

## COVID-19 Outbreak: Analysis, Visualization and Classification of Food Insecurity Among Vulnerable Groups is an Emerging Concern in Malaysia

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# **MASA POLICY DEVELOPMENT PROGRAMME**

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## **POLICY BRIEF 27**

### **COVID-19 Outbreak: Analysis, Visualization and Classification of Food Insecurity Among Vulnerable Groups is an Emerging Concern in Malaysia**

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2022

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Publisher:



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## PREFACE

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Institut Masa Depan Malaysia (MASA) is an independent think tank that brings together experts in government and academia to provide quality research, policy recommendations, and analysis on the full range of public policy issues guided by the shared prosperity values.

Since its inception, MASA has been actively involved in shaping national policies and frameworks. MASA Policy Development Programme (MPDP) was introduced as a pioneering initiative aimed at promoting policy research among researchers from public and private universities across the country, in alignment with the Shared Prosperity Vision 2030 and the Sustainable Development Goals, which are integrated with the 12th Malaysia Plan.

Through the MPDP 1.0 initiative, 30 Policy Briefs have been successfully produced, encompassing policy input and recommendations across sectors such as economics, social issues, education, and sustainable development.

MASA expresses its gratitude to Associate Prof Dr. Mohd Asrul Afeendi Abdullah and his team for the production of this policy brief. The commitment of the MPDP grant recipients, along with close cooperation with relevant stakeholders, is highly appreciated and is hoped to continue making a positive impact on national policy development.

**Azril Mohd Amin**

Chief Executive Officer

Institut Masa Depan Malaysia

## ABOUT MASA

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Institut Masa Depan Malaysia (MASA) is an independent think tank that brings together experts in government and academia to provide quality research, policy recommendations, and analysis on the full range of public policy issues guided by the shared prosperity values.

MASA was established in January 2019. The formation of the organisation was inspired and mandated by the Seventh Prime Minister, YABhg. Tun Dr Mahathir Mohamad and the Eighth Prime Minister, YB Tan Sri Dato' Haji Muhyiddin Bin Haji Md Yassin. It was founded out of a passion to forward the philosophy of shared prosperity in Malaysia and this region.

MASA also was commissioned by the government of Malaysia to author and develop the Shared Prosperity Vision 2030 plan as the new socioeconomic plan for Malaysia.

### Our Vision

To be a thought leader on policy ideas and analysis guided by shared prosperity values.

### Our Mission

To create a world where no one is left behind by influencing policymakers to develop data-driven policies that ensure equitable wealth distribution and continuous improvement of people's well-being.

## ABOUT MPDP

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MASA Policy Development Programme (MPDP) is a pioneering effort in promoting policy research that has become part of MASA's flagship project, in line with the 12th Malaysia Plan which is aligned with the Shared Prosperity Vision and the Sustainable Development Goals.

The research grant, introduced for the first time in 2021, received an encouraging response public and private institutions of higher learning as well as non-governmental organizations.

MPDP researchers have produced studies across various strategic areas, including multidimensional poverty, education for the B40 group, sustainable urban planning for low-income communities, regional inclusivity in Sabah and Sarawak, social enterprise models for Micro, Small and Medium Enterprises (MSMEs), green economy potential and food security.

Other strategic areas of studies include empowerment of the ecotourism sector, climate change, health preparedness and crisis resilience, addressing learning loss, business acceleration, affordable housing and social protection.

All these are reflections of the initiatives and aspirations, inspired by the 8th Prime Minister and Chairman of MASA, Tan Sri Dato' Haji Muhyiddin bin Hj. Md. Yassin.

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## BIOGRAPHY

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Norhaidah Mohd Asrah, a Senior Lecturer, specializes in Mathematics and Statistics for ICT and Industries at the Faculty of Applied Sciences and Technology. Her qualifications include a Ph.D. in Mathematics from Universiti Teknologi Malaysia, a Master's degree in Statistics from Universiti Kebangsaan Malaysia, and a Bachelor's degree in Statistics from Universiti Teknologi MARA. She excels in the field of mathematical sciences, focusing on Mathematics and Statistics for ICT and Industries. Norhaidah has held notable roles, such as Chief Program Officer at the Faculty of Applied Sciences and Technology. She actively participates in professional societies, demonstrating her dedication to the field.

