



## FOOD SECURITY OF MIDDLE EASTERN COUNTRIES: NEW SOLUTIONS IN THE ERA OF INTERNATIONAL TENSION

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### Annotation

This article tells about the peculiarities of food security of Middle Eastern states. The main problems hindering the development of food security, climatic conditions, technological solutions to issues, demographic factor are considered. The impact of modern events is also reflected on the food security of the countries of the region, in particular, it was considered through the prism of the war in Ukraine.

**Keywords:** food security, technology, agro-industry, import, innovation, water problems, investment.

### Introduction

The food issue is one of the most acute problems in the domestic politics of the countries of the Middle East, due to the fact that the geographical location is a desert area, in which, accordingly, there is a shortage of water resources. The very concept of "food security" is the state of protection of the population of a certain country from the threat of food shortages for the full functioning of life. Food security is currently viewed as providing all members of society with physical and economic access to obtaining and consuming food that is safe, sufficient in quantity and quality, as well as necessary for leading an active and healthy life.<sup>1</sup> In the mid-1970s, a paradoxical situation developed in the world. It manifested itself in the existence, on the one hand, of an absolute overproduction of food, and on the other hand, its acute shortage in a number of developing countries (the so-called "third world" countries, where we can include the countries of the Middle East).

The UN report claims that in 2021 the number of hungry people in the world has reached 828 million, while more than half of the hungry live in Asia and the Pacific, and another quarter – in Africa. This fact proves even more about the existing problems of food security in the Middle East region.<sup>2</sup>

The war in Ukraine, which involves two of the world's largest exporters of basic foodstuffs to the world market (in particular, wheat, sunflower oil, corn, mineral products, fertilizers). Lebanon, for example, imports 50% of its wheat from Ukraine, Yemen imports 22%, and Tunisia - 42%. Earlier, the official representative of the UN World Food Program, Thomson Pirie, said that the conflict in Ukraine could lead to an increase in food prices and hunger in the world. He noted that the Black Sea basin is one of the most important regions for the production of grain and agricultural products, Ukraine and Russia account for 30% of world wheat exports, 20% of world corn exports and 76% of sunflower supplies, so

<sup>1</sup>.[https://spravochnick.ru/ekonomika/koncepcii\\_prodrovolstvennoy\\_bezopasnosti\\_evolyuciya\\_i Sovremennoe\\_sostoyanie/](https://spravochnick.ru/ekonomika/koncepcii_prodrovolstvennoy_bezopasnosti_evolyuciya_i Sovremennoe_sostoyanie/)

<sup>2</sup>.<https://www.fao.org/newsroom/detail/un-report-global-hunger-SOFI-2022-FAO/ru>



any interruptions in production or supplies can lead to price increases.<sup>3</sup> Of course, the war disrupts the functioning of international commodity distribution chains and leads to an increase in prices for grain, fertilizers, energy carriers, as well as ready-to-use products for therapeutic nutrition of children with severe malnutrition. At the same time, commodity chains are already being negatively affected by increasingly frequent extreme climatic events, especially in low-income countries, and this can have serious consequences for global food security and nutrition.

By 2025, the degradation of the natural environment in the region, multiplied by rapid population growth (more than half a billion people will live in the region) will lead to a serious deterioration in the quality of life, which, in turn, will have significant social, economic and political consequences. The most significant factor, most likely, will be global warming, the inevitable consequences of which the leaders of the region until very recently practically ignored. In 2025, the climate in the region will be more arid than today; water scarcity will affect almost all countries in the region. But even those countries where climate change will lead to an increase in precipitation (Turkey) or the volume of river water resources (Egypt, Sudan) will not be able to use additional water resources to improve agricultural efficiency due to an increase in average annual temperatures and increasing pollution of water resources. The rich countries of the region will be able to postpone the water shortage through expensive seawater desalination projects, but for poor countries this option does not seem possible. The efficiency of agricultural production in the region as a whole will decrease, and the region's dependence on food imports will increase. The process of desertification is also working in the same direction, which is likely to accelerate significantly over the next five years. The main social consequence of the ecological and resource crises will be the acceleration of the process of spontaneous urbanization, when significant masses of former peasants, unable to maintain their traditional way of life, will be forced to move to already overpopulated urban agglomerations. Accordingly, social tension in the cities will increase.

