

EXTERNAL CHALLENGES TO SUSTAINABLE DEVELOPMENT GOALS (ARAB FOOD SECURITY AS A MODEL)

Prof. Anwar Ismail Khalil

College of Science/ University of Baghdad/ Iraq

Email: anwar@ircoedu.uobaghdad.edu.iq

Abstract

Over the past two decades, the world has witnessed a number of changes in several fields: political, economic, social, scientific, technological, cultural, environmental, informatics and other fields that have begun to overlap with each other in a way that makes the world look like a single community, as a small village, and its regions or states are affected. Or its parts and peoples with what is happening in any part of the earth, and information is transmitted and passed through it from one place to another at a high speed.

It is noticeable that these transformations and changes that have emerged on the global economic scene have positive and negative repercussions on the future of sustainable economic and social development in countries in general and developing countries, including Arab countries in particular, which calls for enhancing opportunities to benefit from the positives and greatly reducing risks.

Therefore, the future outlook for development in the Arab world calls for a deeper understanding of these international transformations and changes that redraw the development scene around the world. This is what this study shows based on the latest statistical data and reports that monitor scenes of change and transformations in the global economic environment, especially in light of the crisis. The current financial situation and its repercussions on the economies of the developing world, in which the Arab world is an influential part, given its geo-economic importance.

Keywords: Development, Food, Goals, Security, Challenges.

Introduction

The Sustainable Development Goals, also known as the Global Goals, which were adopted in 2015, by all member states of the United Nations, constituted a global call to action to eradicate poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. Food security must be achieved, as a necessity vital and responsible for human survival, and this requires ensuring a level of agricultural and livestock productivity in order to achieve food security. This is also related to the goal of environmental sustainability to ensure the sustainable use and preservation of land, forests, water, wildlife, fish and water resources, and to raise the efficiency of water use in agricultural and industrial development.

The issue of "food security" has become one of the most important issues of concern to many countries of the world and organizations, whether global or regional, since the middle of the twentieth century, with more than (850) million people suffering from hunger in the world, and despite the great progress in the process of sustainable development on the The level of the world, which was achieved during the period that followed

the (Rio) Declaration in 1992, but that there are a large number of countries in the world, including the Arab countries, still facing many obstacles, difficulties and challenges that stand in the way of adopting and activating sustainable development plans and programs, and make development The sustainable development in the Arab region is progressing at a slow pace and its effect is limited in time and space, and it cannot meet even the primary or basic needs of its people; If we know that these challenges coincide with the bad climatic conditions experienced by the Arab countries, then food production is not enough to cover the needs of these Arab countries, which will push them to move towards importing billions of dollars from foreign producing countries, and this at the same time plunges them into many problems. Such as the indebtedness of these countries, especially the major and major ones, and then their subordination to these countries at all levels. On the other hand, these huge sums will be at the expense of advancing development and acquiring technology in the food-producing sectors, and this will raise the level of seriousness of the challenges facing Arab food security, and from Then these Arab regional challenges for sustainable development will be focused in the broader framework of global challenges for sustainable development adopted by the United Nations.

The study aims to identify the challenges facing the United Nations in its quest to achieve sustainable development goals within the Arab region or the Arab world. This study will focus on discussing examples of issues that constitute a challenge facing the United Nations in general and the societies of the Arab region in particular in achieving important goals in The agenda of this desired development, which is food security and water security in the Arab region or the Arab world, and we will discuss the position of the research paper through several sections and demands in which we will address the presentation of the concept of sustainable development and its seventeen goals, and then we will address the model that we will address for the study, which is security Food and water security in the Arab region, what are the problems facing achieving this security in its food and water aspects? Then we review the most important results of the study, and follow them with a set of recommendations that can serve to facilitate the achievement of sustainable development goals in these two areas of food and water.

The problem of the study: The research problem can be crystallized in that the Arab countries, despite all their different and diverse terrains and water resources, have not been able to achieve their food security, which constitutes one of the most important challenges facing sustainable development.

A number of questions can be derived from this research problem, the most important of which are:

- **What makes the Arab countries suffer from that deficit in securing the food basket locally?**
- **Is the food gap for these countries continuing to expand?**
- **How can this nutritional gap be addressed?**

Research Methodology

So that we can delve into the research in an academic way, and can reach the best results, we employ the descriptive approach, which can be the most appropriate for the statements it contains that serve the subject of the research.

Research Plan

In order to be able to delve into the field of study and reach the desired results, the research was divided into several sections, and each topic into several requirements, as follows:

The 1st Topic: Theoretical Framework

The 1st Requirement: Historical Overview

The 2nd Requirement: The Concept of Sustainable Development

The 2nd Topic: Challenges Facing Arab Food Security

The 1st Requirement: The Concept of Food Security

The 2nd Requirement: The Reality of Arab Food Security

Conclusion: It includes the most important findings of the study in terms of answers to research questions, as well as specific recommendations that could be used in real-life context.

The 1st Topic

Theoretical Framework

The 1st Requirement: Historical Overview

The concept of sustainable development has known great developments since the sixties of the last century, and there have been many changes in the development literature in light of these changes. In the period between (1969-1970), the concept of development was linked to economic growth, based on economic measurement indicators linked to the rise in national income. And the individual, and in the second decade of development (1979-1980), this concept took on broader dimensions along with the economic dimension: as social, political, and cultural; As development is no longer limited to achieving economic growth alone, but rather expresses institutional reforms in the political, social and cultural variables governing societies. Therefore, the third decade of development (1980-1990), with what was mentioned, witnessed a pattern represented in strengthening public participation in taking Decisions related to development and management based on the philosophy of good governance, and then came the (Rio) Declaration of 1992, through which the concept of sustainable development related to the environment and development was confirmed, and the call for the need to achieve justice in the distribution of resources and wealth between generations ⁽¹⁾.

These developments at the institutional and agreement levels were accompanied by the holding of many international conferences in this regard, which resulted in very important global environmental declarations and agreements, starting with the (Stockholm) conference in 1972, and passing through the (Portland) conference in 1987, and then the (Rio de Janeiro) conference in 1992 And then the (Johannesburg) conference in 2002, what was known as the "Second Earth Summit", and all these conferences and declarations have participated in linking the environment, development and human rights ⁽²⁾.

The 2030 Agenda for Sustainable Development, which was adopted in 2015 by the countries of the world, formed a meeting point for several tracks such as the Millennium Development Goals, the Rio track and the Finance for Development track, in which governmental and non-governmental agencies participated, and which contributed significantly to the formation of the components of the 2030 Agenda. 2030, and making it an integrated, comprehensive and balanced plan to define the features of post-2015 development. The United Nations Sustainable Development Conference, which was held in (Rio), in June 2012, contributed to defining the path for developing a plan for sustainable development for the year 2030; This document defines the

¹ Dr. Massoudi Rachid, "Challenges of sustainable development in light of the globalization of environmental risks", *Al-Midan Journal for Humanities and Social Sciences*, M: (3), No.: (3), University of Bordj Bou Arreridj, (Algeria, 2020), p. 162.

