

Food Security in the Arab World: An Analytical Overview (2016–2021)

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Abstract :

This paper addresses the concept of food security, which is considered one of the most vital mechanisms adopted by countries to reduce food dependency and its negative impact on economic activity. In this context, the study aims to explore the concept of food security, its pillars, and its key indicators, as well as to assess the state of Arab food security by analyzing its indicators for the period (2016–2021). Based on the descriptive-analytical method and available statistics, the study concludes that food security levels in the Arab world have yet to reach the desired standard. This calls for concerted efforts to achieve sustainable agricultural development and to establish the foundations of Arab food security.

Keywords:

Food security, food availability, food access, food stability, Arab countries.

Introduction:

International reports and studies have indicated an increase in food shortages during the year 2020, with the prevalence rate rising from 8.0% in 2019 to 9.3% in 2020. This was due to the COVID-19 pandemic, and the rate continued to rise, reaching 9.8% in 2021. Estimates suggest that the number of people suffering from hunger reached 828 million, representing 10.5% of the world's population.¹ Just as the world began to recover from the repercussions of the COVID-19 pandemic—which had plunged the globe into its worst economic recession—the Russian-Ukrainian crisis emerged, which is expected to have a negative impact on food security in many countries, especially in the Arab world.

The critical and ongoing state of food deficit in the Arab world necessitates an urgent need for a thorough analysis and diagnosis of the current situation, based on indicators that examine the reality in order to identify solutions and formulate programs and plans that enable countries to cover the deficit in essential commodities for Arab populations. This can only be achieved by strengthening Arab capacity through integration and coordination between agricultural development policies and enhancing trade relations among Arab countries.

Research Problem:

In this study, we aim to address the reality of food security in some Arab countries by analyzing the indicators available to our Arab nations and attempting to diagnose the situation. Accordingly, we start from the following main research question: To what extent have Arab countries been able to achieve food security in light of global food security indicators for the period (2016–2021)?

Methodology:

We relied on the descriptive method to present the theoretical framework of food security and its most important measurement indicators, and on the analytical method to interpret the available data regarding the state of food security in some Arab countries.

I. Analyzing the Concept of Food Security

Like other concepts, food security does not have one universally agreed-upon definition; rather, it varies depending on perspectives. Below is an attempt to deconstruct the concept:

1. FAO Definition:

A comprehensive definition was adopted at the World Food Summit in 1996, stating that: *“Food security exists when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life.”*ⁱⁱ

2. Definition by the Arab Organization for Agricultural Development:

*The organization defines food security as: The ability of a country to produce as much of its food needs as possible, in a balanced and economically viable manner that considers the country's comparative advantage in producing food commodities. Its products should be competitive with foreign products, and it should have agricultural or industrial exports (or both), enabling it to obtain the foreign currency needed to import food it cannot produce efficiently. It must also ensure that all citizens have access to food in sufficient quantity and quality, while maintaining a food stock sufficient for at least three months during exceptional situations such as natural disasters or political and military tensions.*ⁱⁱⁱ

3. World Bank Definition:

The World Bank defines food security as: The access by all people at all times to enough food for an active and healthy life. A country achieves food security when its marketing and trade systems can provide all citizens with adequate food at all times, even during crises and periods of domestic production shortfalls or international market disruptions.^{iv}

4. Islamic Perspective on Food Security:

Islam views food security as ensuring the minimum essential food needs for all members of society at any time. It emphasizes absolute justice in food distribution during crises and sees cooperative efforts at the state level as necessary to meet the essential food needs of Muslims.^v

Based on the above definitions, we conclude that food security is a broad concept with multiple interpretations. Some understand it as providing basic sustenance for individuals, while others see it as increasing food production to meet growing population needs. Regardless of how comprehensive the definitions are, food security generally requires the following components:^{vi}

- Ensuring all individuals, regardless of age, gender, or socioeconomic status, have access to essential nutritional needs in adequate quantity and quality.
- Food must be sufficient to support human growth and sustain energy and work capacity, containing enough calories, proteins, and vitamins.
- Producing food through effective agricultural development policies and structural, pricing, and organizational measures that efficiently use available resources and satisfy local and international demand.
- Organizing food consumption both quantitatively and qualitatively to ensure fair distribution and meet the community's needs.
- Controlling various factors that influence national decision-making in international economic relations to ensure food supply and fair food trade. This requires maintaining a food stock based on current consumption rates and securing essential imports under economically and politically fair terms.

- Achieving the highest possible percentage in the national food trade balance under stable and fair commercial conditions that serve the interests of all parties and ensure continuous food access for the population.

