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Diagnosing food security in the Arab region in light of the Arab strategy for sustainable agricultural development 2020-2030

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Abstract:

Food security is a significant contemporary challenge for many countries and regions, the Arab region faces substantial food security challenges. This issue was examined in light of various initiatives aimed at addressing it, with an assessment of the food security situation from 2019 to 2022. The study also appraised Arab strategies for food security, principally the sustainable agricultural development strategy 2020-2030. The results indicated that the Arab region is among the most vulnerable in world regarding food security, suffering from high levels malnutrition, food insecurity, and inability to afford a healthy diet. Despite the ambitious strategies, the expected results have not been achieved

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1. INTRODUCTION

Nutrition and the factors that affect it are important aspects influencing individuals' daily lives and receive significant attention at national and international levels. At the global level, food security is a key focus, included in the second objective of the Sustainable Development Goals for 2030, aimed at ending malnutrition, safeguarding food security, augmenting nutrition, and promoting sustainable agriculture. Different indicators have been developed to measure food security levels worldwide and to set goals and sub-goals to be achieved by 2030. At the local level, governments strive to develop strategies to maintain minimum food stocks and enable citizens to access them through price support policies and subsidies for those with limited or no income.

Access to healthy food is crucial for individual well-being and community development, with Arab countries facing significant food security challenges due to reliance on imports and exacerbated by crises and conflicts.

To address food security challenges, Arab countries have adopted development strategies such as the Arab Food Security Strategy and the Arab Sustainable Agricultural Development Strategy 2020-2030, applying projects and programs aimed at achieving self-sufficiency and ensuring food security, reflecting an awareness of its importance and a desire to tackle it through collaborative Arab efforts.

1.1. research problem:

We aim to address the following problem in this research paper*:*

What is the current status and future outlook of food security in the Arab region, and what factors impact it*?*

This question encompasses several sub-questions*:*

- ✓ How has the concept of food security evolved and what factors influence it?
- ✓ What are the global indicators used to measure food security ranks*?*
- ✓ What is the actuality of food security in the Arab region and what are the projected trends *?*
- ✓ What challenges do Arab countries face in terms of food security *?*

To address this problem, we operate on the following hypotheses **:**

- ✓ Food security is a dynamic concept that evolves over time .
- ✓ Indicators for measuring food security vary based on different dimensions. They are used to assess food security levels.
- ✓ International indicators suggest that the food security situation in the Arab region is concerning .
- ✓ Ensuring food security remains a significant challenge for Arab countries.

1.2. Study methodology and tools:

We used a descriptive and analytical approach to outline the study's variables, including international standards and indicators for food security, their application in the Arab region, and an analysis of their status through food security sub-indicators. Our methodology involved using specialized reports of international organizations such as the FAO, We also accessed other databases and information specialized in the field of food security. The data used ranged from 2019 to 2022, with some estimates extending to 2030 in specific cases.

2. Food security, concepts and influencing elements:

2.1 Food security concept:

Food security is a universally accepted concept predicated on the continuous availability of safe and nutritious food for all members of society. Over time, the definition of food security has evolved in response to various stages and economic conditions. Initially, it was defined as the continuous availability of staple food supplies to meet increasing food consumption and address price and production fluctuations subsequently. (United Nations, 1975)

In 1986, the World Bank distinguished between persistent and temporary food insecurity, elucidating that all members of society should have continuous access to adequate food for an active and healthy life. (FAO, 2023, p.01)

At the 1996 World Food Summit meeting, the description of food security was reviewed to safeguard that all persons have both physical and economic access to sufficient, healthy, and safe food required for a healthy and active life. (FAO, June 2006) The concept of food security has changed from simply ensuring the availability of food

supplies to now encompassing universal access, stability, and continuous food availability, both financially and economically. (أبو شمالة و حمد، 2022، ص02)