## **MARIA ELENA NOR**

Maria Elena Nor, a Senior Lecturer, specializes in Applied Statistics at the Faculty of Applied Sciences and Technology. With a Ph.D. in Statistics from Universiti Teknologi Malaysia, a Master's degree in Statistics from Universiti Sains Malaysia, and a Bachelor's degree in Statistics from Universiti Kebangsaan Malaysia, she is well-qualified. Her expertise lies in mathematical sciences, with a focus on Applied Statistics, specifically in Time Series and Spatial Analysis. She holds key management positions, including Principal Researcher in Data Analytics, Sciences, and Modeling (DASM). As a member of the Malaysian Mathematical Sciences Society (PERSAMA) since 2015, she demonstrates her dedication to advancing the field of Applied Statistics.

## **SABARIAH SAHARAN**

Sabariah Saharan, a Senior Lecturer at the Faculty of Applied Sciences and Technology, specializes in Applied Statistics, particularly in genetics algorithms, multivariate analysis, and data mining. She earned her Ph.D. in Statistics from the University of Canterbury in 2016, complementing her previous qualifications, including a Master's and a Bachelor's in Statistics from Universiti Kebangsaan Malaysia and Universiti Teknologi MARA, respectively. Sabariah has a deep-rooted expertise in the mathematical sciences. She has held the position of Department Head at the Faculty of Applied Sciences and Technology and actively contributes to research and education in the field of Applied Statistics.

## Executive Summary

The government issued a Mobility Control Order (MCO) extended until May 12, 2020, on March 18 and stopped transmission by limiting movement and interaction. A stay-at-home order was imposed, outdoor activities, including interstate highways, were banned, and all businesses were closed except for some important service and resource sectors.

Proposals to significantly relax regulations under the Conditional Exercise Control Order (CMCO) by May 4, 2020, raise concerns that further outbreaks of infectious diseases may occur. The CMCO has been extended until June 9. Almost all economic activity and public travel are permitted, but strict health and safety (SOP) regulations apply.

Therefore, the global health impact of the COVID-19 pandemic could impact workers, transport networks, and supply chains. Even before the pandemic virus causes serious health problems in communities, its impact could trigger an urban food crisis in other parts of the world.

The main issue is that some groups will be more affected by the food security impact of a pandemic than others. In most emergencies, the people most at risk are those already suffering from hunger, disease, or poverty. During a major pandemic, these populations are at high risk.

In addition, many other households are also at risk from the effects of a major pandemic, as it can affect economic and social institutions. Any household that has not taken the necessary precautions to prepare for a major pandemic will find it harder to cope with the spread of the disease.

The three pillars of food security in a community are food availability, food access, and food use. Despite the main issue above, the findings show that the government's focus is mainly on;

- Expand food aid and address supply shortages to combat growing food insecurity. Link health and nutrition promotion to cash-based dietary transfers. Introduction of nutritional management at the local level. Ensures a good supply of healthy and cheap food.
- Maintain support for the poor and middle-income groups who have become poorer and more vulnerable through a variety of labour market (e.g. cash for work, skills training and job creation) and social assistance programmes such as i-sinar,- citra and l-bkp (lost job), one-off RM500.

A few guidelines must be followed to ensure the sustainability of our food supply:

- Availability; Increasing food supply to the most vulnerable people and locating a food bank in a remote area where the community is unable to obtain food.

- Acces; Conduct the mechanism for ensuring food safety and intervention programmes in nutrition.
- Stability; Food security and vulnerability are being monitored, and structural causes of food insecurity are being addressed.
- Sustainability; the programmes zero food waste and natural resource management.

