewable energy sources in agriculture. As such, Alam et al. (2011) have proposed that one effective way to mitigate climate change's effects on agriculture is by adopting technological advancement.

In addition to these challenges, Malaysia faces issues related to food safety, particularly concerning food contamination and adulteration. For example, recently, the Malaysian Department of Fisheries in Sabah has warned the residents of Labuan not to eat any clams from the Sabah Sea because it was contaminated (Awani, 2023). Other than that, in 2022, the Singapore government detected contaminated eggs of *Salmonella Enteritidis* from Malaysia. If these contaminated eggs are undercooked or consumed, it will lead to diarrhoea, fever, and vomiting (TheStar, 2022). Due to these issues the government has taken steps to address these issues, such as implementing stricter regulations and monitoring systems to ensure that food products meet safety standards. For instance, the Malaysian Ministry of Health and the Veterinary Department collaborate to investigate contaminated eggs in Malaysia. Based on their investigation, they managed to find several contaminated eggs (Ruzki, 2021).

Food waste is a global issue, especially considering the continued food insecurity in many regions. Food waste threatens food security, and Malaysia is not an exception to the food waste problem. It was reported in 2021 that Malaysians produced 4,081 tonnes of edible food waste from 38,219 tonnes of solid waste produced daily in Malaysia (The Star, 2022). Food insecurity and the volume of food wasted yearly are directly related to anything that disrupts food availability, restricts access to it, or prevents it from being utilized (Innocent J et al., 2017). The presence of mandatory food date labelling imposed by the Food Act 1983 and Food Regulations 1985 serves as a safeguard to the consumers in terms of guaranteeing food quality but misconception, misinterpretation, and low level of knowledge of the meaning of date label terminologies as prescribed by the legislation resulted in edible food waste in Malaysia (Mahmood et al., 2023). This phenomenon thus negatively impacted food utilization and indirectly hampered the Food Donors Protection Act 2020's primary purpose, which is to encourage food donation without fear of being sued and to ease the burden of those in need. While Malaysia has made significant progress in achieving food security, there is still work to ensure that all population segments have access to sufficient and nutritious food, particularly in rural areas and among low-income households.

Food Security in Thailand

Thanks to its well-developed agricultural sector and government policies that promote sustainable agriculture and rural development, Thailand has made significant progress in achieving food security over the past few decades. In Thailand, farmers' bonding is substantial to their land in isolated rural communities where farming is the primary economic activity, and most of the population works in the agricultural sector. Having land allows them to make money and produce food for their needs (Charoenratana, 2021). However, challenges remain, particularly in ensuring that all segments of the population have access to sufficient and nutritious food (Jankhotkaew et al., 2022; Laosutsan et al., 2019; Isvilanonda & Bunyasiri, 2009).

One of Thailand's main challenges to food security is poverty, which affects a significant proportion of the population, particularly in rural areas. It has restricted the rural population's access to sufficient and nutritious food (Laosutsan et al., 2019). In addressing the accessibility of food issues, the Thailand government formulated some alternative resolutions, namely the off-farm jobs and microcredit assistance, known as the Village Fund scheme, which provides microfinance loans to rural communities. Alongside these schemes, the government provides technical assistance and appropriate farm management plans, implementing various programs and initiatives to reduce poverty and improve access to food. The One Tambon One Product program is one example which promotes local entrepreneurship and agricultural development.

Another challenge to food security in Thailand is climate change, which affects agricultural productivity and food production (Isvilanonda et al., 2009). To mitigate the impact of climate change, the government is investing in sustainable agriculture practices, such as organic farming, and promoting the use of renewable energy sources in agriculture.

In addition to these challenges, Thailand faces issues related to food safety, particularly food contamination and adulteration (Laosutsan et al., 2019; Isvilanonda & Bunyasiri, 2009). The government has taken steps to address these issues, such as implementing stricter regulations and monitoring systems to ensure food products meet safety standards. ThaiGAP is the noticeable output channelled to resolve food safety issues and the standardized production system in Thailand. Besides ThaiGAP, the government also emphasized adapting other safety standards. For example, the Thai government has requested that farmers and exporters understand the procedures of Good Agricultural Practices (GAP), the processes for food in Hazard Analysis and Critical Control Point (HACCP) and Good Manufacturing Practices (GMP) to minimize contaminated food products (Supaphol, 2010). In Thailand, the Ministry of Agriculture and Cooperative controls the food safety standard, and the Ministry of Public Health has set up a list of strategies for food safety.