The authors consider an alternative (though unlikely) scenario to be the beginning of a "green revolution" in the Middle East and North Africa, changing the structure of agricultural production, increasing its efficiency, and ensuring stable and diversified grain imports on acceptable terms. By 2025, a number of countries in the region (Israel, Morocco, Tunisia, Turkey) will increase their share in the world markets of vegetables and fruits. The rich Gulf States will begin large-scale investments in the development of agriculture in other regions of the world (including countries such as Argentina, Australia and Canada), thereby contributing to the stabilization of global food markets.<sup>4</sup>

The published annual report of the United Nations on the state of food security and nutrition in the world in 2021 caused a wide resonance among the world community in the context of another increase in the statistics of hunger in the world. The report's refrain was the idea that under the influence of the

<sup>3</sup>. <https://ria.ru/20220331/krizis-1781181899.html>

<sup>4</sup>. <https://russiancouncil.ru/amp/analytics-and-comments/analytics/budushchee-blizhnego-vostoka-dva-gorizonta-ugroz-i-vozmozhnostey/>



coronavirus pandemic in 2020, the number of hungry people in the world increased again after many years of reduction and reached 811 million people. The increase amounted to 161 million people compared to 2019. At the same time, the total number of the world's population that experiences certain restrictions in terms of access to food is 2.4 billion people.

The situation with hunger in the regions of the Middle East and North Africa is of great concern in the report, where only in 2020 the proportion of undernourished reached 15.1% and 7.1% of the total population, respectively. According to this indicator, the Middle East is comparable to the countries of South Asia, and it is outstripped only by the countries of Central, West and East Africa (where on average 20-28% of the population is hungry). Whereas in most other regions the situation remains more stable. In absolute terms, the number of hungry people in the region increased from 55 to almost 60 million people last year alone.

Of course, coronavirus became the main driver of the increase in the number of hungry people in 2020-2021, but the deterioration of the situation in the Middle East was also caused by protracted military conflicts, violence in Syria, Yemen, Libya, Afghanistan, Iraq and South Sudan, and concomitant factors of internal migration and refugees. The latter, in turn, influenced the growth of hunger in a number of neighboring states — Jordan, Turkey, Lebanon, Egypt. Finally, the climatic cataclysms that shook the region in 2020-2021, especially severe drought and the problem of water scarcity have become an additional serious factor in destabilizing the food security situation in the Middle East, including in relatively prosperous countries such as Morocco and Egypt.<sup>5</sup>

Meeting the increased demands on agriculture with the help of existing farming methods will lead to more intense competition for natural resources, increase gas emissions and cause further land degradation. Iran's example is instructive: currently, about half of Iran's agricultural land is on "substandard" land, which has prompted farmers to invest in unstable groundwater pumping systems, thereby increasing soil salinity and jeopardizing the renewal of water resources. Short-term fixes to system problems are unlikely to be effective in the long run. However, in a region that has been at the forefront of recent advances in technology, a new trend has emerged that may promise solutions to food shortages. Over the past decade, new technologies have been developed to solve long-standing structural problems of agriculture related to unproductive agricultural soils and water scarcity. Such initiatives have the potential to play a key role in improving the sustainability of food systems throughout the region. Such technologies are designed to increase and improve the results of the agricultural sector using less energy and more sustainable methods. Responding to the need to promote sustainable agricultural development, agricultural technologies (or "agrtech") today are aimed at reducing agricultural waste and the use of chemical fertilizers. Looking to the future - taking into account the past - can open up solutions to the desperate food insecurity situation in the region. These developments are part of the agricultural developments of the last hundred years aimed at increasing agricultural productivity, and thus are part of the agrotechnical model. Over the past decade, the region