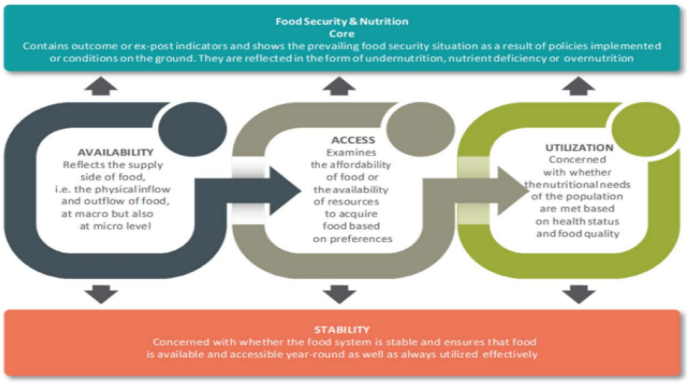
Nowadays, the widely accepted definition of food security is providing continuous admission to adequate, healthy, and nourishing food for all members of society to ensure an active and healthy life, emphasizing physical and economic access at global, regional, national, family, and individual levels.

2.2 Indicators for measuring food security:

Food security variables are quantitative and can be measured to monitor their developments at the local or international level. International organizations interested in this field have developed four indicators to measure the level of food security. According to the GFS Index, food security measured by using four main indicators, which express the continuous availability of good and healthy food. (Economist Impact, 2022)

These indicators are based on four food security indicators: abundance, access, use, and stability. (FAO, June 2006, p. 01) The global framework for indicators to measure the level of food security can be explained as shown in fig 1:

Fig.1. Dimensions of food security



Source: ESCWA (2022), Framework for Monitoring and Follow-up of Food Security in the Arab Region, available at the following address: https://www.unescwa.org/ar/publications/%D8%B1%D8%

The extent of food security is determined using indicators from international organizations such as FAO, the IFAD, and the World Bank. Various methods are employed to measure food security, including food gap analysis, self-sufficiency rates, gross domestic product (GDP), and agricultural domestic product, the ratio of food imports-exports, per capita output, and Exposure of the national economy. (حسن علوان الشمري، 2021، الصفحات 29-29)

These methods indicate the degree of openness to the outside world. According to a guide by ESCWA, in cooperation with the Arab Organization for Agricultural Development and the FAO, 21 indicators are used to monitor food security in the Arab region. These indicators are considered into four dimensions. They are clarified as follows:

Table1. Indicators measuring the level of food security

Availability	**Access**	**Utilization**	**Stability**
Wheat Productivity Agricultural Spending Food Losses Food Energy Supply Dependence on Wheat Imports Water Used in Agriculture	Food Expenditure Poverty Unemployment Logistics Performance Inflation	Access to Drinking Water Access to Sanitation Child Stunting Child Wasting Anemia in Women	Climate Change Price Volatility Political Stability Food Production Variability Food Supply Variability

Source: ESCWA (2022), A Guide to Monitoring Food Security in the Arab Region, pp. 16-56, available at: https://www.unescwa.org/ar/publications/%D8%

These sub-indicators are considered a tool for monitoring and following up on the extent of progress achieved in achieving food security or food insecurity, as each indicator is given a value from 0 to 10, where the value of 0 is poor performance and the value 10 is good performance. Conversely, some indicators consider the maximum value as poor performance, while the minimum value signifies good performance. Example the undernutrition or wasting index in children under five years of age. (الإسكوا(ESCWA), 2022)

3. Arab food security in light of the Sustainable Agricultural Development Strategy 2020-2030

3.1 Strategies of food security in the Arab region Horizons 2030

The Arab League has spearheaded joint efforts to tackle food security issues, especially amidst international crises like the food crisis and the challenges and Impacts of COVID-19. Collective initiatives, including the Arabic Program for Sustaining Food Security, have been established to mitigate the pandemic's impact on food security in the region. I'll delve into the key facets of these initiatives.