II. Pillars of Food Security

To define and refine the framework of food security, we must highlight its four main pillars:^{vii}

1. Food Availability:

Availability is the foundation of food security. It entails supplying enough food to meet population needs. However, availability alone is not enough—it must also be of adequate quality and diversity.^{viii}

2. Stability:

Food must be accessible at all times without the risk of losing access due to shocks such as economic or environmental crises or seasonal variations. Food security requires consistent access to adequate food without fear of losing that access.^{ix}

3. Utilization:

How individuals use food depends on its quality, preparation, storage, etc. This pillar is divided into two parts:

- The ability to benefit from food, including access to clean water and sanitation.
- The level of nutritional benefit, particularly among children, such as wasting, bone fragility, anemia, etc.^x

III. Global Food Security Indicators

The Global Food Security Index, published by the Economist Intelligence Unit, reflects the global status of food security. It includes four indicators that guide policy decisions, set priorities, and provide a clearer picture of food security in each country:^{xi}

• Food Availability Indicator:

This reflects the availability of sufficient food for individuals, considering not only quantity but also quality and variety. It includes metrics like the adequacy of dietary energy supply, the percentage of calories from cereals and roots, average protein supply, and the average value of food production.

• Food Access Indicator:

This measures the ability of individuals to obtain nutritious food consistently. It depends on income, food prices, access to social support, infrastructure, transportation, and the rate of undernourishment.

• Food Stability Indicator:

This indicator reflects the ongoing access to food without interruption due to crises, meaning people must always be able to access adequate food, even during economic, climate, or seasonal shocks. It encompasses both availability and access dimensions.

• Food Trade Balance Indicator:

This reflects the balance between food imports and exports. It is a key economic indicator that shows a country's ability to cover import costs through its food exports.

IV. Analysis of the Arab Food Security Situation Based on Core Indicators (2016–2021)

In this section, we analyze the state of food security in the Arab world using key indicators to assess strengths and identify shortcomings.^{xii}

1. Food Availability Indicator:

Food availability is a central pillar of food security that reveals a country's ability to provide adequate food supplies to its population, whether through local production or external

markets. Fish, vegetables, fruits, and animal products are among the commodities where the Arab world has a comparative advantage. However, the region relies heavily on imports to meet high percentages of its needs for grains, sugar, and vegetable oils. The following table illustrates this:

2. **Table 1:** Production of Major Plant-Based Food Commodities in the Arab Region
Unit: Million Tons

Commodity	2016	2017	2018	2019	2020	2021	Period Average	% Change in Period Average	% Change from 2020 to 2021
Cereals	49.71	55.10	53.37	61.01	54.84	60.44	54.73	10.04%	10.09%
Tubers	14.92	15.35	16.64	17.17	18.73	18.09	16.65	9.2%	-3.5%
Sugar	3.65	3.76	3.70	3.71	3.55	3.52	3.67	-4%	-0.7%
Legumes	1.23	1.49	1.72	1.74	1.80	1.93	1.60	20.63%	6.9%
Vegetable Oils	1.56	3.08	3.19	3.06	3.78	4.07	2.93	38.9%	7.8%
Vegetables	53.86	50.43	49.68	54.82	51.64	52.05	52.09	-0.07%	0.8%
Fruit	35.92	35.42	46.66	40.28	45.46	47.88	40.75	17.5%	5.3%

3. **Source:** Statistics of the Arab Organization for Agricultural Development.

Based on the table, it can be concluded that the total cereal crops constitute one of the most important food commodities in the Arab world, as they contribute the largest share to the value of the major food commodity gap. In 2021, the total cereal production in the Arab world amounted to 60.44 million tons, marking an increase of 10.09% compared to 2020.

Moreover, the Arab world possesses vast animal and aquatic resources. The livestock sector, in particular, represents a vital source for ensuring food security. In the following table, we present key figures that illustrate the composition of this often-overlooked sector.

Table 2: Evolution of Animal Production in the Arab Region (2016–2021)

Unit: Thousand Tons

Category	2016	2017	2018	2019	2020	2021	Change between 2020 and 2021 (%)
Fish	5205	5630	4979	5651	5745	6225	8.4
Red Meat	4652	4361	4287	4389	4314	4356	1.0
Poultry Meat	4267	4647	5090	4931	5126	5085	-0.8
Camel Meat	16424	16486	16431	16547	16781	16766	-0.1

Source: Statistics from the Arab Organization for Agricultural Development.

Animal and Fish Products: A Key Source of Animal Protein in the Arab World

Animal and fish products represent an important source of animal protein in the Arab world due to the region's large livestock population. In 2021, the total livestock population was estimated at around 354.13 million heads, with an increase of approximately 1.2% compared to 2020.

According to the table, the meat sector in 2020 and 2021 produced around 9.44 million tons, with 46% being red meat and 54% white meat. Red meat production increased by 1%, while white meat production experienced a decline of 0.8%.

The fisheries sector enjoys export surpluses across the Arab region. There are also significant opportunities for increasing production, given the abundant water resources such as rivers and

water streams in many Arab countries. Fish production in 2021 reached 6.22 million tons, marking a growth of 8.40% compared to the previous year.