² Previous source, p. 163.

foundations for post-2015 development, and the document has launched an inclusive intergovernmental process for setting sustainable development goals, establishing a political forum that will be concerned with this issue, as well as forming a working group that includes thirty countries (which is open-ended). Its task is to develop or prepare a proposal for objectives, and several Arab countries have participated in this group, namely: (The Kingdom of Saudi Arabia, the United Arab Emirates, Egypt, Algeria, Tunisia, and Morocco), and the working group presented in July 2014, a proposal that included (seven Ten) goals (one hundred and sixty-nine) goals, which were after several consultations among the international members concerned, and this plan is considered as a common public property for all countries, and it is directed to all countries and must be adhered to, especially the economically developed countries. The regional dimension in this plan was not far from the perceptions and arrangements that ensure the achievement of the seventeen development goals in their optimal form, and here and in the framework of our topic was the Arab Forum for Sustainable Development; The Arab Forum for Sustainable Development, launched by ESCWA, in cooperation with the League of Arab States in 2014, represents the main framework for the follow-up and monitoring of the 2030 Agenda. It is one of the five forums launched by the United Nations regional committees in line with the United Nations approach to the importance of the regional dimension. In the composition and arrangement of global tracks.

Likewise, the "Arab Report on Sustainable Development", the first issue of which was issued in late 2015, coincided with the launch of the implementation of the 2030 Agenda, and is another content for monitoring and follow-up. Those conclusions that each issue of this report comes out with may constitute an entry point for discussions conducted within the framework of this Arab Forum ⁽³⁾. These reports indicated that the Arab region, despite some modest progress indicators in achieving some goals, is still lagging behind in many developmental aspects, especially in combating hunger, and delivering water and sanitation services to remote areas, including rural ones. A balance in implementation between the Arab countries, and the Arab efforts in the field of development did not reach the address of the serious challenges that threaten the future of development in the Arab region.

In general, the 2030 sustainable development plan is still modern, which makes the experiences that can benefit from it limited, and the difference between institutional structures and conditions at all levels is not identical, but coordination between international units remains the important variable in reaching participatory formulas that can approach its goals ⁽⁴⁾.

Standing in front of the concept of sustainable development requires giving a brief presentation by presenting definitions of this concept, its characteristics and the principles upon which this development is based and its various dimensions, as follows:

The 2nd Requirement: The Concept of Sustainable Development

The concept of sustainable development has been affected by those developments that have passed through various literatures, such as economics and development policies. This was reflected in the difficulty of finding a unified definition for this concept, as the definitions varied according to the variety of the contents given to it. (James Gustave Speth), the Director of the United Nations Development Program (UNDP), defined it in his report entitled: "An Initiative for Change" as: "Development that not only generates growth, but also

³ Previous source, p. 8.

⁴ Previous source, p. 10.

distributes its revenues equitably, which is: rejuvenating the environment instead of destroying it, and empowering people instead of marginalizing them.” It expands their choices and opportunities, and qualifies them to participate in the decisions that affect their lives. It is a development for the benefit of the poor, nature and women, and is based on growth that preserves the environment, and development that increases people’s empowerment and achieve justice among them”⁽⁵⁾.

The Food and Agriculture Organization of the United Nations defined it as: “the management and protection of the natural resource base, and institutional change to achieve and continue to satisfy the human needs of current and future generations, in an environmentally appropriate, economically appropriate and socially acceptable manner”⁽⁶⁾. These definitions indicate that there are certain characteristics of this development that can be summarized as follows:

- 1- Sustainable development is transmitted from one generation to another (transgenerational), and it can be activated on several levels: (national - regional - global)
- 2- With an international approach, it seeks to overcome the disparity between the countries of the North and the countries of the South, by focusing on the global dimensions of environmental degradation.

Sustainable development is based on several principles, and each of these principles governs its philosophy of a specific theory. Economic theory focuses on the idea of economic efficiency, resource rights, environmental theory focuses on operating ecosystems and maintaining environmental harmony, and justice theory focuses on the distributive results of policy alternatives. General, these principles are⁽⁷⁾:

- 1- **The Principle of Efficiency**, which is translated by sustainable development through improving the standard of living of people, which requires the optimal and efficient use of natural resources.
- 2- **The Principle of Flexibility**, which is achieved through the system's ability to adapt and maintain its structure and patterns of behavior in the face of external disturbances, and if it loses this flexibility, the system will face a number of risks and threats.
- 3- **The Principle of Justice**, as an essential element in sustainable development, which requires achieving and providing the requirements of the poor classes, which in turn explains the deterioration of environmental rules due to the failure to satisfy the needs of the poor.

Based on these three principles, it is necessary to achieve and provide the basic needs (quantitative and qualitative) for generations, whether current or future, in particular securing job opportunities that guarantee a stable and adequate income for the individual, and maximizing the productive capacity of natural resources, away from their negative decline. Sustainable development revolves around three areas or dimensions, which

⁵ Abdul Rahman Muhammad, “Human development and obstacles to achieving sustainable development in the Arab world”, in: Human development and its impact on sustainable development, Arab Administrative Development Organization, (Cairo, 2007), p. 7.

⁶ Donato Romano, "Environmental Economics and Sustainable Development", The National Center for Agricultural Policies, Ministry of Agriculture and Agrarian Reform in cooperation with the Food and Agriculture Organization of the United Nations, (Damascus, 2003), p. 52.

⁷ Dr. Masoudi Rasheed, “Challenges of sustainable development in light of the globalization of environmental risks,” a previously mentioned source, p. 164.

are ⁽⁸⁾:

1- The Economic Dimension, which is related to several aspects, namely:

A- Enhancing and improving the material conditions of life and standard of living for the individual.

B- Equality in development and its objectives among individuals, peoples and states.

2- The Social Dimension of Sustainable Development, which seeks to satisfy human needs, achieve social justice, and develop economic indicators for the individual concerned with this development, such as health, education and housing, and avoiding exclusion and marginalization.

3- The Environmental Dimension of Sustainable Development, represented in working to protect the environment and enhance the outputs of natural resources, provided that the ecological balance is not disturbed, and the ecosystem, its integrity and its ability to interact or adapt, are preserved.

Within the framework of the 2030 Agenda for Sustainable Development, it is based on four foundations, which are ⁽⁹⁾:

1- Integration and coherence of the plan, and not allowing its fragmentation in the event of its implementation.

2- Consistency between all elements of the plan, whether at the level of the concept or the actual application.

3- The interrelationship between each of the dimensions, goals and objectives.

4- Integration of policies and interventions.

The 2nd Topic

Challenges Facing Arab Food Security

The 1st Requirement: The Concept of Food Security

The concept of food security began to be used in 1970, which was behind the widespread spread of famine in many parts of the world. The concept refers to "the possibility of human beings (at any time and in any situation) to obtain an adequate amount of healthy food that provides all the daily needs of the body".

Food security is defined as: "the state's ability to secure an adequate stock of food commodities for individuals during a specific period of time, not less than two months and not more than a year, until it can renew this stock again" ⁽¹⁰⁾, and this period varies according to the country and food type itself.

Since the establishment of the Food & Agriculture Organization (FAO) during the Second World War as an organization specialized in the pursuit of food security, the international community has been striving to achieve several goals through this organization, the most important of which are: raising the level of nutrition and living, as well as improving conditions Villagers.