3.1.1 Arab Food Security Strategy 2022*:*

The Arab Food Security Strategy was put in place to coordinate the efforts to address the food security challenge in a cohesive manner. This strategy was based on Resolution 797 issued by the Arab Summit on November 2, 2022, with the aim of creating "an economically integrated and food-secure Arab homeland". (صندوق النقد العربي، 2023، 232 صفحة) The strategy defined common objectives and subprograms, and its content can be summarized as follows:

Table 2. Arab Food Security strategy 2022 goals and programs

Strategic Goals	Programs
Safeguard Food Availability	- Improve agricultural production and productivity - Fortify joint agricultural investment - Advance strategic reserves of main food merchandises - Decrease food losses and waste
Safe Access to Food	- Enlarge protection and social security - Upkeep and empower rural women
Proper Use of Food	- Rationalize consumption levels and develop consumption patterns - Safeguard food quality and health safety
Food Stability & Sustainability	- Create Arab databases and regional early warning systems - Enhance and develop mechanisms for adapting climate change and natural disasters to ensure future food security

	- Develop food research, systems, and technological innovation

Source: Arab Monetary Fund (2023), Unified Arab Economic Report, Abu Dhabi, p. 71.

After evaluating this strategy, it seems to be in line with global practices and recommendations from international organizations, especially the FAO. However, the programs outlined in the strategy are general and lack specific time periods or implementation mechanisms, which raise doubts about their feasibility and the ability to achieve preferred objectives on the ground.

3.1.2 Arab Sustainable Agriculture Development Strategy 2020-2030:

This Strategy was prepared as an alternative to a preceding strategy that was adopted, Horizons 2025, for several considerations, including achieving compatibility with time frame of the UN Sustainable Development Goals 2030. The general objective of this strategy is to contribute to raising agricultural production and productivity, achieving food safety, achieving food security, improving the standard of living, protecting the environment, and developing the countryside. (المنظمة العربية للتنمية الزراعية، 2022، الصفحات 36-40)

The content of this strategy can be clarified through its principles, goals and programs included in following table:

Table3. Principle goals of Arab Sustainable Agricultural Strategy 2020-2030

Strategic Goals	Main Programs
Goal1: Support transformation & adaptation of agricultural systems facing famine & poverty **Goal2:** Proper management and sustainability of agricultural resources and systems **Goal3:** Progress cooperation and program for Arab agricultural trade and investment **Goal4:** Progress the Arab rural area and support environmental, economic, and social resilience **Goal 5:** Promotion and share agricultural sciences.	- Technology transfer and sustainable agricultural production. - Governance of administration and use of Arab agricultural resources -Improve competitively of agricultural products and the investment and trade ecosystems - Animal and vegetable health and food safety -Development of rural area, encourage innovation, and private enterprise - Constructing human and institutional capacities and sharing agricultural experiences

Source: Arab Organization for Agricultural Development (2022), Sustainable Arab Agricultural Development Strategy 2020-2030, Khartoum, pp. 40-44

This strategy aims to achieve long-term strategic goals and ambitious programs.

However, historical joint Arab initiatives have often failed to achieve their intended goals due to the absence of genuine commitment.

3.1.3 Arabic Program for Sustainable Food Security:

This program was created to respond to the recent regional and international developments, especially those related to water scarcity's impact on Arab food security. It also considers events like the Covid-19 pandemic and other health, natural, economic, or political crises. The program spans from 2021 to 2030, divided into two phases: 2021-2025 and 2026-2030. This program is part of a long-term strategy,

with plans for additional programs beyond 2030. (صندوق النقد العربي، 2023، صفحة 236)

This program includes seven (7) components within three levels as follows:

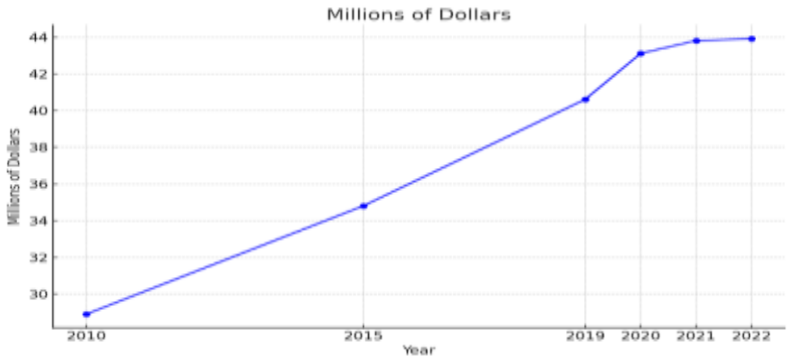
Table4. Constituents of the Arabic Program for Sustainable Food Security

Level 1: Basic Mechanisms	1. Enlargement of arable land utilization 2. Increase productivity growth in existing agriculture 3. Expansion of irrigated agriculture and development of irrigation systems
Level 2: Investment Workings	4. Agricultural, food, and industrial investment projects, aimed at expanding major private sector agricultural projects and integrated industrial service projects
Level 3: Supporting Components	5. Reducing food loss and unused 6. Promoting sustainable food consumption patterns

Source: AMF (2023), Unified Arab Economic Report, Abu Dhabi, p. 236.

