

Food Insecurity: A Study of Drivers, Dimensions and Challenges

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Abstract

The study aims to identify the drivers leading to food insecurity, highlighting the significant importance of food security as one of the priorities of strategic national security. Nations strive to ensure the availability of sufficient, safe, and nutritious food that meets the dietary needs and preferences of all people at all times, enabling an active and healthy life. This is achieved through improving food security conditions and promoting nutrition-sensitive agriculture. Among the key drivers of food insecurity are climate fluctuations and extreme weather conditions, which negatively impact agricultural productivity, as well as natural disasters such as floods, droughts, and extreme heat. Additionally, economic recession has adversely affected agricultural systems, unemployment rates, and wages. In recent years, some of the most significant drivers of food insecurity have been wars, such as the Russian-Ukrainian war, political instability, and the COVID-19 pandemic. The study reached a set of findings, the most important of which are: Food security is directly linked to the agricultural sector. Therefore, it is essential to strengthen agricultural systems that employ climate-resilient practices and produce a more diverse mix of food products to enhance the resilience of food systems and increase farmers' incomes. Food insecurity threatens the stability of a country economically, politically, and socially. Any shortage in food supplies leads to inflation, pressures on financial and tax systems, as well as famine and malnutrition.

Keywords: *Food Security - Agricultural Sector - Climate Fluctuations – War.*

INTRODUCTION

Food security is one of the most pressing global challenges in the modern era, closely tied to sustainable development and the economic, social, and political stability of nations. It is defined as the ability of all individuals, at all times, to access sufficient, safe, and nutritious food that meets their dietary needs and preferences, ensuring a healthy and active life.

Conversely, food insecurity refers to the state where individuals lack access to adequate quantities of food, whether due to shortages in availability, financial constraints, or instability caused by natural disasters, political crises, or armed conflicts.

Fundamental Concepts in Food Security:

- 1. Food security :** Food security is defined as "the condition in which 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."¹
- 2. Self-sufficiency:** It is the ability of a society to achieve complete self-reliance and utilize its own resources and capabilities to locally produce all its food needs.²
- 3. Food gap:** It refers to the difference between what a country produces domestically and what it needs for food consumption. The food gap is sometimes expressed as the deficit in local production to meet consumption needs, which is compensated by imports from abroad³.

4. Food Insecurity: It refers to "a condition where people lack access to sufficient quantities of safe and nutritious food to ensure normal growth and development and an active, healthy life."⁴

According to the World Bank, food insecurity is classified into:

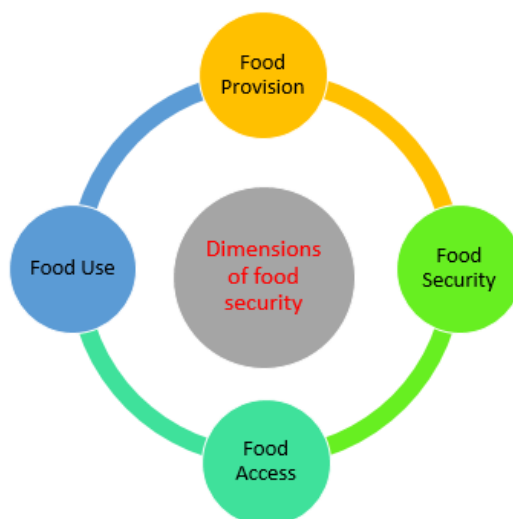
- a. Chronic Food Insecurity:** Insufficient food production due to a persistent inability to obtain food.
- b. Transient Food Insecurity:** A temporary decline in a household's ability to obtain adequate food, caused by events such as natural disasters, food price volatility, job losses, or reduced income sources.⁵

An individual experiences food insecurity when they regularly lack sufficient quantities of safe and nutritious food required for normal growth, development, and an active, healthy life. This may result from a lack of food availability and/or insufficient resources to access it. The severity of food insecurity can vary.

Types and Dimensions of Food Security

1. Absolute Food Security (Self-Sufficiency): Refers to producing food within a country in quantities equal to or exceeding local demand.⁶
2. Relative Food Security: Refers to the ability of a country or group of countries to provide food commodities either fully or partially. It is also defined as the capacity of a country or group of countries to meet the basic food needs of their populations either fully or partially and to ensure a minimum level of those needs on a regular basis.
3. Sustainable Food Security: Refers to "providing adequate food for current generations using methods that do not place restrictions on future generations' ability to enjoy an equal or better supply of food".⁷

Dimensions of food security⁸



- 1. Food Provision** Providing sufficient quantities of food with appropriate quality. Agricultural capacity and food supply. Resilience and sustainability of ecological and agricultural system .