⁸ Previous source, p. 165.

⁹ Economic and Social Commission for Western Asia (ESCWA) Twenty-ninth session, "Implementation of the 2030 Agenda for Sustainable Development in the Arab States," (Doha, 13-15/December/2016), p.5.

¹⁰ Quoted from: Majd Abu Raya, "The reality of Arab food security and its challenges in the time of Corona," a study published on: 4/22/2020, on Noon Post, at the link: <https://www.noonpost.com/content/36775> (visited the site on: 4/16/2022)

When the world was exposed to the food crisis in 1972, which lasted for two years, an international conference was held in its wake in 1974. One of the most important priorities that were put forward in this conference was to achieve food security by raising the level of production and its stability, and in 1983, it expanded this concept to include access to on food, as well as the concepts of “availability” and “stability.” In this context, the World Nutrition Conference was held in 1992, which added the concept of “efficiency of food use.” The human right to obtain adequate food was not far from what the international community declared ⁽¹¹⁾.

One of the results of those conferences was that it adopted the concept that was approved by “Food and Agriculture Organization Agency” (FAO), which is: “Food security is achieved when all individuals, at all times, have the ability to obtain a sufficient, safe and nutritious amount of food to meet their needs according to their preferences, for a healthy and active life” ⁽¹²⁾.

We understand from this definition of food security that it includes several axes and dimensions that can be presented as follows:

- 1- **Adequacy of food supplies**, whether quantitative or qualitative, which is the responsibility of governments in providing these supplies to the population, whether from local or external sources.
- 2- **The ability to obtain food** by members of the community, it is necessary to provide sufficient opportunities to obtain this food, if it is from a physical and economic point of view ⁽¹³⁾.
- 3- **Safety**: related to the issue of quality and specifications that guarantee food safety.
- 4- **Stability**: It is directly related to what was presented from the previous three axes: (adequacy of food supplies, ability to obtain food, and safety) on its stability and not being exposed to fluctuations or crises, which is what must be achieved through those programs and measures necessary for that ⁽¹⁴⁾.

In this regard, the specialists referred to those elements on which food security stands, which are:

- 1- Geographical and climatic characteristics of the country.
- 2- The abundance of water resources.
- 3- The abundance of human resources.
- 4- The abundance of agricultural land, pastures and forests.
- 5- The abundance of livestock.

¹¹ Fatima Ahmed Mohamed, “The Impact of Bioenergy as an Alternative to Oil on Global Food Security by Application to OPEC Countries and Some Developing Countries”, PhD thesis (unpublished) Faculty of Economics and Political Science, Cairo University, (Cairo, 2013), p. 98.

¹² Attia Hindi, “International Efforts to Solve the Food Crisis in the World, National Training Workshop, Arab Organization for Agricultural Development, League of Arab States, held for the period (3-7/8/2008). Published at the link: http://www.napcsyr.org/dwnld-files/workshops/awad/effores_elhindi (website visited: 4/15/2022)

¹³ The Arab Organization for Agricultural Development, “A Study of Food Distribution Policies and Systems in the Arab World and Their Implications for Food Security,” (Khartoum, 2006), p. 26.

¹⁴ Waheed Ali Majid, “Food Security from the Perspective of Availability and Ability to Access Food”, Arab Organization for Agricultural Development, (Bala, Khartoum), p.29.

6- Owning modern technology.

The manifestations of the food crisis can be summarized in several forms, the most important of which are ⁽¹⁵⁾:

- 1- A decline in the global stock of food commodities, which began to appear clearly in recent years.
- 2- Expanding waves of anger and unrest that threaten the internal stability of many countries, especially the poor ones, due to this decline in food stocks.
- 3- The increase in the prices of the main food commodities, especially in recent years.

There are a number of reasons behind these food crises, which can be presented as follows:

- 1- The high withdrawal of food stocks in an unbalanced manner, with the increase in their prices, and in particular the basic materials, represented by grains such as (wheat, rice, and others); Its prices have increased by more than (40%) since the beginning of 2007 ⁽¹⁶⁾.
- 2- The effects of high oil prices on the high cost of petrochemical materials used in the agricultural process (such as fertilizers), whose prices have increased by about (70%).
- 3- The high rate of global demand for cereals, especially the Asian countries that witnessed high rates of rapid economic growth, which caused a change in the structure of demand for cereals ⁽¹⁷⁾.
- 4- The high rate of biofuel production, which in turn increased the demand for agricultural products related to this production, in return for the decrease in their supply for food consumption ⁽¹⁸⁾.
- 5- Bad climatic changes, such as drought and high temperatures for several environmental reasons, as well as floods and hurricanes that struck many areas; As these bad climatic changes constituted increasing disasters that were reflected on the economic and health conditions of the human being wherever he lived ⁽¹⁹⁾.
- 6- The phenomenon of desertification has aggravated and increased, especially during the past three decades, as it is estimated that the world loses about ten million hectares of arable land every year due to desertification ⁽²⁰⁾.

¹⁵ Fatima Ahmed Muhammad, aforementioned reference, pg. 99.

¹⁶ United Nations Conference on Trade and Development, "Addressing the Global Food Crisis - The Role of Basic Trade, Investment and Commodity Policies in Ensuring Sustainable Food Security from Poverty", United Nations, (Geneva, 2008), p. 5.

¹⁷ International Fund for Agricultural Development, "Empowering Poor Rural People to Overcome Poverty - IFAD's Response to Increased Food Prices", Consultation on the Eighth Replenishment of IFAD Resources, Third Session, (Rome, 8-9 July 2008), p. 3.

¹⁸ Bokhdokh Karim, Hanash Elias, "The Impact of the Biofuel Industry on Food Prices", the Sixth International Forum on the Problematic of Food Security in the Arab World, held for the period: (7-8 September) (Skikda University, 2011), pp. 13-14.

¹⁹ United Nations Program, Yearbook of the United Nations Environment Program, Science of New Developments in Our Changing Environment, 2009, p. 21.

²⁰ Dr. Waheed Muhammad Mufaddal, "Globalization of Desertification. Causes and Consequences," a study published on: (30/4/2014) on the website: Al Jazeera Net, at the link: <https://www.aljazeera.net/news/scienceandtechnology/2014/4/30> (website visited on: 4/16/2022).

- 7- The policy of financial institutions, which use the policy of speculation for the purpose of compensating losses, whether the losses were shares or the losses of the mortgage crisis, which as a whole led to an increase in the prices of agricultural sector products.
- 8- The role of multilateral trade rules, especially the agricultural support that developed countries provide to local farmers, and if their subsidized agricultural products are exported to the markets of developing countries, it will negatively affect the local production of these latter countries, most of which are pursuing structural adjustment programs ⁽²¹⁾.
- 9- Significant growth in global demand for food, especially in countries with billions of people, and also the high incomes of a large segment of the population, an important factor in the rise in global demand for food and other resources, this change in consumption patterns of these people is one of the important reasons in this global crisis ⁽²²⁾.
- 10- Food waste. Tens of millions of tons of edible food are disposed of every year, and most of them are in luxury and developed countries, while people die of starvation in developing countries; The Food and Agriculture Organization Agency (FAO) indicates that the food wasted globally is about 1.3 billion tons each year ⁽²³⁾.