While Thailand has made significant progress in achieving food security, work still needs to be implemented to ensure that all segments of the population have access to sufficient and nutritious food, particularly in rural areas and among low-income households.

Challenges to Food Security in Malaysia

There are several challenges to food security in Malaysia, including

- a. **Poverty:** Poverty remains a major challenge to food security in Malaysia, particularly in rural areas. Many low-income households struggle to afford nutritious food, which can lead to malnutrition and other health problems.
- b. **Climate change:** Climate change affects agricultural productivity and food production in Malaysia. Extreme weather events, such as droughts and floods, can damage crops and

reduce yields while rising temperatures and changing rainfall patterns can make it more difficult to grow certain crops. To mitigate the impact of climate change, the government is investing in sustainable agriculture practices, such as organic farming, and promoting the use of renewable energy sources in agriculture (Sulaiman, 2020). Reay et al. (2012) reported that conventional agriculture significantly contributes to climate change which releases between 40 and 60 per cent of nitrous oxide from chemical fertilizers.

c. Food safety: Food contamination and adulteration significantly threaten food security in Malaysia. Food-borne illnesses can lead to serious health problems and even death, while food fraud and counterfeiting can undermine consumer confidence in the food supply. The government has implemented stricter regulations and monitoring systems to address these issues and ensure food products meet safety standards. Introducing a standard of Good Agricultural Practices (GAPs) is a suitable solution. However, currently, GAPs are optional for all farmers despite their efficiency in ensuring food quality, food safety and protection of the environment, the core principles of halal food. Thus, a regulatory framework is needed to enforce and regulate good agricultural practices to ensure the sustainability of safe, nutritious, and healthy food in Malaysia (Sulaiman, 2020; Ali et al., 2019)

d. Urbanization: The rapid pace of urbanization in Malaysia has led to changes in food consumption patterns, with more people relying on processed and convenience foods. This shift can have negative health consequences, such as an increased risk of obesity and chronic diseases. To promote healthier eating habits, the government is promoting the consumption of locally grown fruits and vegetables and reducing the consumption of sugar and other unhealthy foods.

e. Globalization: Malaysia's integration into the global economy has increased its exposure to international food markets, leading to increased competition and volatility in food prices, making it more difficult for low-income households to afford nutritious food. The government is promoting domestic food production and reducing reliance on imported products to address this issue.

f. Food Import: One of the main challenges facing Malaysia's food security is its heavy reliance on food imports. While the country can produce much of its food, including rice, vegetables, and seafood, it still relies on imports for several vital staples, such as wheat, dairy products, and meat. Malaysia also heavily depends on beef imports, mangoes, coconuts, and mutton to meet domestic demand. More than 70% of imported mutton originated in Australia, while beef, mangoes, and coconuts primarily originated from Thailand, Indonesia, and India. Malaysia, whose agricultural productivity is only 45% of the average for high-income countries, must produce more food to feed its people and industries (The Malaysian Reserve, 2023). As such, it makes the country vulnerable to price fluctuations and supply chain disruptions in the global food market.

g. Food Waste: Another challenge is the issue of food waste. Malaysia is estimated to waste up to 17,000 tons of food per day, which amounts to about 9 million tons of food waste annually (Hani, 2022). Moreover, Hani (2022) also explained that food waste is one of the most significant contributors towards greenhouse gas (GHG), where every 1 kg of food thrown will lead to 2.5kg of GhG emission that can cause climate change. It not only represents a significant loss of resources but also contributes to the country's food insecurity by reducing the amount of food available for consumption and aggravates the climate change.

Challenges to Food Security in Thailand

There are several challenges to food security in Thailand, including

a. Poverty: Poverty remains a significant challenge to food security in Thailand, particularly in rural areas. Many low-income households struggle to afford nutritious food, which can lead to malnutrition and other health problems. To address this issue, the government has implemented various programs and initiatives to reduce poverty and improve access to food, such as the Village Fund scheme and the One Tambon One Product program (Laosutsan et al., 2019).

b. Climate change: Climate change affects agricultural productivity and food production in Thailand. Extreme weather events, such as droughts and floods, can damage crops and reduce yields while rising temperatures and changing rainfall patterns can make it more difficult to grow certain crops. To mitigate the impact of climate change, the government is investing in sustainable agriculture practices, such as organic farming, and promoting the use of renewable energy sources in agriculture (Isvilanonda et al., 2009).