In the context of joint Arab initiatives in food security, there are ambitious goals and programs aimed at enhancing food security in the Arab region. However, historical experiences in joint Arab action suggest that achieving these goals may face significant obstacles. Implementation of these strategies requires a genuine willingness to address poverty, undernutrition, and food insecurity in many Arab countries. Additionally, bridging the food gap in Arab states is a most important challenge, as the level of the gap has increased from $28.9 billion in 2010 to $43.9 billion in 2022. This increase is attributed to inadequate local agricultural production, leading to dependency on imports from non-Arab countries to recompense for the deficit.

Fig.2. Progression of the food gap in the Arab region 2010-2022



Source: AMF (2023), Unified Arab Economic Report, Abu Dhabi, p. 71.

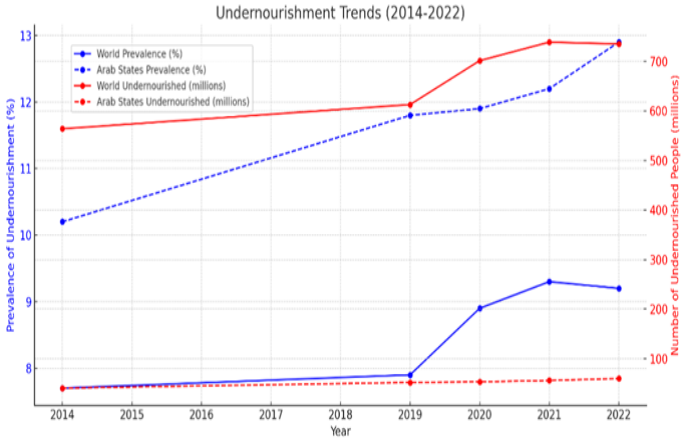
3.2. The state of food security in the Arab region during the period 2019-2022

This analysis examines the food security status in the Arab region spanning from 2019 to 2022, using indicators of the FAO. These indicators are essential to evaluating food security situation within the framework of global sustainable development goals. Key Sub-indicators evaluated include prevalence of under nourishment, moderate or severe food insecurity, affordability of nutritive, stunting, wasting, and obesity among children under five, as well as the prevalence of anemia among women aged 15 to 49. We will limit ourselves here to the first three indicators:

3.2.1 Prevalence of undernourishment and food insecurity index:

Undernutrition is an indicator approved by the Food and Agriculture Organization that reflects individuals' inability to access a proper diet for achieving a healthy and active life. This condition may arise due to a lack of food, consumption of unhealthy foods, or insufficient food intake. The Arab region is experiencing a rise in malnutrition and food insecurity, with the situation expected to worsen from 2014 to 2022, as indicated in the following figure. Most countries in the region are struggling to meet the first and second Sustainable Development Goals related to food security. (FAO, 2020, p. 05)

Fig.3. Prevalence of under nourishment world & Arab states



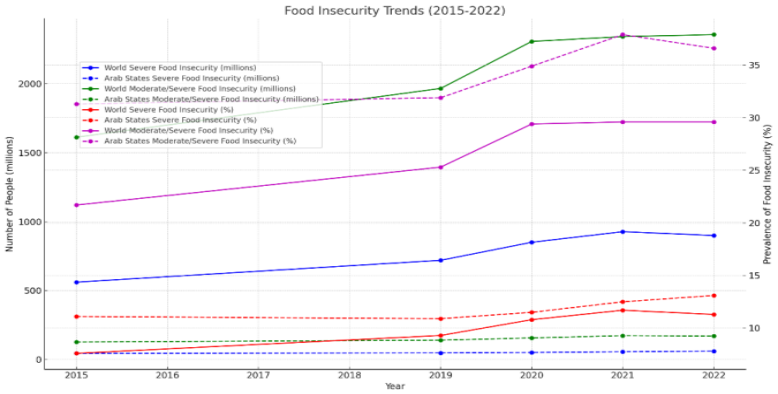
Source: FAO (2023), MENA: Regional Overview of Food Security and Nutrition, Statistics and trends, P 04-06