2. **Food Use** Nutritional well-being and human well-being. Food safety. High levels of environmental health and public health.
3. **Food Access** Individuals' access to sufficient and diverse resources to obtain appropriate food. Diversity of resources and ways to provide food products.
4. **Food Security** The constant and stable access to food products for the population. This access is not affected during times of crises and disasters.

Drivers of Food Insecurity:

The factors contributing to food insecurity vary across economic, social, environmental, political, and security dimensions. These factors often interact or operate independently to exacerbate food insecurity in different regions.

1. Environmental Drivers:

Climate change has become one of the world's major concerns due to its significant and direct impact on various vital sectors, including agriculture, energy, health, and water. Climate change is defined as the noticeable and long-term alterations in weather patterns in a specific region, encompassing changes in rainfall, temperature, and wind conditions.

The causes of climate change are attributed to Earth's dynamic processes, external forces, or human activities. Its severity has increased due to intensified human activities, such as the direct or indirect use of fossil fuels, deforestation for urban expansion, and other factors. Increased human activities lead to higher carbon dioxide emissions and negatively affect ecological and environmental systems. This, in turn, results in climate change and rising temperatures due to greenhouse gases. These gases distribute energy geographically across the Earth through winds, ocean waves, and other factors such as Earth's gravity and the influence of celestial bodies like the Sun and Moon.⁹

Since food security is closely linked to the agricultural sector, climate change directly impacts this sector through global warming, water scarcity, drought, and destructive floods. These factors have a detrimental effect on agriculture, making negative climate changes a significant driver of food insecurity.

Climate change poses a security challenge that targets natural resources in all forms and threatens global security and stability.

2. Political and Security Drivers:

Wars and Conflicts:

Conflicts and wars pose significant challenges to food security and nutrition and are among the primary causes of global food crises. Agricultural infrastructure often suffers destruction during wars and conflicts, leading to reduced crop yields and decreased agricultural production. The noticeable increase in the number and complexity of conflicts in recent years has reversed significant progress in food security and nutrition, pushing many countries to the brink of famine.

Russia and Ukraine hold pivotal roles in global agriculture as major exporters of agricultural products and food supplies to international markets. Russia is the world's largest wheat exporter, accounting for 18% of global exports as of the 2023/24 forecast, while Ukraine ranks sixth, contributing 10% of global wheat exports. Together, these countries account for approximately 80% of global exports of maize, barley, rapeseed, and sunflower oil since 2018.

Moreover, Russia is one of the largest exporters of nitrogen, potassium, and phosphorus fertilizers.

- War significantly impacts food security through several mechanisms, including: **Reduced Agricultural Production:** Wars destroy farmlands and agricultural infrastructure, including irrigation systems, storage facilities, and equipment. Agricultural activity declines due to the displacement of farmers and the exposure of agricultural areas to conflict.
- **Disruption of Food Supply Chains:** Wars disrupt transportation and shipping, making it difficult to transport crops and food to markets or affected areas. Additionally, wars impose trade barriers or restrictions, leading to food shortages.
- **Increased Poverty and Hunger:** Wars devastate income sources and increase unemployment rates, leaving families unable to afford food. **Rising Food Prices:**
- Shortages in supply, increased demand, and scarcity result in higher food prices, making it inaccessible to many.
- **Hyperinflation** caused by economic collapse during wars further exacerbates food insecurity.
- **Health Deterioration:** Malnutrition resulting from food shortages leads to the spread of diseases and higher mortality rates, especially among vulnerable groups such as children and the elderly. It also weakens immune systems, increasing susceptibility to illnesses.
- **Mass Displacement and Migration:** Wars drive mass displacement and migration to safer countries. However, this displacement puts pressure on food resources in host cities.

The catastrophic impact of war on food security—through reduced production, supply chain disruption, increased hunger, and poverty—necessitates urgent humanitarian interventions and long-term stabilization plans.

Other Political and Security Drivers:

Political Instability: Hinders the implementation of policies that promote food security.

Economic Blockades or International Sanctions: Lead to shortages of essential food resources.

Mismanagement and Corruption: Impede the fair distribution of food supplies

3. Social and Economic Drivers and Health Crises :

- **Imbalance between food resources and rapid population growth:** Rapid population growth increases demand for food and challenges the ability of countries to provide it.
- **Migration and displacement**
- **Poverty:** The primary driver of food insecurity, as individuals lack the financial means to purchase food.
- **Unemployment:** Leads to reduced ability to afford basic necessities.
- **Rising food prices:** Make food unaffordable for vulnerable groups.
- **Decline in agricultural investment:** Results in weak local food production.
- **Economic inflation:** Reduces households' purchasing power and increases the burden of food costs.