c. Food safety: Food contamination and adulteration significantly threaten food security in Thailand. Food-borne illnesses can lead to serious health problems and even death, while food fraud and counterfeiting can undermine consumer confidence in the food supply. The government has implemented stricter regulations and monitoring systems to address these issues and ensure food products meet safety standards.

d. Land use and natural resources management: Land use change and degradation of natural resources such as soil, water, and forests can negatively impact Thailand's food production and security. Large-scale agricultural production and natural resource extraction can lead to soil erosion, deforestation, and biodiversity loss. The government promotes sustainable land use and natural resource management practices, such as agroforestry and integrated water resource management, to address these issues.

e. Urbanization and changing diets: Urbanization in Thailand has led to changes in food consumption patterns, with more people relying on processed and convenience foods. To promote healthier eating habits, the government is promoting the consumption of locally grown fruits and vegetables and reducing the consumption of sugar and other unhealthy foods. This shift can have negative health consequences, such as an increased risk of obesity and chronic diseases.

f. Human Capital in the agricultural field: The future of Thailand may not be the world's leading exporter or a significant exporter of agricultural products. It needs to attract a new generation of agricultural farmers (Supaphol, 2010). A study showed that there is a decline in agriculturist careers.

Effects of Food Insecurity

The Russian invasion of Ukraine has disrupted global food supplies, which had already been hit hard by the disruption caused by the COVID-19 pandemic and the growing impact of climate change. The conflict has severely impacted food supply chains with substantial effects on production, sourcing, manufacturing, processing, logistics, and significant shifts in demand between nations reliant on imports from Ukraine (IFPRI, 2022). Countries in the Middle East and North Africa depend on Ukraine as a supplier of wheat and other grains, but they tend to buy more during the winter to supplement their harvests. Renewed interruption in imports could increase food insecurity in these countries and potentially exacerbate political tensions (The Washington Post, 2022). The aftermath of COVID-19 sees reduced incomes, increased unemployment, and higher food prices in many regions, which have significantly reduced access to food for those affected. Furthermore, necessary border restrictions and lockdowns

brought in to stop the spread of Covid-19 have caused disruptions to the transportation and production of food.

In Asia and the Pacific, many of the region's countries depend on importing basic food staples such as wheat and fertilizer, with nearly 1.1 billion lacking a healthy diet caused by poverty and ever-increasing food prices. On September 27, 2022, the Asian Development Bank announced a comprehensive range of assistance plans totalling \$14 billion for immediate and longer-term actions. The plan calls to improve long-term food security by strengthening farming and food supplies to cope with climate change and biodiversity loss in Asia and the Pacific. Since 2018, ADB has identified food security as a critical operational priority. Under the program, assistance will start in 2022 and continue through 2025.

a. Malnutrition: Malnutrition can devastate food-insecure people (Jankhotkaew et al., 2022). It is not only because of the associated suffering but also because it can make those affected increasingly food insecure. Weakened muscles and cognitive issues associated with malnutrition can make it near impossible for the suffering individuals to improve their situation or even to maintain their livelihoods.

b. Stunting: When a child does not receive the proper nutrition, particularly during their first 1,000 days from conception to their second birthday, they will likely suffer stunting, which means they will not mentally or physically develop where they otherwise would, irreversibly damaging their well-being and prospects. This issue is all too common in countries affected by food insecurity. For example, over one-third of children are affected by stunting in Liberia – a country ranked the sixth hungriest in the world by our Global Hunger Index.

c. Mental Health Issues: A recent study on food insecurity in Ethiopia found that those facing food insecurity were more likely to suffer from depression and anxiety, which the combined effects on mental and physical health paint a devastating picture of the quality of life for food-insecure people (Jankhotkaew et al., 2022).

The Regulations on the Sustainability of Food in Malaysia and Thailand

Malaysia and Thailand have laws and regulations to promote the sustainability of food and agricultural production.

The Malaysian government has implemented various laws and regulations related to sustainable food production, such as the Environmental Quality Act 1974 and the Pesticides Act 1974. These laws aim to protect the environment and public health by regulating the use of pesticides and other chemicals in agriculture and promoting sustainable land use and natural resource management.

Furthermore, the government's commitment to improving food security can be seen in Shared Vision Prosperity 2030 (SPV, 2030). Fifteen (15) Key Economic Growth Activities (KEGA) in SPV 2030 and KEGA 13 are crucial for food security. KEGA 13 refers to innovative and high-value farming, which promotes the use of high technology in farming activities that can increase the quantity and quality of the harvest (Economic Planning Unit Prime Minister's Office, 2019). Adawiyah Zayadi (2021) described that KEGA 13 incorporates high technology and environmentally friendly farming activities.