## Key Messages and Recommendations

### Recommendation 1

- To get the private sector to invest, incentives need to be set up so that the return on investment in food production is the same as the return on investment in industrial crops.

### Recommendation 2

- To build a complete food security policy framework to lessen the occurrence of food shortages, and these policies relate to the food's availability, accessibility, consumption, and stability.

### Recommendation 3

- The food production sector needs to be expanded and become a modern, competitive, and commercial sector.

## Food Insecurity

"A situation that exists when all people, at all times, have physical, social, 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 current prevailing definition, which was agreed upon at 1996. World Food Summit.

When this criterion is not satisfied, food insecurity occurs. Of course, the world has only known food insecurity by that criterion. The three pillars of food security are usually understood to be availability, access, and usage.

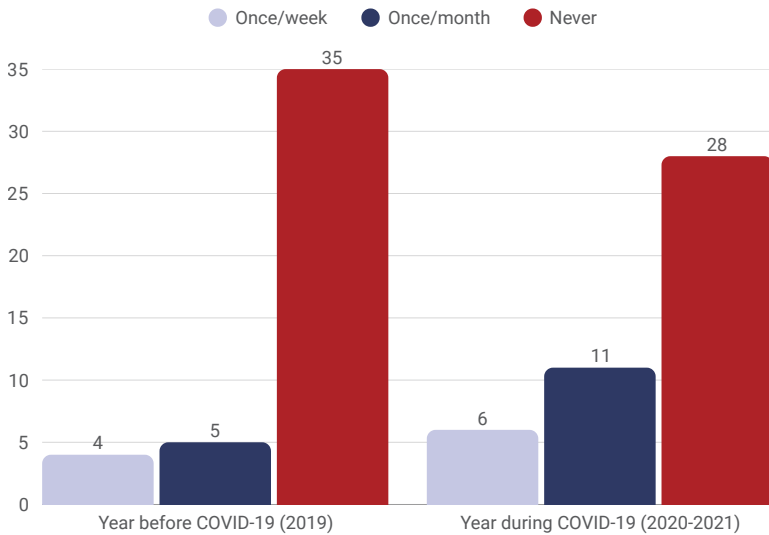
These ideas are essentially hierarchical, as pointed out, with availability required but not sufficient to enable access, which is then necessary but not sufficient for optimal use. The supply side of the food security equation is represented by availability.

There must be sufficient availability of food for all individuals to have "sufficient" food. However, sufficient supplies do not guarantee universal access to "sufficient, safe, and nutritious food," nor do they guarantee that the food that people do have access to is used to its full potential to improve human health and well-being.

Food insecurity may be measured in several ways, according to the research. Individuals, households, communities, countries, continents, and the planet all have their own set of characteristics. Whether they assess availability, access, or use, food insecurity measurements can be grouped most effectively.

Figure 1 indicated by the pre- and present COVID-19 questionnaire, in which the need to combine foods for life is highlighted. Due to a lack of funds, around 35% of homes have a variety of food items.

**Figure 1**  
*Needs to Combine Foods for Life*



## Vulnerable group

Women, children, students, and handicapped persons, as well as those living with HIV/AIDS, are among the most vulnerable populations (those most commonly in danger in crises such as a pandemic). People may also become susceptible to specific situations due to ethnic origin, religious or political affiliation, or relocation.

According to Himmelgreen & Stern (2021), the immediate impact on global health, COVID -19 has had dire effects on many aspects of daily life, including the economy, education, politics and social relations. As a result of weaker immune systems, gender inequalities and risky behaviours such as cross-border sex trafficking, chronic food poverty has been linked to infectious diseases such as HIV/AIDS.

The community pantry has numerous detractors, the most notable of which is its long-term viability. While the service's duration is important to consider, community pantries provide a quick – albeit flawed – answer to people's everyday needs.

In a developing country grappling with the pandemic's aftermath, community pantries help to mitigate starvation, mortality, and crime to some extent. Even after the country has triumphed over COVID-19, if such concerns are not addressed, they might compound and pose a greater threat to public health.