These all constitute variables that human societies have been suffering from for decades, including the Arab peoples. The issue of Arab food security and the most important challenges it suffers from can be presented with the following requirement.

The 2nd Requirement: Arab Food Security

Researchers have pointed out for decades that the food problem in the Arab world is not limited to the shortage of some types or quantities of necessary foodstuffs. The violence that these countries have been subjected to in recent decades, which have become clearly dependent in meeting their basic food needs on imports, in particular grains, but not limited to these grains as much as these countries have become importers of all foodstuffs, (such as sugar, vegetable oils, fats and meat and milk and its products) and these imports have taken an upward curve over the past decades and continue to do so, which increases the seriousness of the issue that these imports are a life necessity.

In 2008, reports showed that the Arab countries did not achieve self-sufficiency, but rather that they are in a state of growing food deficit, although they have its ingredients. The volume of Arab food production is not sufficient to cover Arab domestic consumption, which calls for resorting to imports to cover this deficit. This shows the value of Arab imports of the main food commodity groups.

In this regard, the Arab Organization for Agricultural Development indicated in its report issued in 2008, that imports had risen from about \$32.3 billion in 2006 to about \$32.7 billion in 2008, which constitutes about 19.8%. However, the report, dated 2017, indicated that the value of these imports increased more than in 2008,

²¹ United Nations Conference on Trade and Development, a previously mentioned source, p. 16.

²² Mohamed Abdel-Qader Mohamed, "An economic study of the reality and future of the global food crisis on the Egyptian agricultural foreign trade", PhD thesis, Faculty of Agriculture, Ain Shams University, (Egypt, 2013), pp. 94-106.

²³ Food security: its definition, components, dimensions, and solution to its problems, a study published on: 7/16/2021, on the website: An-Najah Net, at the link: <https://www.annajah.net/> (website visited on: 4/15/ 2022).

which amounted to about (49.17) billion dollars, and cereals topped these imports with a percentage of: (41.08%). Followed by raw sugar: (14.83%), and imports of live animals, animal and fish products and natural honey in 2017, in the same report amounted to about (20.50) billion dollars, topping it with a percentage of: (39.81%). Followed by red meat (20.20%), poultry meat (15.92%), fish (10.52%) and dairy products ⁽²⁴⁾, and there is evidence that the Gulf countries alone import about (90%). of foodstuffs from abroad, which indicates that food gap ⁽²⁵⁾ in the Arab Gulf countries ⁽²⁶⁾. This gap is not limited to the Arab Gulf states, but extends to include the rest of the Arab countries, the causes of which are varied.

The United Nations also issued a study in 2018 on the prospects for enhancing food security in the Arab world, reviewing the potential situation of food and agriculture in the region in 2030, stating that Arab countries will often not achieve food self-sufficiency and will continue to rely on trade to provide their food needs, despite the potential increase in domestic production in this sector ⁽²⁷⁾.

In this context, specialists in Arab food affairs have pointed to a number of reasons behind this dangerous decline in the achievement of Arab food security, which has caused the expansion of the food gap in the Arab world ⁽²⁸⁾, some of which are related to agricultural production, some of which are related to agricultural resources, and others Related to marketing as well as agricultural policies, the most important of which can be reviewed as follows:

In the agricultural field, it is possible to monitor a number of issues that were referred to by specialists and which constitute an important reason for threatening Arab food security, namely:

- 1- Obstacles related to agricultural lands: The area of agricultural lands is estimated at about (1406) hectares, but what is used for agriculture does not exceed (5%) of it only, and this worsens with that, the expansion of random urban activity at the expense of agricultural lands, which led to the erosion of agricultural lands. The percentage of agricultural land has declined throughout the Arab region, or the Arab world ⁽²⁹⁾.

²⁴ Arab Organization for Agricultural Development, Arab Food Security Situation 2017, p. 56.

²⁵ The multiplicity of definitions that have been exposed to this phenomenon of life in the Arab world, and these definitions are: "The amount of the difference between local production and net imports of various food commodities, the reasons for which are the result of the growth rates of demand over production rates." On Food Dependence, Al-Nahda Magazine, Issue: (3), Faculty of Economics and Political Science, Cairo University, (Cairo, 2009), p. 10.

²⁶ Majd Abu Raya, a previously mentioned source.

²⁷ Ami Vitale, "ESCWA and FAO publish a study on food security in the Arab countries", news published on the website: United Nations News, dated: 1/February/2018, at the link: <https://news.un.org/ar/story/2018/02/1001521> (website visited on: 4/16/2022).

²⁸ The Arab food gap is: the demand for food products exceeds the rate of local production of these nutrients within the Arab countries. The food gap is the increase in the need for imports more than the rate of exports in all Arab countries. The ratio between annual production growth to consumption growth Annually in the Arab countries, "The ratio between the population of each Arab country to the rate of food production in this country, and the largest percentage is the population growth rate." For more: Ibtisam Mahran, "Defining the food gap in the Arab world", a study published on: Al-Morsal website, dated: 30/6/2021, at the link: <https://www.almrsal.com/post/1087150> (website visited on: 25 04/2022).

²⁹ The Arab Organization for Agricultural Development, "A Study of the Problems of Raising the Efficiency of Land Use in the Arab Countries," (Khartoum, December, 2007), p. 45.

- 2- Likewise, the Arab lands have managed to salinize the soil in a large proportion, due to the nature of the hot climate in summer, the high level of land water and the concentration of salts in the soil surface, and thus the decline in the area of arable land; Studies indicate that the percentage of salinity lands in Iraq is estimated at about 2.25 hectares, and in Egypt it is estimated at about (32%) of the lands of the delta ⁽³⁰⁾. And with attempts to take advantage of the so-called "saline agriculture", which is based on the cultivation of crops and plant strains that have the ability to withstand high levels of salinity and temperature, but with all the efforts made in this regard, it remains at a low level in terms of productivity compared to traditional natural agriculture. Likewise, the cost of pumping sea water to these crops close to the coasts makes it expensive due to the high level of these lands above sea level, which makes them economically costly and useless ⁽³¹⁾.
- 3- Desertification, which represents one of the major problems that Arab countries suffer from in general, especially in light of dry and semi-arid climatic conditions, which coincides with the aforementioned urban expansion at the expense of agricultural lands, which reduces these lands to (5%) Of the total land area of these Arab countries, and studies indicate those lands threatened by desertification, which amount to: (3.6) million km², or (25%) of the total Arab lands ⁽³²⁾. In this context, he classified the Arab countries based on the rate of desertification, which can be detailed as follows ⁽³³⁾:
- A- Arab countries in which the rate of desertification exceeds (90%), including: (UAE, Bahrain, Djibouti, Saudi Arabia, Kuwait, and Egypt).
 - B- Countries in which there is a rate of desertification between (76%-90%), and they include: (Jordan, Algeria, Oman, and Libya).
 - C- Countries in which there is a rate of desertification between: (50%-70%), including: (Tunisia, Morocco, Mauritania, and Yemen).
 - D- Arab countries with less than (50%) desertification, including: (Sudan, Somalia, Iraq, and Palestine).