- The end of 2019 and the beginning of 2020 witnessed significant transformations in the global economy due to the outbreak of the COVID-19 pandemic. This pandemic became one of the most severe health crises in human history, spreading rapidly worldwide and causing massive losses across all sectors.
- COVID-19 pandemic, conflicts, and climate shocks: These factors have increased the number of people facing hunger. According to the 2023 edition of the State of Food Security and Nutrition in the World report, between 691 and 783 million people experienced hunger in 2022, marking an increase of 122 million people compared to 2019.¹⁰

4. Technical and Technological Drivers

- Lack of agricultural technology and limited application of modern farming methods lead to low productivity.
- Insufficient agricultural infrastructure, such as modern irrigation systems and storage facilities.
- Weak innovation leaves countries unable to cope with environmental and productivity changes.¹¹

Impacts of Food Insecurity

1. Health and Human Impact:

- a. Malnutrition:** Food insecurity leads to malnutrition, increasing the prevalence of chronic and infectious diseases, particularly in poor communities. Children are the most affected, with 9 out of 10 displaced children suffering from acute malnutrition, according to 2019 statistics. Food insecurity and shortages significantly impact the health and well-being of humans and animals¹².
- b. Mental health disorders:** Food insecurity-related psychological effects, such as loss of loved ones or illness, can lead to severe anxiety, post-traumatic stress disorder (PTSD), and depression. Repeated exposure to traumatic events may cause complex or compounded trauma.¹³
- c. Hunger:** "Hunger is the physical sensation of discomfort or pain caused by insufficient food energy consumption. It becomes chronic when a person regularly fails to consume enough calories (food energy) to maintain a normal, active, and healthy life." Acute food insecurity represents a severe stage of deprivation, where individuals are entirely unable to meet their basic food needs, forcing them to go one or more days without eating. This state reflects the extreme edge of hunger and poses a direct threat to survival. It is often associated with exceptional circumstances such as humanitarian crises, armed conflicts, natural disasters, or extreme poverty, leading to rapid deterioration in health and life-sustaining abilities.¹⁴

Economic Impact

Food insecurity leads to what is known as food dependency, which refers to a country or region's reliance on importing food from abroad to meet the needs of its population due to its inability to achieve self-sufficiency. This condition arises from several factors, including:

- Weak local production.
- Lack of investment in agriculture
- Economic and political challenges.

- Higher costs of local production compared to imported goods and weak competitiveness.

Political and Social Impact

Food insecurity results in social unrest due to worsening poverty and unemployment, threatening the political stability of nations.

It fosters migration and conflicts over resources, complicating opportunities for sustainable development.

Food insecurity leads to a lack of national security, as there is a direct relationship between security and food availability. When food shortages occur, countries experience increased riots, protests, and chaos, as seen during the 2011 food crisis protests in countries such as Egypt, Ivory Coast, Cameroon, and Pakistan.

Key consequences include:

Reduction in political independence: Nations face external pressures that endanger national security, using food as a weapon or tool of political leverage.

External pressures: For example, during the October War of 1973, food was used as a political pressure tool by countries with surplus food against those experiencing food insecurity

The Relationship between Food Security and Key Issues:

Food security, agriculture, political stability, and sustainable development are interconnected elements that directly impact the well-being of societies and the stability of communities. Achieving food security relies on promoting sustainable agriculture, while political stability fosters the conditions necessary for growth and development. In turn, achieving sustainable development supports these elements, forming a foundation for balanced and inclusive progress

1. The Relationship Between Food Security and Agriculture:

Food security and agriculture are closely interconnected, as agriculture serves as the foundation for achieving food security. The relationship can be summarized as follows:

a. Food Production:

Agriculture is the primary source of food production necessary to meet population needs. Improving agricultural productivity directly increases food availability, which is a core pillar of food security.

b. Dietary Diversity:

Through diversified agriculture (e.g., growing grains, vegetables, fruits, and livestock), a wide variety of foods can be produced to meet the population's nutritional needs.

c. Achieving Self-Sufficiency:

Countries that rely on local agriculture reduce their dependency on food imports, enhancing their ability to cope with global market fluctuations and natural disasters.

d. Environmental Sustainability:

Food security depends on the sustainable use of natural resources, such as soil and water. Sustainable agricultural practices ensure continuous food production without harming the environment.

e. Rural Economy:

Agriculture creates job opportunities, especially in rural areas, improving incomes and living standards while reducing hunger and malnutrition.

f. Impact of Climate Change:

Climate change affects agriculture and, in turn, food security. Developing climate-resilient agricultural systems strengthens food security.