In addition, according to the Malaysia National Twelve Plan (12MP), the government of Malaysia has devised a food security framework known as National Agrofood Policy 2021-2030 (NAP 2.0) (Unit Perancang Ekonomi Malaysia, 2021). Moreover, in the 12MP also, the government of Malaysia is planning to amend several regulations and laws, which includes the Fisheries Act 1985, the Federal Agricultural Authority Act 1965, and the Land (Group

Settlement Areas) Act 1960, for the sake of modernizing the agriculture activities, improving the food security, and resolving the issues that hindered the development of agriculture. Furthermore, there are five (5) policy thrusts and four (4) key sub-industries that act as a key for food security in Malaysia in NAP 2.0 (MAFI, 2021).

Table 2

The five (5) Key Policy Thrust

Policy Thrust 1	Embrace Modernization & Smart Agriculture
Policy Thrust 2	Strengthen the Domestic Market and Produce Demand Drive and Export-Oriented Products
Policy Thrust 3	Build talent that meets the demand of the industry
Policy Thrust 4	Advance towards sustainable agricultural practices and food system
Policy Thrust 5	Create a conducive business ecosystem & robust institutional framework

Source: National Agrofood Policy 2021-2030 (NAP 2.0)

The National Food Security Action Plan 2021–2025, established in 2021 to improve the food security crisis, is another action the Malaysian government took. The action plan's implementation through 15 strategies and 96 initiatives formulated to help make safe food more accessible at reasonable prices, increase domestic food production and lessen reliance on food imports and the use of foreign labour. The plan includes five key strategies: increasing the use of technology; empowering research and studies; empowering information about food security; increasing strategic collaboration; and bolstering departmental and agency governance (The Malay Mail, 2021).

Table 3

The four key sub-industries

Paddy and rice subsector
Fruits & vegetable subsector
Livestock subsector
Fisheries and aquaculture subsector

Source: National Agrofood Policy 2021-2030 (NAP 2.0)

NAP 2.0 is to unite all stakeholders to assist them in navigating the trends detected and allows them to work together and effectively contribute to the agrifood industry's improvement (MAFI, 2021). The creation of NAP 2.0 is from the Shared Prosperity Vision 2030, the 12th Malaysia Plan and the Sustainable Development Goals, making it a policy document that will contribute towards the global agenda and national aspirations (MAFI, 2021).

Besides that, one of the main goals of NAP 2.0 is to stimulate Sustainable food consumption and production practices (Zayadi, 2021). As such, NAP 2.0 will ensure that agrifood in Malaysia remains competitive, contributing to national economic growth while maintaining environmental sustainability.

However, several laws and regulations in Thailand are related to sustainable food production and environmental sustainability. For example, the Organic Agriculture Promotion Act was enacted in 2007 to promote organic farming and reduce the use of chemical pesticides and fertilizers. The National Economic and Social Development Plan also includes targets and

strategies for promoting sustainable agriculture and reducing the environmental impacts of food production.

In addition, the Thai government has implemented laws and regulations to promote food safety and security, such as the Food Act and the Food Safety Act. These laws ensure food products meet safety standards and are free from contaminants and adulterants.

Malaysia and Thailand have laws and policies to promote food production sustainability and ensure that all population segments have access to sufficient, safe, and nutritious food. However, effective implementation and enforcement of these laws and policies still need to be improved in both countries.

Recommendations & Conclusions

As discussed above, Food Security is one of the significant issues in Malaysia and Thailand. Thus, devising effective legal strategies is one of the constructive recommendations for overcoming food security issues. These legal strategies can either be through enacting a new law or amending the existing law. The following table summarised the overall recommendations

Table 4
Summarisation of Recommendation

No	Issue of Food Security	Recommendation
1	Poverty	Amend existing laws or enact a new one to facilitate people's food access—for example, the <i>Price Control and Anti-Profiteering Act 2011</i> . The government may amend the said Act above by mandating the basic necessity of food to be regulated by the Act.
2	Sustainable Agriculture	Governments, private organizations, and individuals should invest in sustainable agricultural practices such as organic farming, agroforestry, and integrated water resource management.
3	Climate Change Resilience	Governments must expedite enacting the specific climate change law to address the issue—Benchmarking United Kingdom's <i>Climate Change Act 2008</i> .
4	Awareness of Food Security	Governments can promote food safety by implementing and enforcing food safety regulations, providing training and education to food producers and handlers, and improving monitoring and surveillance systems.
5	Market access	Governments can help by improving infrastructure such as roads and transportation networks and creating market linkages between small-scale producers and consumers.
6	Research and Innovation	Governments, private organizations, and academic institutions can support research and innovation by investing in research and development programs and promoting knowledge sharing and collaboration across sectors.