By observing the geographical survey of the Arab region to determine the state of desertification and the degree of its danger, we will find that there is a discrepancy between the different regions in this respect, which is still in this decline with all those measures taken by the Arab governments to reduce it ⁽³⁴⁾.

³⁰ Salem Tawfiq Al-Najafi, "Current Determinants and the Problematic of the Future," *Journal of Arab Economic Affairs*, Issue: (88), Center for Arab Unity Studies, (Beirut, 2014), p. 121.

³¹ Dr. Waheed Muhammad Mufaddal, "Saline Agriculture. Towards a Greener Future", a study published on: 06/21/2021, on the website: Al Jazeera Net, at the link: <https://www.aljazeera.net/news/scienceandtechnology/2016/6/21> (website visited on: 4/21/2022)

³² For more: Dr. Abdul Karim Kunduz, and others, "The Role of Islamic Finance in Enhancing the Growth of the Agricultural Sector in the Arab Countries," *Studies of the Training and Capacity Building Institute, Arab Monetary Fund*, (Abu Dhabi, 2022), p. 11.

³³ Mahmoud Jamil al-Jundi, "The Impact of Geographical Orientation on Development Plans in the Arab World - Desertification as a Model", *Arab Future Magazine*, Center for Arab Unity Studies, Issue: (418), (Beirut, December / 2013), p. 62.

³⁴ The degree of deterioration of the vegetation areas increases due to the encroachment of desertification into them, in the savannah areas in southern Somalia, central and southern Sudan and central Algeria in the steppe's ranges, as

- 4- A contraction in the horizontal expansion of agricultural lands, and this is what specialists point out to him that the horizontal expansion of agricultural lands, if achieved, can be positively reflected not only economically but also environmentally and socially, which in turn requires large investments for land reclamation and cultivation, as well as the provision of infrastructure. From roads, bridges, irrigation and sewage networks, etc., the costs of this reclamation vary from one region to another ⁽³⁵⁾.
- 5- Problems resulting from low agricultural productivity, which are related to several issues that can be put forward as follows:
 - A- The decrease in agricultural employment, which does not exceed 25% of the total employment in all Arab countries, and this is due to that migration from the countryside to the city as one of the results of the low standard of living of the farmer and his quest to improve his living conditions, with the existence of an imbalance in the developmental balance between urban areas and rural. On the other hand, the productivity of the available agricultural workforce is low, and this can generally be attributed to dependence on rain-fed agriculture; As production quantities fluctuate and decrease due to climatic factors controlling that productivity. As well as those agricultural investment policies and the use of modern agricultural inputs among farmers ⁽³⁶⁾, which are all of the reasons for the decline of agricultural employment.
 - B- Problems of food loss ⁽³⁷⁾ or waste in the quantities of food production during the stages of production, post-harvest and processing in the food basket ⁽³⁸⁾; Studies indicate that (18%) of the arable land in the world produces food that is wasted, instead of feeding it to people, especially those who suffer from a deficit in providing food. This is what the Arab countries suffer from in this regard. Food losses in 2014 amounted to about (86) million tons, which is equivalent to (30%) of the total available for consumption of the main food commodities ⁽³⁹⁾. This is confirmed by the data of the “Food and Agriculture Organization” (FAO) The average Arab per capita waste is estimated at 250 kilograms per year, and the data of the “Food and Agriculture Organization” (FAO) indicate that the Near East and North Africa region, within which the Arab region is located, imports about 36 million tons. Of wheat annually, about

well as central Yemen and in the Sultanate of Oman in the Dhofar region, and this deterioration includes the entire regions of Iraq, northwestern Kuwait, Jordan and northern Saudi Arabia, southern Syria, Tunisia, Egypt, and northern Libya. For more see: Mukhtar Abdel Aziz, Planning for Community Development, Hamouka House for Distribution, 1st Edition, (Cairo, Bella), p. 70.

³⁵ For more, see: League of Arab States, General Secretariat, General Administration of Economic Affairs, Unified Arab Economic Report, "Agriculture and Water Sector" (Cairo, 2014), p. 53.

³⁶ The Previous Reference.

³⁷ The term food waste refers, in general, to “production that the consumer gets rid of, as food waste usually occurs in the production, post-harvest and food processing stages.” More: Carlos Munoz and Paul Anthem, “11 Facts about Food Waste and Loss – and its Relationship to Sustainable Food Systems” , a study published on: 9/21/2021, on the World Food Program website, at the link: <https://ar.wfp.org/stories/11-hqyqt-hwl-hdr-alghdha-wfqdh-wlaqth-balnzm-alghdhayyt-almstdamt> (website visited on: 4/29/2022)

³⁸ Food and Agriculture Organization, "Food Loss and Waste in the World" (Rome, 2014), p. 2.

³⁹ Arab Organization for Agricultural Development, “The Status of Arab Food Security,” Bella (Khartoum, 2014), p. 12.

(16) million tons are wasted, which is enough, according to the Food Organization, to feed between (70-100) million people ⁽⁴⁰⁾.

In addition, this wasted food that goes to landfills will produce greenhouse gases, which are the main factor in the occurrence of climatic problems, affecting water resources, increasing desertification and drought, and exacerbating the unpredictability and seriousness of weather phenomena. All this is destroying agriculture, and increasing the phenomenon of hunger, in many parts of the world ⁽⁴¹⁾.

C- The fragmentation and dispersion of agricultural properties into small and very limited production units that are not commensurate with agricultural economic programs, as well as government legislation, many of which led to the exclusion of agricultural sectors from contributing to the food basket of these Arab countries ⁽⁴²⁾.

6- Problems related to livestock, which constitute an important pillar in the agricultural sector and play an important role in achieving Arab food security, and the Unified Arab Economic Report indicates that for the year 2014, it amounted to (345.3) million heads of cows, buffaloes, sheep and goats ⁽⁴³⁾. However, there are a number of problems facing this sector to improve and increase production, the most important of which are:

A- The lack of adequate nutrition in terms of quantity, quality and sustainability, due to the lack of fertility of the areas occupied by the pastures and their exposure to drought.

B- Not using scientific methods in animal husbandry in pastoral societies and the absence of a renewable system for genetic improvement.

C- Lack of health care and trained technical cadres necessary for this process. This also applies to fisheries, which in turn suffer from the same problems. The marine resources extend over a coast length of 23 thousand km ⁽⁴⁴⁾, as well as inland areas and rivers.

7- The shortcomings in the policies related to the agricultural sector, which are numerous, the most important of which can be presented:

A- Shortcomings and failures in agricultural research and extension policies, and the latter aims to train workers in the agricultural sector on modern scientific foundations and the ability to adopt models of modern agricultural techniques, in order to improve productivity in quantity and quality at the lowest costs, and try to overcome obstacles that may encounter workers in this The important vital sector ⁽⁴⁵⁾, and this is

⁴⁰ FAO is looking to reduce food waste to face poverty", on Al Jazeera Net website, dated: 1/3/2014, <https://www.aljazeera.net/ebusiness/2014/3/1> (visit the website: 4/29/2022).