2) Food Availability Index:

The Food Availability Index measures the adequacy of food supply, the risk of supply disruption, the national capacity for food distribution, and research efforts to expand agricultural and food production.

Based on data from the Arab Organization for Agricultural Development, the following table summarizes food availability index scores in selected Arab countries:

Table 3: Food Availability Index Scores in Selected Arab Countries (2019–2021)

Country	2019	2020	2021	Change between 2020 and 2021 (%)
Yemen	27.3	27.5	27.6	0.4
Sudan	37.5	30.8	31.6	2.6
Syria	42.4	41.3	30.1	-27.1
Algeria	59.0	55.7	58.01	4.1
Tunisia	59.6	56.7	54.0	-4.8
Saudi Arabia	70.7	73.0	67.8	-7.1
Egypt	74.3	62.8	60.0	-4.5
World Avg.	65.58	57.32	56.7	-1.1

Source: Statistics from the Arab Organization for Agricultural Development.

Food Availability Index:

Based on the table, the average annual Food Availability Index for the Arab world in 2021 was estimated at 54.6, which is below the global average of 65.7. On a country level, the index value ranged from 27 to 42.4 in Yemen, Sudan, and Syria, while it did not exceed 70 in Algeria, Egypt, and Tunisia.

Food Access Index:

The Food Access Index measures individuals' ability to meet their food needs. It represents the demand side of the food market, focusing on consumers' ability to purchase food based on their financial resources and the factors that influence their ability to access it. This index reflects the degree to which consumers can afford food, their exposure to price shocks, and the availability of support policies and programs when such shocks occur.

This index is calculated based on six sub-indicators:

1. Food consumption as a percentage of total household expenditure.
2. Percentage of the population living under or near the global poverty line.
3. GDP per capita.
4. Customs tariffs on agricultural imports.
5. Food security network programs.
6. Farmers' access to funding.

One of the key factors influencing food access is income levels. Below is a summary of the annual growth rate of per capita income in the Arab world and globally, based on World Bank data:

Table 4: Annual Growth Rate of Per Capita Income in the Arab World and Globally (2015-2021)

Year	Arab World	Global
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2015	0.94	1.97
2016	1.21	1.62
2017	-0.9	2.22
2018	0.29	2.21
2019	-0.24	1.48
2020	-6.8	-4.40
2021	1.6	4.8

Source: World Bank Database, 2022.

As seen in the table above, the annual growth rate of per capita income in the Arab world was negative in 2019 and 2020, but it slightly improved in 2021 to 1.6%. These fluctuations are directly linked to the factors that impacted economic growth and trade exchanges in the Arab world and globally, including the collapse of oil and gas revenues and the repercussions of the COVID-19 pandemic.

Conclusion

Based on the preceding analysis, food security emerges as one of the principal challenges facing the Arab world. Despite the availability of both material and human resources, food security extends beyond merely quantifying the amount or caloric content of food consumed by individuals. It entails a complex and multi-layered responsibility shared by governments, the private sector, and civil society. Achieving food security is not limited to ensuring sufficient food supply, but also encompasses equitable access to safe and nutritious food for all segments of society.

Findings

This study led to several important conclusions:

- The concept of food security has become increasingly multidimensional, particularly in light of global developments such as oil crises, the Gulf crisis, and the COVID-19 pandemic. These dimensions are not only economic but also political and social, emphasizing the ability of Arab societies to ensure the right quantity and quality of food without discrimination.
- The Arab region possesses extensive natural, agricultural, and marine resources that—if properly harnessed—can significantly enhance food security by capitalizing on each country's comparative advantages.
- The agricultural sector in the Arab world suffers from a range of persistent issues, including weak agricultural policies, ineffective investment legislation, and poor institutional frameworks.
- There is limited adoption of modern agricultural technologies and advanced techniques that could otherwise improve land productivity and agricultural yields.
- National-level food availability does not necessarily guarantee access for households and individuals, primarily due to high poverty rates, which vary significantly across Arab countries.
- The region's negative food trade balance remains a concern, as it continues to rely heavily on global markets to meet its food needs—an issue exacerbated by rapid population growth.

Recommendations

In light of the findings presented in this paper, the following recommendations are proposed:

- **Promote Arab integration and cooperation** to reduce the food gap and address the rapidly increasing demand for food in the region.
- **Support young entrepreneurs** with innovative agricultural projects and incentivize rural labor to encourage a sustainable agricultural revolution, particularly in marginalized areas.
- **Encourage scientific research** in green energy and sustainable agricultural development, and establish cooperative agreements with technologically advanced countries in the agricultural sector.
- **Enhance water resource management** by investing in modern irrigation systems, building dams, and rationalizing the use of underground water to support agricultural productivity.

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