From these data, it is clear that the undernourishment index in the Arab region is considered high compared to global rates, and it is trending on an upward trend during the aforementioned period. According to expectations, this index is on the rise to reach 25% to 30% by the year 2030. (FAO, 2020, p. 05)

3.2.2 Prevalence of undernourishment and food insecurity index:

The indicator is specific to the FAO, and it shows that the Arab region is experiencing increasing levels of severe, acute, or moderate food insecurity, which is consistent with the rising prevalence of under nourishment. The figure 4 clarifies this situation.

Fig.4. Prevalence of food insecurity in world and Arab region



Source: FAO (2023), MENA: Regional Overview of Food Security and Nutrition, Statistics and trends, P09-12.

The augmentation in this index is mainly because of food crises in conflict-affected Arab countries like Yemen, Syria, and Palestine during the mentioned period. This led to an increase in the overall index value. It is estimated that the food insecurity index in the Arabic region will continue at the same level given the present situation, and the number of people experiencing food insecurity could reach 75 million between 2028 and 2030. (FAO, 2020, p. 08)

3.2.3 Affordability index of a healthy diet:

The capacity to afford the cost of a healthy and balanced regime is an important indicator in evaluating food security, as the diet consisting of the totality of foods and foods consumed regularly is a very important factor in determining the level of food security. (FAO, 2020, p. 43)Based on the data, the condition of the ability to afford a healthy diet in Arabic region compared to what exists at the worldwide level was as follows:

Table5. Cost of healthy diet in world and Arab states

Cost (Dollar Per Person Per day)		
Year	**World**	**Arab state**
2017	**3,30**	**3,22**
2018	**3,36**	**3,31**
2019	**3,43**	**3,40**
2020	**3,51**	**3,47**
2021	**3,66**	**3,55**
Change (%)		
2017-2018	**1,8**	**2,7**
2018-2019	**2,3**	**2,8**
2019-2020	**2,3**	**2,0**
2020-2021	**4,3**	**2,5**

Source: FAO (2023), MENA: Regional Overview of Food Security and Nutrition, Statistics and trends, P49.

The table shows that the cost of a healthy diet per person per day is slightly high in the region, although it's lower than the global average.

This is significant considering the comparatively low income in Arab countries compared to the rest of the world, specifically developed countries. The cost has also been rising, particularly between 2020 - 2021 due to the effect of the Covid-19 on international market prices and disruptions in supply chains. This indicates that affording a healthy diet is challenging in the Arab region, negatively affecting food accessibility and the general food security index in the region. 4**.**

4.CONCLUSION

Food security is a pressing worldwide issue addressed by the United Nations' Horizons 2030 Program for Sustainable Development, with a specific goal to eradicate hunger and ensure food security worldwide. In the Arab region, indicators from 2019-2022 highlight significant challenges such as acute food insecurity and inadequate nutrition. Without intervention, up to 75 million people may struggle to afford a healthy diet by 2030. Arab governments, through the Arab League, have initiated different strategies like the Arab Food Security Strategy for 2022 and the Sustainable Agricultural Development Strategy 2020-2030. But the success depends on the commitment of different countries to execute these plans effectively and engagement.

Through this study, we reached a set of results as follows:

- ✓ Food security, a global concern, garners attention from international bodies and governments. It's accompanied by indicators and standards for measuring its levels across different dimensions, both macro and micro.
- ✓ Food security involves availability, access, utilization, and sustainability of nourishment. In the Arab region, challenges include undernutrition, acute and moderate food insecurity, and inability to afford a healthy diet.
- ✓ Food security remains a pressing issue in the Arab region, with projections suggesting it could worsen by 2030, as per estimates from organizations like the UN's Food and Agriculture Organization. Despite ambitious strategies, effective high-level implementation is crucial to tackle this dilemma effectively.

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