7	Food waste	Governments and individuals can reduce food waste by implementing food waste reduction programs, promoting food donation programs, educating the public on food date labels, and reducing overproduction and overconsumption. In addition, governments must also find a proper legal mechanism to tackle food waste. For example, in Malaysia, <i>Solid Waste and Public Cleansing Management Act 2007</i> is the law utilized by the government in dealing with solid waste, including food waste. However, there are some limitations on the applicability of this Act.
8	Conflict-sensitive relief	Creating conflict-sensitive approaches and ensuring that programmes do not exacerbate conflict.

Address Poverty

Poverty means the person's inability to access nutritious food due to financial constraints. Thus, one of the strategies that can devise by the Governments to address poverty is by providing targeted assistance such as cash transfers, education and training programs, and access to credit and other financial services to the underprivileged. Other than that, the governments also must amend any existing law or enact a new one that can facilitate the people's access to food. For instance, in Malaysia, the *Price Control and Anti-Profiteering Act 2011* can be utilized to control food prices. The primary purpose of this Act is to control the price and charges on the goods and prevent any unnecessary profiteering. However, the applicability of the Act above is only limited to the list of goods and services regulated by the Act. For example, the major contributor to the increased price of cooking oil in 2022 is that blended cooking oil is not regulated by the *Price Control and Anti-Profiteering Act 2011* (Malaymail, 2022). As such, the Malaysian government may amend the said Act above by mandating the basic necessity of food to be regulated by the Act. To address this issue, both countries' governments may enact a law that facilitates subsidizing food, like the Indian *Food Security Act 2013*. For instance, Sani et al (2022) have proposed that the Malaysian government should have a Food security law like Indian *Food Security Act 2013* to address food availability through food subsidization.

Invest in Sustainable Agriculture

Governments, private organizations, and individuals should invest in sustainable agricultural practices such as organic farming, agroforestry, and integrated water resource management. These practices can help to conserve soil, water, and other natural resources and reduce the impact of climate change on agricultural production. Therefore, governments should mandate a good sustainable agriculture practice through law enforcement by formulating and converting the Good Practices Agriculture (GAP) such as (MyGAP), Malaysian Sustainable Palm Oil (MSPO), Malaysian Organic (MyORGANIC) and ThaiGAP into an Act instead of simple regulations.

Building Climate Change Resilience

Climate change has stunted the growth of yield crops that can limit their production, leading to food insecurity. Moreover, the government and relevant parties must facilitate the diversification of crop production, improving irrigation and promoting sustainability can lessen the impact of climate disasters while helping overall food production to increase. Therefore, the government should enact a specific law about climate change, like United Kingdom's *Climate Change Act 2008*. The climate change law is still in draft in Malaysia and Thailand. For example, the Malaysian Natural Resources, Environment & Climate Change Ministry stated that the Climate Change law requires about 2-3 years to make it as the bill is still at the stakeholder engagement stage 2023. Meanwhile, the government of Thailand is planning to enact its own Climate Change Act to promote climate-friendly investment and voluntary carbon market (Rujivanarom, 2022). As a result, both governments need to expedite enacting the specific climate change law to address the climate change issue.

Promote Food Safety

Food safety is an important aspect that governments must prioritize to ensure that consumers have access to safe and nutritious food. Governments can promote food safety by implementing and enforcing food safety regulations, providing training and education to food producers and handlers, and improving monitoring and surveillance systems. Thus, in addressing this issue, the Malaysian and Thailand governments should reconsider adopting the approach taken by the United States of America (USA). They have enacted a Food Safety Modernization Act (FSMA) in the USA, which aims to prevent food-borne diseases instead of treating them. The basis of FSMA is the collective responsibility of any global chain supply of human and animal food (*U.S. Food & Drug Administration (FDA)*, 2022). As a result, modifying and improving the current food safety law is necessary for both countries to promote food safety.

Improve Access to Markets

Globalization has led to open competition in the market, which can affect the local market. Increasing local small-scale farmers and producers can sort out these food security issues. These local farmers and producers often need help accessing markets, which can limit their income and ability to invest in their farms. Therefore, governments can help by improving infrastructure such as roads and transportation networks and creating market linkages between small-scale producers and consumers.