Meanwhile, based on vulnerability factors, many families before and throughout the COVID-19 health crisis. Few studies have looked at the influence of COVID-19 on household financial security using population-based data (Giacoman, Herrera and Ayala Arancibia 2021).

Therefore, few studies have attempted to identify the most vulnerable groups at risk of hunger and food insecurity so that homes can be identified early, effective action can be taken, and the worst of hunger and malnutrition can be identified.

Hence, household income is one of vulnerable groups that contribute to the urban food security debate by examining the levels of food insecurity in low-income households in Msunduzi, Mbabane, as well as the underlying factors that contribute to food insecurity in the urban space and how urban households in Mbabane cope with food shortages (Mabuza and Mamba ; 2022).

Therefore, previous research has also targeted the effect of alignment - the degree of adaptation or divergence of individuals (or families) and neighbourhood conditions - on household food insecurity through poverty, education and poverty. Race/ethnicity in the current study.

Food insecurity and low income, as well as the health-harming coping techniques that come with it, can aggravate existing mental health and other chronic diseases. Health-care and food-access initiatives can work together to promote health, increase food security, and prevent and treat chronic conditions, such as mental illness (Hawkins and Panzera ;2020).

One of the challenges in discussing food insecurity and estimating the number of people who are food insecure around the world is the lack of a standardised measure that is adequate for varied conditions and cultures (Ivers & Cullen; 2021).

Food insecurity is also connected to a number of unfavourable health outcomes, including diabetes, hypertension, coronary heart disease, depression, and mental health difficulties, as well as a higher risk of death. Its tendencies are comparable to those of unemployment, poverty, and rising food prices, and it closely reflects national and household economic conditions (Niles , et al., 2020).

Food insecurity has been linked to a variety of negative health consequences, including diabetes, hypertension, coronary heart disease, depression, and mental health issues, as well as a higher chance of death. Its swings are intricately tied to national and family economic conditions, with unemployment, poverty, and food prices all trending in the same direction (Frongillo and Jr; 1999).

## **Beyond the Pandemic: Food Insecurity in Malaysia**

The global crisis has a variety of effects on how people are doing around the world and how they are doing in terms of their quality of life. The Department of Statistics Malaysia estimates that in the second quarter of 2020, the economy shrank by as much as 17 percent, resulting in the loss of 860,000 jobs and the closure of about 50,000 small and medium-sized enterprises (SMEs). (DOSM, 2020). Saving lives or the country's economy cannot be the government's primary concern when addressing this issue since it is too complex.

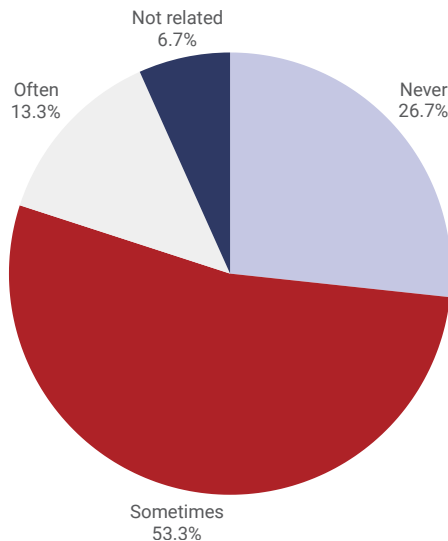
The decline in people's sources of income, particularly among the B40 category, will have an impact on food security, and even the M40 are classified as poor. The long-term effects of this situation are significant, and the government or NGO entities ought to take them seriously. This is due to the fact that the primary driver of the future development of the nation's human capital is the source of nourishment, particularly for youngsters. The COVID-19 gluttony affects the availability of food, one's ability to buy it, and one's ability to maintain nutritional security or a balanced diet.

The government can put in place a consumer social safety net to lessen the burden on the B40 and M40 groups, including by providing short-term grants and subsidies to farmers and small livestock breeders to boost the production of vegetables and other livestock, whether in urban, community, or individual agriculture. Additionally, the government must develop a reform plan for the populace's welfare, which will be carried out by offering food banks and vouchers.