2. The Relationship Between Food Security and Sustainable Development:

Sustainable development refers to meeting the needs of the current generation without compromising the ability of future generations to meet their needs. It seeks to balance economic growth, environmental preservation, and social justice. The United Nations Sustainable Development Goals (SDGs) serve as a global framework to achieve this vision, encompassing 17 goals, including:

- Eradicating hunger.
- Eliminating poverty in all its forms.
- Achieving food security.
- Improving nutrition.
- Promoting sustainable agriculture.

Food security is a fundamental component of sustainable development, as ensuring adequate and nutritious food for everyone is closely tied to various aspects of sustainability:

• Economic Dimension

Food security boosts economic productivity by improving individual health and work capacity. Investments in sustainable agriculture support rural economies and create job opportunities.

• Social Dimension

Eradicating hunger (SDG Goal 2) reduces poverty and enhances quality of life.

Strengthening food security promotes social stability and reduces conflicts over scarce resources.

• Environmental Dimension

Sustainable agriculture minimizes the depletion of natural resources, such as water and soil, and conserves biodiversity.

Adopting sustainable food production practices mitigates climate change and reduces pollution.

Achieving food security forms the foundation for realizing sustainable development goals, improving quality of life, supporting economies, and preserving the environment to ensure a sustainable future for generations to come.

3. The relationship between food security and political stability

The relationship between food security and political stability is reciprocal and complex, as each directly and indirectly impacts the other.

On one hand, food security contributes to political stability by meeting basic needs and reducing social and economic tensions. The absence of sufficient food or significant price increases can lead to social unrest, protests, or even internal conflicts.

On the other hand, political stability plays a crucial role in achieving food security, as stable governments promote agricultural and developmental policies and provide an environment conducive to investment in infrastructure and food production. Conversely, political instability, such as conflicts or wars, destroys agricultural lands, disrupts supply chains, and increases hunger and poverty rates.

Thus, achieving synergy between food security and political stability is essential to ensure sustainable development and societal well-being.

Prevalence of food insecurity in the world

Food insecurity is a global challenge affecting millions of people across various regions of the world.

Number of people experiencing food insecurity at severe level only, and at moderate or severe level, based on the Food Insecurity Experience Scale, 2015–2022

	Number of severely food-insecure people (millions)						Number of moderately or severely food-insecure people (millions)					
	2015	2017	2019	2020	2021	2022	2015	2017	2019	2020	2021	2022
WORLD	561.5	623.8	719.8	850.7	927.3	900.1	1 612.4	1 817.0	1 966.4	2 307.2	2 342.5	2 356.9
AFRICA	206.3	252.2	268.1	305.0	331.1	341.8	544.8	650.6	695.0	761.7	834.5	868.3
Northern Africa	20.5	25.0	21.5	23.8	28.7	31.1	59.9	78.8	71.2	75.9	86.9	84.3
Sub-Saharan Africa	185.8	227.2	246.6	281.2	302.4	310.6	484.9	571.9	623.7	685.8	747.6	783.9
Eastern Africa	86.6	108.2	109.3	126.2	132.1	130.9	223.5	267.9	277.9	298.8	308.2	327.4
Middle Africa	n.a.	n.a.	n.a.	66.5	71.9	76.7	n.a.	n.a.	n.a.	129.4	143.5	153.7
Southern Africa	5.7	6.1	6.2	7.4	7.5	8.6	13.8	14.3	14.7	16.6	16.8	17.8
Western Africa	41.0	53.9	66.1	81.1	90.8	94.4	142.7	174.5	205.7	240.8	279.1	285.1
ASIA	293.7	295.0	377.3	449.5	486.1	456.9	791.0	857.4	981.8	1 196.8	1 151.5	1 144.9
Central Asia	1.0	2.0	1.7	3.6	3.8	3.5	6.3	9.9	9.9	13.3	15.3	13.4
Eastern Asia	12.4	27.9	21.4	33.4	17.0	16.0	95.7	164.3	123.0	129.0	102.3	103.4
South-eastern Asia	11.9	13.3	12.2	13.9	17.7	17.8	92.5	101.9	96.0	104.0	114.2	114.4
Southern Asia	244.7	225.4	316.9	371.3	417.9	389.2	514.7	496.6	668.1	849.8	807.6	809.2
Western Asia	23.8	26.4	25.1	27.4	29.7	30.3	81.8	84.6	84.8	100.7	112.1	104.4
<i>Western Asia and Northern Africa</i>	44.3	51.4	46.6	51.2	58.4	61.4	141.7	163.4	156.0	176.6	199.0	188.7
LATIN AMERICA AND THE CARIBBEAN	45.3	61.7	62.5	81.8	91.1	83.4	169.8	209.7	203.8	256.4	264.3	247.8
Caribbean	n.a.	n.a.	n.a.	14.2	11.4	12.5	n.a.	n.a.	n.a.	28.7	26.3	26.9
Latin America	32.0	48.2	49.3	67.5	79.7	70.8	144.0	183.1	177.6	227.7	238.0	220.8
Central America	11.2	10.9	12.8	12.9	14.3	15.4	50.7	47.8	49.3	60.3	60.6	61.9
South America	20.8	37.3	36.5	54.7	65.5	55.4	93.3	135.3	128.3	167.4	177.4	159.0
OCEANIA	1.1	1.7	1.7	1.1	2.0	1.5	4.0	6.0	5.9	5.3	5.8	5.9
NORTHERN AMERICA AND EUROPE	15.1	13.2	10.3	13.3	17.0	16.5	102.8	93.3	79.8	87.0	86.4	90.0
Europe	11.6	10.4	7.3	10.5	14.3	13.8	65.6	61.7	51.5	56.1	58.1	61.1
Eastern Europe	4.5	3.2	2.4	4.0	4.9	5.7	34.3	30.3	24.4	29.9	30.6	31.4
Northern Europe	1.9	2.2	1.0	1.3	1.9	2.1	7.0	6.3	5.4	4.4	4.7	7.1
Southern Europe	2.5	3.1	2.4	3.6	4.3	2.4	14.7	16.2	13.4	14.2	13.1	11.4
Western Europe	2.7	1.8	1.4	1.6	3.2	3.6	9.6	8.9	8.3	7.7	9.6	11.2
Northern America	3.5	2.9	3.0	2.7	2.7	2.8	37.2	31.5	28.4	30.9	28.3	28.9