Besides that, one of the ways to improve market access for local farmers is by modernizing the agriculture sector through intelligent farming. The Industrial Revolution 4.0 era transformed our life and was a game changer for the agriculture industry. The foundation of intelligent farming is using modern technological devices to manage farm activities that can improve the quantity and quality of the products without assistance from human labour (Islam et al., 2022). Moreover, Hussin & Wei (2022) also proposed that smart farming could effectively combat Malaysia's high inflation of goods. However, smart farming has several legal issues, i.e., data ownership protection, data security, data privacy and Intellectual Property (I.P.) (Islam et al., 2022). Therefore, the government must initiate amending the relevant laws to support the intelligent farming ecosystem.

Support Research and Innovation

Research and innovation can help to identify new solutions and approaches to food security challenges. Governments, private organizations, and academic institutions can support research and innovation by investing in research and development programs and promoting knowledge sharing and collaboration across sectors. Furthermore, research and innovation are not only able to ensure food security, but it is also able to minimize the government's reliance on food imports. For example, the Denmark Government heavily invested in the food sector, making the country one of the world's most important food exports (Lopez, 2019). Therefore, Lopez (2019) urged the Malaysian government to adopt the Danish Model by investing steadily in the food sector development. One of the ways is by broadening the scope of services for the Federal Agriculture Marketing Authority (FAMA) as a focal agency that facilitates the food ecosystem through the amendment to *Federal Agricultural Authority Act 1965* (Lopez, 2019).

Reduce Food Waste

A significant amount of food that is wasted annually, representing a missed opportunity to address food insecurity. Governments and individuals can reduce food waste by implementing food waste reduction programs, promoting food donation programs, educating the public on food date labels, and reducing overproduction and overconsumption. In addition, governments must also find a proper legal mechanism to tackle food waste. For example, in Malaysia, *Solid Waste and Public Cleansing Management Act 2007* is the law utilized by the government in dealing with solid waste, including food waste. However, there are some limitations on the applicability of this Act, i.e. the *Solid Waste and Public Cleansing Management Act 2007* was only adopted by several states in Malaysia, and this Act does not include other food manufacturing and food industry sectors (Yunus & Harun, 2022). Thus, the Malaysian government must enact a specific law dealing with food waste. Technically, the Thailand and Malaysian governments should adopt the approach taken by the Japanese government. In Japan, two primary laws related to food waste, i.e. Food Loss Act (Act No. 19 of 2019) and the Food Recycling Act (Act No. 116 of 2000, amended by Act No. 83 of 2007). The primary purpose of the Food Loss Act is to act as a foundation for the government to reduce food waste. The Food Recycling Act aims to encourage food waste recycling into fertilizer (*Japan: Diet Passes New Act Aimed at Reducing Food Loss, 2019*).

Conflict-Sensitive Relief

Conflict is the world's primary driver of food insecurity and the greatest threat to a more stable, prosperous and food-secure future. By creating conflict-sensitive approaches and ensuring that programmes do not exacerbate conflict, we can effectively prevent food insecurity from affecting those most in need. It requires a deep understanding of conflict dynamics at national and local levels, how they interact and shape one another, and how they can change. Crucially, it also requires an awareness of how programmes can influence a conflict environment and a willingness to act on this and adapt approaches where necessary. The 1996 World Summit on Food Security declared that "food should not act as an instrument for political and economic pressure". Multiple different international agreements and mechanisms that developed to address food security. The central global policy to reduce hunger and poverty is the Sustainable Development Goals. In particular, Goal 2: Zero Hunger sets globally agreed-on targets to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture by 2030.

In summary, a theoretical and contextual framework of human rights and sustainable development goals are the foundation of the study that is of significance to benefit the stakeholders, government and policymakers for both jurisdictions in specific and other relevant stakeholders in general, especially in identifying the area that needs improvement. The human rights framework views food insecurity as violating the right to food. It emphasizes the importance of ensuring adequate, safe, nutritious food access. This framework focuses on accountability, participation, and empowerment of individuals and communities in decision-making processes related to food production and distribution. From the sustainable development goals theory, this study highlights the importance of diversifying income sources, improving education and skills, and enhancing social protection to reduce food insecurity. The recommendation highlights the potential consequence of unaddressed food insecurity issues. The most worrying factor is the scarcity of food and the guarantee that the food supply ensures the healthy living of society.

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