Subsequently, the government needs to concentrate on promoting the direct market so that producers can sell directly to customers at fair rates in order to reduce the increase in the price of goods. Unexpected environmental hazards will occur without our knowledge, but the government must be ready to address the food security crisis by establishing a "food fund" similar to the previous programme to assist business owners in the food investment sector.

Figure 2 demonstrates that 13.3 percent of the local community has access to an increased number of locations where households can purchase food. This demonstrates that food accessibility for certain families is relatively limited.

**Figure 2**  
*Food Accessibility*



To ensure their financial security and promote local food production, food establishments and small grocery stores should get assistance such as reduced rent throughout the crisis. In certain locations, this gives owners of restaurants and retail establishments a chance to remain financially afloat when the nation suffers unanticipated disasters.

Hence, a number of policies, including the Own Crop Production Policy and the Food Priority Policy, need to be implemented in our nation. The argument is that by 2025, the industry of palm oil crops would grow to a maximum of more than 6 million hectares.

Thus, except for the food industry, Malaysia doesn't have any "gold crop mines" for the foreseeable future. This can be demonstrated by the fact that mixed crops and vegetable crops in the Cameron Highlands can produce returns of more than RM10,000 per hectare, outpacing those of palm oil.

Nearly two years have passed since the COVID-19 outbreak, which none of us anticipated, spread throughout the nation. All of the nation's flow networks are crippled due to this wave.

According to the survey, more than 70% of Malaysians are jobless and have lost their main source of income. Affected household income may make certain populations less secure in their access to food. Given that nutrition is one of the pillars of the future human capital quality of the country, this has significant long-term repercussions.

From the perspectives of food availability, purchasing power, and nutritional security, the pandemic's effects on food security can be seen. Hence, for the B40 group nutritious foods like milk, meat, fresh fruits, and vegetables are pricey.

If the nation's food security is carefully planned, strengthened more effectively and methodically, the need for the aforementioned measures can be reduced.

The amount of nutrient-dense foods necessary for children's growth, such as milk and dairy products, meat, fresh fruits and vegetables, is insufficient and must be imported.

While, except for chicken, meat, eggs, and some other food preparations, our country is likely to rely heavily on imported food sources. This could be due to the country's slow food growth rate.

Malaysia, as observed and refined, is only able to import food but is unable to produce its own food despite having abundant production resources such as land, sunlight, rain, biodiversity, and infrastructure.

Malaysia has natural resources in comparison to other countries, but has yet to develop the competitive changes achieved by neighbouring countries such as Thailand.

Furthermore, if we assume that Malaysia has a high or sufficient food production rate, there should be no problem with food insecurity when a crisis occurs.

Food-sufficient countries such as Thailand and Vietnam do not face a scarcity of high-quality food due to abundant and low-cost domestic production. As a result, food imports cannot guarantee food security in our country.

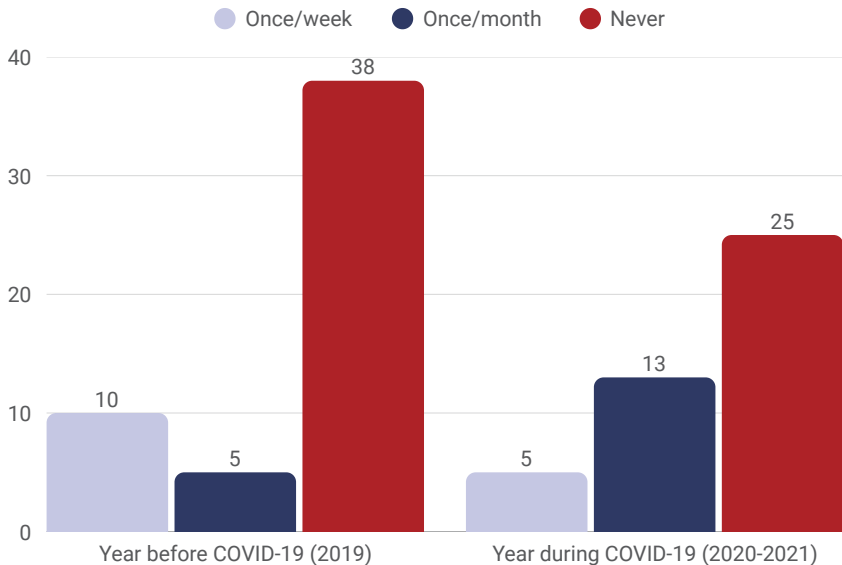
Several problems related to food insecurity have been discovered in these unconnected communities, including supply shortages in the midst of COVID-19. There may be less schism in this group.