<https://openknowledge.fao.org>

The table above shows that more than 864 million people suffer from severe food insecurity globally. Africa, in particular, faces different conditions compared to other regions:

In Africa, the number of people experiencing severe food insecurity rose from 200 million in 2015 to 315.5 million in 2023.

In Asia, this number increased from 295.6 million in 2015 to 467.3 million in 2023.

In Latin America and the Caribbean, the figure rose from 40.4 million in 2015 to 79.6 million in 2021.

In Europe and North America, the number of severely food-insecure individuals increased from 14.7 million in 2015 to 18.3 million in 2023.

CONCLUSIONS

It is evident that North America and Europe have achieved higher levels of food security compared to Asia and Africa, where populations suffer from severe food insecurity between 2015 and 2023.

Contributing Factors to Food Insecurity in Asia and Africa

Rapid population growth.

- Climate pressures.
- Urban expansion.
- Poverty.
- Dependence on traditional agriculture.
- Failures in economic policies.

Conclusion

Food insecurity is one of the major challenges threatening human well-being and societal stability worldwide. This issue extends beyond the mere lack of food to encompass its impacts on public health, the economy, political stability, and the environment. With the growing rates of hunger and malnutrition in many regions, it has become evident that addressing food insecurity requires a multidimensional approach centered on strengthening the agricultural sector, as it is the cornerstone of achieving food security.

The agricultural sector plays a crucial role in providing the necessary food for the world's population. Over 70% of rural inhabitants in developing countries depend on agriculture as their primary source of income and livelihood. However, agriculture faces increasing challenges, such as climate change, water scarcity, soil degradation, and rural-to-urban migration. These challenges not only reduce agricultural productivity but also widen the food gap and increase reliance on imports to meet nutritional needs.

Investing in improving the agricultural sector is a key tool for combating food insecurity. By adopting sustainable agricultural practices, productivity can be increased, resource efficiency enhanced, and dietary diversity improved. Additionally, climate-smart agriculture can help mitigate the effects of climate change and improve the resilience of agricultural systems to environmental crises.

Moreover, developing the agricultural sector goes beyond food provision. It creates job opportunities, improves living standards in rural areas, and enhances economic and social stability. Comprehensive agricultural development can contribute to achieving self-sufficiency, reducing poverty, and increasing the competitiveness of countries on the global stage.

In conclusion, addressing food insecurity requires prioritizing the agricultural sector as a fundamental means of achieving sustainable development. Agriculture is not only a source of food but also a critical pillar for the stability of nations and the well-being of societies. By focusing on supporting sustainable agriculture, we can ensure a better food future for future generations and achieve a balance between human needs and environmental requirements.

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