⁴¹ Carlos Munoz and Paul Anthem, *Ibid*.

⁴² The Arab Organization for Agricultural Development, "A Study of the Problems and Obstacles of Raising the Efficiency of Land Use in the Arab Countries," (Khartoum, December / 2007), p. 45- p. 46.

⁴³ The Unified Arab Economic Report, "Agriculture and Water Sector", a previously mentioned source, p. 64.

⁴⁴ *Ibid*

⁴⁵ Fatima Touati Ben Ali, "Economic Integration and Strategies for Achieving Arab Food Security in Light of Regional and International Challenges", PhD thesis (unpublished), Hassiba Benbou Ali University, (Algeria, 2014), p. 314.

due to several things, despite those institutes and laboratories that have been established specialized in agricultural research, the most important of which are ⁽⁴⁶⁾:

A1- The low level of coordination between agricultural extension institutions and the competent agricultural research bodies.

A2- The low level of investment in Arab agricultural research and the low productivity of research activity; Studies in this regard indicate that the volume of investments in the field of agricultural research in the developing world amounts to only (0.5%) of agricultural GDP.

A3- The topics of agricultural research are far from the real study and not selected on scientific grounds, as well as the failure to employ their results in practice.

A4- Unstable agricultural policies, was a major factor in the instability of agricultural extension.

B- The limited technical progress in the Arab agricultural production sector and the weak logistical support in this sector, which negatively affects facing the growing food gap in the Arab world to meet the growing needs of food commodities (); As this gap is widening with the passage of time for all those reasons mentioned above, in the field of agricultural and animal production, which were characterized by instability.

8- Problems related to marketing, as Arab markets are open to global markets, which have great preferential competitive features, which makes Arab food markets face great challenges in this field, especially in light of all these challenges that these countries are experiencing to achieve and provide the food basket.

9- Problems associated with unplanned population growth that has been doubling in Arab countries, especially since the last century; Studies indicate that it doubles every twenty-five years, which negatively increases the problem that it is far from all planning to increase food sources in terms of quantity and quality in order to meet the increasing demand by the growing population ⁽⁴⁷⁾. In this regard, those specialized studies in this regard indicate the inverse relationship between the increase in population numbers and the ability to provide the necessary food for the population in each country, and this is what many United Nations reports have indicated in this regard; It would lead to insufficient agricultural and food production in this country, especially the main resources, as well as this may cause an increase in unemployment rates, which in turn leads to a large withdrawal of the strategic stock of foodstuffs because there is no increase in production ⁽⁴⁸⁾.

10- The increasing decline in water resources in most Arab countries; The issue of securing water resources is one of the major challenges faced by most countries in the Arab world, because of that fateful interdependence with the various aspects of human life, as well as the agricultural, industrial and other fields. Within the framework of our topic, the Arab region falls within the desert belt region, and this is

⁴⁶ "The Reasons for the Failure of Arab Agricultural Policies in Achieving Food Security", a study published on the Al-Jazeera Net website, dated: 3/10/2004, at the link: <https://www.aljazeera.net/2004/10/03/> (website visited on: 4/29/2022).

⁴⁷ The Arab Organization for Agricultural Development, "Studies of Poverty Trends and Indicators in the Arab Countries: A Comprehensive Study Documenting Agricultural Policies in the Arab Countries during the First Decade of the Third Millennium," a previously mentioned source, p. 93.

⁴⁸ Ibtisam Mahran, "Defining the Food Gap in the Arab World", a previously mentioned source.

what made the Arab region constantly suffer from a water deficit, at a time when it suffers from a continuous increase in its water needs, and this is due to the climate of this region, which is mostly dry and at other times semi-arid. Dry, due to the lack of rainfall in it, and its irregularity, in addition to the fact that the surface water is limited and mostly originates from outside the Arab region, which constantly raises disputes about the joint use of this water between the upstream and downstream countries and the widespread debate about the legal adaptation of international rivers, as well as the groundwater. Most of them are water that is not suitable for drinking, or direct agricultural consumption. The resources available to the Arab region or the Arab world can be divided into natural and other non-natural resources, and by tracing the water map in the countries of the Arab world, we will note that it includes several sources of water, if it is traditional, such as: surface water, the most important of which are rivers and springs, and ground water, and non-traditional sources such as: desalination and retreatment of sewage and agricultural water and rain seeding ^(49 *).

⁴⁹ For more: Randa Abdel Hamid, "Research on the relationship between population increase and food security," a study published on: 4/4/2020, on the website: Article, at the link: <https://mqaall.com> (website visit: 4/18/ 2022).

(*) These sources can be viewed as follows:

1- Natural (traditional) water resources

These natural resources are represented in rainwater, rivers, springs and groundwater, as follows:

A- Rain: The amount of rain is estimated at about: (2282) billion cubic meters, distributed over the different regions in the Arab region in an irregular or equal manner. Arid: (100-300 mm), humid and semi-humid: (300-600 mm), and this coincides with the fact that most of the agricultural production in Arab countries depends on these rains, from which the benefit was only limited, especially with its high evaporation rate. For more: Rabab Ali Jamil, "Arab Food Dependence and Arab National Security: Causes and Effects", PhD thesis, College of Arts and Sciences, Middle East University, (Amman, 2010), p. 27.

B- running water resources (rivers)

The Arab region or the Arab world lacks the complex mountain chain, which constitutes the main sources of local rivers, and the percentage of water in it is estimated at about: (35.7) billion cubic meters. In addition to what was mentioned about the limited rainfall, these rivers are characterized by short lengths, it is volatile in its abundance, exposed to severe pollution due to its passage through cities and its proximity to industrial centers.

As for the international rivers, which are those rivers coming from outside the lands of the Arab countries, the amount of water for these rivers is estimated at about: (139) billion cubic meters. In this regard, the Arabs may suffer from an old and persistent problem related to the concept of the international river and water basins. As (60%) of these current water resources are shared with other countries, and they are related to the legal concepts of international rivers, and these rivers amount to eighteen rivers, of which six are main, namely: (Tigris, Euphrates, Nile, Senegal River, Juba River, River Shabelle). For more: Dr. Ibrahim Ahmed Saeed, "The Challenges of Arab Water Security", Damascus University Journal, M: (31), Issue: (1 + 2), Damascus University, (Damascus, 2015), p. 508.

C- Ground water resources

This type of water is the only source, which is characterized by continuity, in some Arab regions, especially in areas with limited rainfall and where there are no permanent water courses, which dry up in times of drought and may become even drier if the drought continues because of the lack of rain, and the volume of groundwater is estimated in the Arab countries, about: (7.75) billion cubic metres, and this water is stored in huge groundwater basins, and in general there is groundwater associated with surface recharge as well as groundwater not linked to surface recharge.