There are not enough funds to provide a healthy diet for the entire family, which is especially detrimental to the youngsters. In the event of another crisis, staple foods like rice, wheat, sugar, eggs, and oil will be critical.

The vast majority of people who answered agreed that it would be very hard, if not impossible, to get these supplies during the pandemic.

During COVID-19, when the nation was experiencing global health deficits, 52% of respondents did not receive a balanced diet. This demonstrates that the Malaysian population is less likely to receive a balanced diet in the event of extreme events. Figure 3 shows before and during COVID-19, the proportion of the Malaysian population who lacked a balanced diet varied.

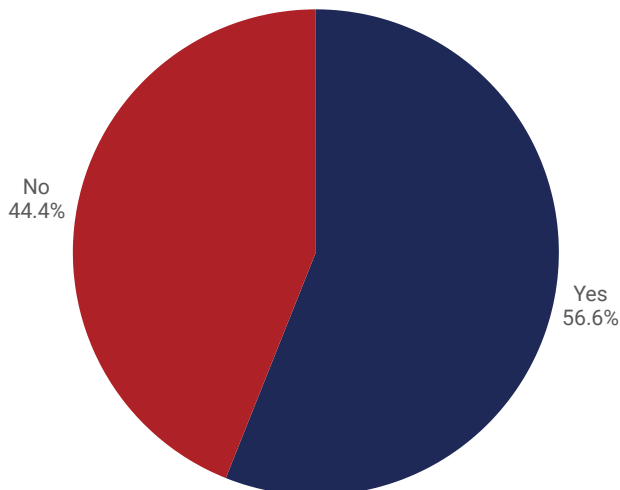
**Figure 3**  
*Malaysians' Dietary Before and During COVID-19*



COVID-19 has an impact on people of all socioeconomic backgrounds. On the whole, many communities are influenced by the distribution of wealth, and street vendors are no exception. The administration recognises the need to discuss and determine the best ways to deal with the loss of income from all sectors of society. According to the survey, Figure 4 indicated about 55.6% of the B40 and M40 population received government support

However, in terms of hunger, how much aid the government and NGOs can provide to those who lose their jobs due to natural catastrophes is an important question. According to the survey, many of the people who answered had to deal with unplanned changes to their work schedules, such as less work time or even being fired and losing their jobs.

**Figure 4**  
*Percentage of Malaysians Received Government Support*



## Policy Implications

Individuals may experience food insecurity if they frequently go without enough food to maintain an active and healthy lifestyle. What it really implies is that all cultures have the same cultural and social norms that make it difficult for some people to have access to a healthy diet, leading to issues like food insecurity and even starvation. Inadequate income, an unhealthy diet, and poor health all contribute to food insecurity at the family level.

Low socioeconomic status is caused by a low monthly income, a low per capita income, low levels of education, and the lack of steady work opportunities for adults in the family.

Prior to the COVID-19 pandemic, agricultural output worldwide was sufficient to supply the dietary requirements of about 1.5 times the current global population (equivalent to about 10 billion people). The second Sustainable Development Goal (SDG) aims to end hunger in all its forms by 2030. However, UNICEF statistics from 2018 show that more than 820 million people still face food insecurity worldwide.