<sup>5</sup>. <http://www.iimes.ru/?p=78425>



has witnessed the nascent scene of agrotechnical startups, which uses such diverse technologies as data analysis, the Internet of Things (IoT) and artificial intelligence (AI). Sustainable agriculture is being promoted on two different scales across the region. The countries of the Gulf Cooperation Council (GCC) are at the forefront of a large-scale agrotechnical movement through cooperation between startups, private business and governments. To date, the UAE has made the most significant investments in this area: the Abu Dhabi Investment Authority (ADIO) has invested at least \$100 million in agrotechnical companies in the context of its National Food Security Strategy. Indeed, the search for agrotechnical solutions is especially relevant for the GCC countries, which are particularly susceptible to water scarcity and accelerated desertification.

For the countries of the Persian Gulf, Agritech has successfully implemented a series of unsuccessful strategies aimed at increasing the production of basic crops at the expense of huge costs. Back in the late 1970s, Saudi Arabia, for example, initiated huge subsidies for water irrigation to increase wheat production - significant expenses that the arid country could no longer afford by 2008. Another aspect of the Gulf countries' agricultural strategy was to purchase fertile agricultural land and invest in agriculture in Africa to ensure food supply. In Zambia, Gulf investors have focused on the direct acquisition of agricultural land for the production of grain, sugar, beans and seeds to improve food security. In 2016, the total volume of non-oil trade between Africa and the UAE amounted to \$ 24 billion compared to \$ 17.5 billion in 2014, mainly due to an increase in food exports from the African continent to the Emirates.<sup>6</sup>

Israelis have managed to demonstrate significant success in solving problems with food security. Israeli agriculture is considered one of the most technologically advanced in the world. New plant varieties are being developed here, innovative irrigation systems have been launched, automation and modern interfaces are being introduced. The state also exports its knowledge and experience to many countries around the world. The volume of agricultural production in Israel is less than 1.5% of GDP. But the country meets its own food needs by 95%, providing the local population with fresh vegetables, fruits, eggs, poultry meat, milk and other products. Only cereals, oilseeds, meat, coffee, cocoa and sugar are imported into the country. Moreover, Israel also exports some types of food, which account for 15% of total production. Israel mainly exports vegetable products: potatoes, peppers, avocados, carrots, flowers, herbs, salads and much more. These products are exported to the markets of Europe, America and the Far East.<sup>7</sup>

Innovation is the only way for efficient agriculture to exist in the conditions of the local climate, lack of fertile soils and water. As a result, local agriculture is considered the most efficient in the world. In particular, dairy farms are world leaders in innovation and technology for the production and quality control of dairy products, animal welfare and herd health. Among the agricultural approaches common

<sup>6</sup>. <https://komanda777.livejournal.com/1486442.html>

<sup>7</sup>. <https://aggeek.net/ru-blog/agrarnyj-sektor-izrailya-kogda-pesok-produktivnee-chernozema>



in the country, biological pest control can also be distinguished — this is a "green" technology that uses living organisms, in particular predatory insects, to reduce the pest population. At the same time, no pesticides are used, and the products are environmentally safe.

As a result, it can be stated that the use of the latest "green" technologies is one of the main solutions to overcome the crisis in food security in the Middle East, and the constant maintenance of such initiatives, doing scientific research, introducing investments in the agricultural sector. A striking example of such initiatives is Israel, which is an example for other States in the region. However, most countries will still remain dependent on imported products from foreign countries in the near future, in order to increase the reliability of this option to ensure food security, they need to ensure the constant security of transit routes and maintain political stability in the region so as not to undermine the food supply chain. Otherwise, it threatens the risk of starvation of a significant mass, which may eventually lead to internal political destabilization in the "starving" countries of the Middle East.