But with all that was mentioned of traditional and non-traditional water sources or resources in the Arab world, the Arab countries suffer from several problems in providing the Arab food basket, resulting in particular from their inability to attract the need and the increasing demand for water, which is closely linked to achieving Arab food security, and this is due to for a number of reasons, the most important of them can be mentioned as follows ⁽⁵⁰⁾:

- 1- Low level of rainfall in the Arab world, which does not exceed (100 mm) in (70%) of the area of the Arab world.
- 2- The lack of rain level, resulting from rain losses due to evaporation, which raises the percentage of this loss to (90%) of it.
- 3- The significant decline in the Arab individual's share of water, if we take into account the numerical increase in the Arab world, while the amount of water currently available remains the same, or worse if it declines.
- 4- The traditional methods used in agriculture and irrigation at the same time, which make a large percentage of the water used in this sector, which may reach (88%) of this water.
- 5- The increase in the use of water for urban purposes, to increase the population of cities and urban centers, which reached more than (60%).
- 6- The increase in water needs in the industrial sector, resulting from the high activity of this sector.
- 7- The significant pollution of water, and the deterioration of its quality due to those ill-considered uses of pesticides and fertilizers, as well as the effects resulting from sewage and industrial waste from factories and various industrial facilities.
- 8- The increasing shortage year after year of the water of rivers with external sources, due to the huge projects that the upstream countries are implementing that negatively affect the amount of water in the downstream countries, and the upstream countries' attempt to manipulate the terms of international agreements concerning the nature of international rivers.

These underground resources suffer from excessive depletion in most Arab countries through the random drilling of wells and their exploitation for various purposes in an unscientific or deliberate manner that allows the maximum benefit and not to take measurements or checks for the size of the stock available from them, so the problems of depletion of groundwater appear in areas Extracted, in particular dry areas and in coastal areas salinization and depletion. For more: the previous source, pg. 520

2- Unconventional water resources, which include desalination of sea water in particular, sewage reprocessing, agricultural wastewater, or the so-called agricultural drainage, and there is a method of seeding using different methods when there are clouds to take advantage of the largest percentage of them. For more: "Water scarcity in the Arab world...the next danger", a study published on: (20/3/2008) on the Al Jazeera Net website, on the link:

3- <https://www.aljazeera.net/specialfiles/2008/3/20/> (website visited on: 22/4/2022).

⁵⁰ Dr. Ibrahim Ahmed Saeed, "The Challenges of Arab Water Security," a previously mentioned source, p. 521.

- 11- The geopolitical developments taking place in the Arab region, the most important of which is the secession of South Sudan, and its plans to benefit from the Nile waters at the expense of the Arab countries, especially Sudan and Egypt, which are close to the Israeli plan with the same goal.
- 12- What increases the negative effects of the previous point, is the weakness and decline of Arab integration in the field of investment in joint water basins, or in the field of exchanging experiences in the water and agricultural fields.

Through what has been mentioned of all these negative aspects that Arab food security suffers from, and if we know that sustainable development for the year 2030, the Arab countries cannot be excluded from these seventeen goals, as they are global goals that include all human societies wherever they are on the surface of the earth, It does not exclude the peoples of these countries, and thus the obstacles and disadvantages that these countries and Arab peoples suffer from all the aforementioned obstacles and negatives in the various food fields and fields, they will become challenges in achieving sustainable development and its seventeen goals.

Conclusion

Over the past decades, the world has witnessed a number of changes in several fields: political, economic, social, scientific, technological, cultural, environmental, informational and other fields that have begun to overlap with each other in a way that makes the world look like a single community, or as a small village, whose regions are affected Its states, parts, and peoples are informed by what is happening in any part of the earth, and information is transmitted and passed through it from one place to another at great speed.

It is noted that these transformations and changes that have appeared on the global economic scene have positive and negative repercussions on the future of sustainable economic and social development in countries in general and developing countries, including Arab countries in particular, where poverty has become linked to many phenomena, the most important of which are: The natural resource base, and frequent climatic fluctuations, which were reflected in the relative low value of agricultural and livestock domestic product.

hence achieving food security; As the issue of food production in the Arab countries drew the attention and attention of specialists from researchers, organizations and specialized bodies, all of which, regardless of their specialization, warn of the widening of the food gap, resulting from the difference between the increase in consumption (demand), especially with the large increase in the population on the one hand and the deficit in local production (supply) in the Arab countries to keep pace with this increase in demand and food consumption.

In this context, and despite the great progress that has been made in the field of environmental work and the process of sustainable development in the Arab countries, there are many obstacles that these Arab countries face in order to achieve sustainable development related to food security in general and through those studies that dealt with the problem In the Arab world, there are resources and energies that have not been used in an appropriate and proper way, and here it can be said that the essence of the problem does not lie in the process of food production in itself as much as the problem lies in the shortage and failure in its production, so that it has become deficient in meeting the nutritional needs of the population. In the Arab countries, which are increasing in number, for example, water, despite its paramount importance for agriculture, its growth, expansion of its area, and increased productivity; It is considered an element of the inputs or ingredients upon

which agricultural and animal production is based, but nevertheless we cannot consider it the only element in this decline in the provision of the Arab food basket, even though the water resources themselves suffer from problems related to the available quantity, quality and sustainability.

In this context, the role of sustainable development is evident when cooperative partnerships are strengthened, and a greater role is given to society in all its categories in order to improve the quality of life, eradicate poverty and enhance environmental justice, as the areas that formed the starting point of the United Nations Sustainable Development Goals 2030, and thus there is a relationship Correlation between those challenges represented in the continuous inability to provide the adequate food basket in terms of quantity and quality for citizens in the Arab countries for the reasons presented in the aforementioned investigations and demands, and the success of achieving sustainable development and its many goals.

Recommendations

Through the research process of the subject of the research and study, and so that the study can be of practical feasibility that can be benefited from by decision-makers and all members of the Arab community, the researcher recommends a set of recommendations, which are:

- 1- The Arab countries must adopt an accurate agricultural policy with realistic and rational objectives commensurate with the needs of the growing population, in a way that can achieve food security from its local sources, and the optimal use of the actual ingredients that exist for it.
- 2- In order to achieve this food security, it is necessary to start from the Arab countryside, by developing it and making it a suitable environment for the farmer to stay there and not to emigrate, and this is through launching more rural development programs.
- 3- Raising the level of awareness among Arab citizens, especially in high-income countries, of the need to reduce waste in foodstuffs, in order to contribute to reducing food losses.
- 4- The awareness of decision-makers in the Arab countries of the necessity of working to achieve Arab food integration, and unifying efforts in order to reduce the food shortage, which leads them to resort to foreign countries to fill the shortage in the food basket, which puts them in a state of economic and then political dependency.
- 5- Raising the level of negotiations with the countries downstream of the international rivers, in order to address the level of water shortage in the countries of the course, which could negatively affect the level of agricultural and animal production.
- 6- International organizations must contribute to solving the water crisis between upstream and downstream countries, through diplomatic means, so that the issue of food shortage in Arab countries can be addressed.
- 7- Awareness of all countries of the world to those global problems represented by climate change, which led to an increase in temperatures due to global warming and the resulting desertification and a decrease in the level of water of all kinds, which requires concerted efforts in order to save humanity from these environmental difficulties.