Achieving a good food guarantee has a profound impact on a country, since it ensures that all of its citizens will share equally in the benefits of the country's food supply.

If we are to live in a world where everyone has access to nutritious food at affordable rates, it is the responsibility of every nation to make that a reality.

So what happens if a country fails to attain either food security or food insecurity? A food crisis can result from both a lack of food and the inability to secure adequate supplies. The current crisis in the availability of fundamental goods like rice, wheat, and cooking oil, which are essential for homes in Malaysia, makes the current food situation no laughing matter.

World food costs will skyrocket as a result. The country's ability to import enough food is already threatened by low income and high unemployment rates, and these conditions only make matters worse.

If we are talking about people who are at risk of experiencing food insecurity in the future, then we are implicitly acknowledging the fluid character of food security. The three main characteristics that constitute vulnerability are:

1. Exposure to a result;
2. Exposure to a variety of risk factors; and
3. Being exposed to risk without being able to effectively control that risk

To be sure, a person can be susceptible to hunger even if they are not experiencing hunger at the present moment. According to the results of the vulnerability assessment, there are two primary avenues for intervention:

1. Lowering one's exposure to the risk; and
2. Boosting one's resiliency.

When vulnerability is taken into account, policies and programmes for food security do more than just set limits on how much food can be eaten. They also include steps to deal with future risks to food security.

Therefore, the policies and programmes that have been adopted, such as the National Agro-Food Policy, are among the primary platforms in assisting this food security process succeed. To be effective in achieving food security, this policy, which reduces reliance on food imports while increasing local production's productivity, product variety, and economic viability, needs to be carried out according to a well-thought-out plan.

## Policy Recommendations

It follows that the adopted policies and programmes, such as the National Agro-Food Policy, are among the major platforms for facilitating the success of this food insecurity process. For this policy to be successful in ensuring food security, it must be implemented in accordance with a well-thought-out plan that minimises reliance on food imports while improving the productivity, product variety, and economic viability of local production.

Adopted policies and programmes, such as the National Agro-Food Policy, are thus among the key bases for facilitating this food security process.

For this policy to be successful in ensuring food security, it must be implemented in accordance with a thoughtful plan that minimises reliance on food imports while enhancing the productivity, product variety, and economic viability of local production.

Several policies can be taken into account in building a complete food security policy framework to lessen the occurrence of food shortages, and these policies relate to the food's availability, accessibility, consumption, and stability. The term "food availability" refers to the degree to which a country's population has access to the food that is produced locally, imported from elsewhere, or stored away for future use.

In addition, in the event of future calamities, the food bank programme should be expanded, but only to provide the most essential household commodities.

The food production sector needs to be expanded and become a modern, competitive, and commercial sector. This can be achieved by evaluating industrial crop production models. To get the private sector to invest, incentives need to be set up so that the return on investment in food production is the same as the return on investment in industrial crops. One example is investing in oil palms, which is a problem that needs to be fixed right away.

To guarantee the stability of the labour market in the face of an uncontrollable calamity affecting the family economy, the programme in the form of entrepreneurship needs to be expanded to all levels of society. This is done so that those who complete the programme will have a firm grounding in agricultural business in general. Those who participate in the incubator and complete the 6- to 12-month training programme will be prepared to create their own food-related enterprises.

To decrease expenses while simultaneously raising and stabilising the income of the poor, it is necessary to implement unique programmes that will boost productivity.

One goal of these initiatives is to expand access to agricultural supplies, loans, and other critical services, as well as markets, for small growers. Cooperatives should be recognised for the important part they play in boosting farmers' incomes.

Hence maintain a safe food supply by storing away emergency supplies of food. Stable food availability means that no one is ever without the means to eat. To make sure the stability of this food, risks that can't be predicted, like economic crises, changes in the weather, and so on, must be taken into account.

So, it's clear that food security in a community and country is important so that everyone has access to healthy, basic food without having to worry about running out or having to pay a lot for it, as shown by the above factors.

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e ISBN 978-629-95423-2-2



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