References

First: Periodicals

1. Ibrahim Ahmed Saeed, "The Challenges of Arab Water Security", Damascus University Journal, M: (31), Issue: (1 + 2), Damascus University, (Damascus, 2015).
2. Salem Tawfiq Al-Najafi, "Current Determinants and the Problematic of the Future", Arab Economic Affairs Journal, Issue: (88), Center for Arab Unity Studies, (Beirut, 2014).
3. Abdel Rahman Mohamed, "Human development and obstacles to achieving sustainable development in the Arab world", in: Human development and its impact on sustainable development, Arab Administrative Development Organization, (Cairo, 2007).
4. Muhammad Awad Al-Hazayma and Abdul-Majid Al-Azzam, "The Political Effects of Food Dependence", Al-Nahda Magazine, Issue: (3), Faculty of Economics and Political Science, Cairo University, (Cairo, 2009).
5. Mahmoud Jamil Al-Jundi, "The Impact of Geographical Orientation on Development Plans in the Arab World - Desertification as a Model", Arab Future Magazine, Center for Arab Unity Studies, Issue: (418), (Beirut, December / 2013).
6. Massoudi Rachid, "Challenges of sustainable development in light of the globalization of environmental risks", Al-Midan Journal for Humanities and Social Sciences, M: (3), Issue: (3), University of Bordj Bou Arreridj, (Algeria, 2020).
7. League of Arab States, General Secretariat, General Administration of Economic Affairs, Unified Arab Economic Report, "Agriculture and Water Sector" (Cairo, 2014).
8. Abdul Karim Kunduz, and others, "The Role of Islamic Finance in Enhancing the Growth of the Agricultural Sector in the Arab Countries," Studies of the Training and Capacity Building Institute, Arab Monetary Fund, (Abu Dhabi, 2022).

Second: Conferences and Seminars

1. United Nations Programme, UNEP Yearbook, Science: New Developments in Our Changing Environment, 2009.
2. Bokhdokh Karim, Hanash Elias, "The Impact of the Biofuel Industry on Food Prices", the Sixth International Forum on the Problem of Food Security in the Arab World, held for the period: (7-8 September) (Skikda University, 2011).
3. Donato Romano, "Environmental Economics and Sustainable Development", National Center for Agricultural Policies, Ministry of Agriculture and Agrarian Reform in cooperation with the Food and Agriculture Organization of the United Nations, (Damascus, 2003).
4. International Fund for Agricultural Development, "Empowering Poor Rural People to Overcome Poverty - IFAD's Response to Increased Food Prices", Consultation on the Eighth Replenishment of IFAD's Resources, Third Session, (Rome, 8-9 July 2008).

5. Economic and Social Commission for Western Asia (ESCWA) Twenty-ninth session, "Implementation of the 2030 Agenda for Sustainable Development in the Arab States" (Doha, 13-15/December/2016).
6. Food and Agriculture Organization, "Food Loss and Waste in the World" (Rome, 2004).
7. The Arab Organization for Agricultural Development, The State of Arab Food Security for the year 2017.
8. The Arab Organization for Agricultural Development, "A Study of the Problems and Obstacles of Raising the Efficiency of Land Use in the Arab Countries" (Khartoum, December 2007).
9. Arab Organization for Agricultural Development, "The Status of Arab Food Security," Bella (Khartoum, 2014).
10. The Arab Organization for Agricultural Development, "A Study of Food Distribution Policies and Systems in the Arab World and Their Implications for Food Security" (Khartoum, 2006).
11. United Nations Conference on Trade and Development, "Addressing the Global Food Crisis - The Role of Basic Trade, Investment and Commodity Policies in Ensuring Sustainable Food Security from Poverty", United Nations, (Geneva, 2008).
12. Waheed Ali Majed, "Food Security from the Perspective of Availability and Access to Food", Arab Organization for Agricultural Development, (Bala, Khartoum).

Third: Dissertations and Theses:

1. Rabab Ali Jamil, "Arab Food Dependence and Arab National Security: Causes and Effects", PhD thesis, College of Arts and Sciences, Middle East University, (Amman, 2010).
2. Fatima Ahmed Mohamed, "The Impact of Bioenergy as an Alternative to Oil on Global Food Security by Application to OPEC Countries and Some Developing Countries", PhD thesis (unpublished) Faculty of Economics and Political Science, Cairo University, (Cairo, 2013).
3. Fatima Touati Ben Ali, "Economic integration and strategies to achieve Arab food security in light of regional and international challenges", PhD thesis (unpublished), Hassiba Benbou Ali University, (Algeria, 2014).
4. Mohamed Abdel-Qader Mohamed, "An economic study of the reality and future of the global food crisis on the Egyptian agricultural foreign trade", PhD thesis, Faculty of Agriculture, Ain Shams University, (Egypt, 2013).

Fourth: Internet References

1. "Water scarcity in the Arab world...the next danger", a study published on: (20/3/2008) on the Al-Jazeera Net website, at the link: <https://www.aljazeera.net/specialfiles/2008/3/20>
2. Randa Abdel Hamid, "Research on the relationship between population increase and food security," a study published on: 4/4/2020, on the website: Article, at the link: <https://mqaall.com>

3. "The Reasons for the Failure of Arab Agricultural Policies in Achieving Food Security", a study published on the Al-Jazeera Net website, dated: 3/10/2004, at the link: <https://www.aljazeera.net/2004/10/03/>.
4. "FAO is looking to reduce food waste to face poverty", on Al Jazeera Net website, dated: 1/3/2014, <https://www.aljazeera.net/ebusiness/2014/3/1>
5. Carlos Munoz and Paul Anthem, "11 facts about food waste and loss - and its relationship to sustainable food systems", study published on: 9/21/2021, on the World Food Program website, at the link: <https://ar.wfp.org/stories/11-hqyqt-hwl-hdr-alghdha-wfqdh-wlaqth-balnzm-alghdhayt-almstdamt>
6. Dr. Waheed Muhammad Mufaddal, "Saline Agriculture. Towards a Greener Future", a study published on: 06/21/2021, on the website: Al Jazeera Net, at the link: <https://www.aljazeera.net/news/scienceandtechnology/2016/6/21>
7. Ami Vitale, "ESCWA and FAO publish a study on food security in the Arab countries", news published on the website: United Nations News, dated: 1/February/2018, at the link: <https://news.un.org/ar/story/2018/02/1001521>
8. Ibtisam Mahran, "Defining the Food Gap in the Arab World", a study published on: Al-Morsal website, on: 30/6/2021, at the link: <https://www.almrsal.com/post/1087150>
9. "Food security: its definition, components, dimensions, and solution to its problems", a study published on: 7/16/2021, on the website: An-Najah.net, at the link: <https://www.annajah.net/>
10. Dr. Waheed Muhammad Mufaddal, "Globalization of desertification. Causes and consequences", a study published on: (30/4/2014) on the website: Al Jazeera Net, at the link: <https://www.aljazeera.net/news/scienceandtechnology/2014/4/30>
11. Attia Hindi, "International Efforts to Solve the Food Crisis in the World, National Training Workshop, Arab Organization for Agricultural Development, League of Arab States, held for the period (3-7/8/2008). Published at: http://www.napcsyr.org/dwnld-files/workshops/awad/effores_elhindi
12. Majd Abu Raya, "The reality of Arab food security and its challenges in the time of Corona," a study published on: 22/4/2020, on Noon Post, at the link: <https://www.noonpost.com/content/36775>