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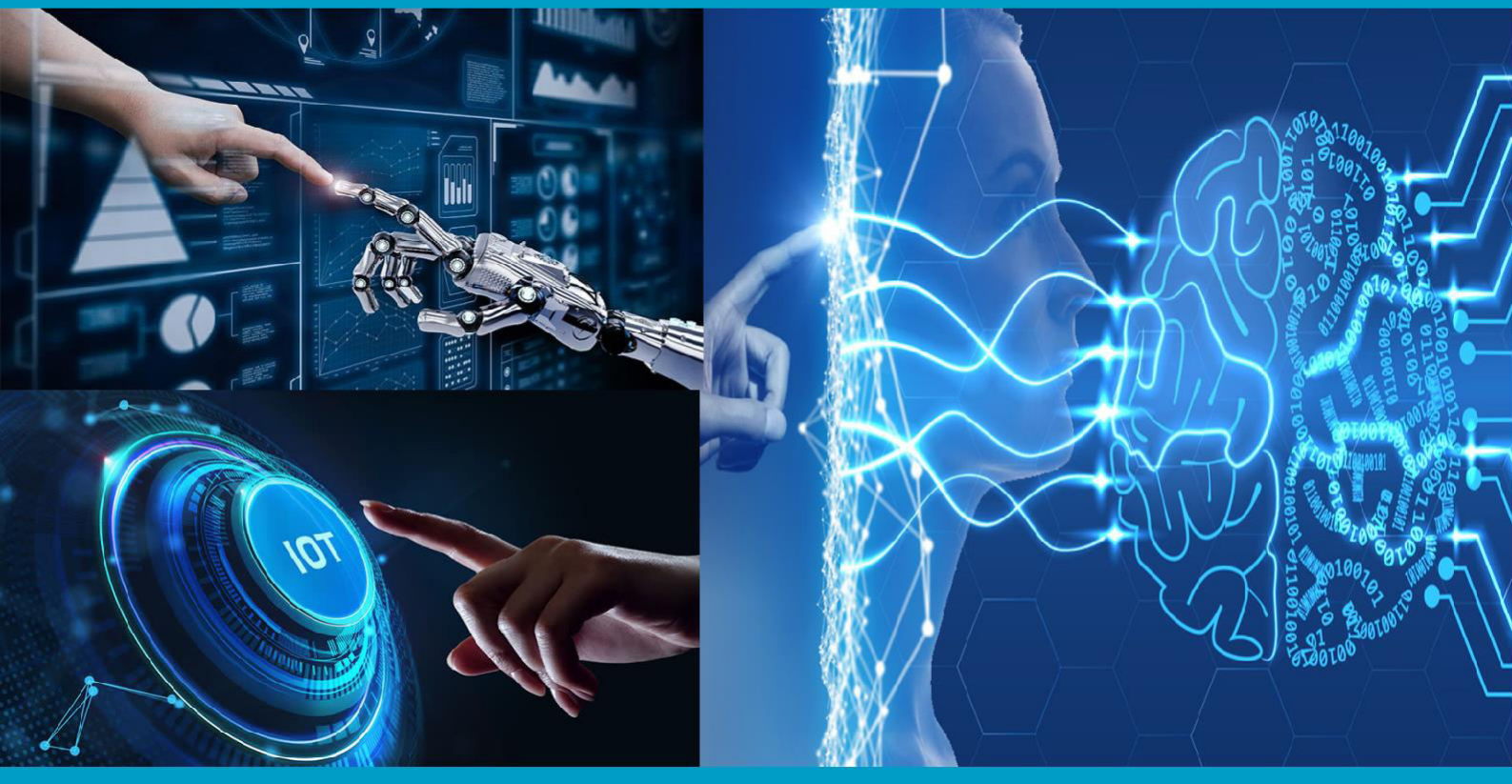

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Directions for Agricultural Development and Ensuring Food Security in Uzbekistan

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ABSTRACT

Achieving food security and independence involves overcoming various risks and threats. The most probable and dangerous risks should be recognized: natural, weather and man-made; economic and industrial; innovative. Macroeconomic risks, including those related to the global market situation, as well as political risks of a national and global scale, have a strong impact on the agri-food complex. Threats to achieving food security are associated with a low income level of a significant part of the population, underdeveloped infrastructure, depreciation of fixed production assets, a shortage of personnel in agriculture, and an inefficient management system.

KEYWORDS: Agricultural production, Global Hunger Index, Government policy, Fluctuations (volatility) of the prices, Food production, Food security, indicators, Productivity, Self-sufficiency, Food supply, Food consumtion, Undernourished population, The criteria for ensuring food security and independence, The share of agriculture in the gross domestic product.

INTRODUCTION

Ensuring food security is a guarantee of ensuring the independence of Uzbekistan, socio-economic and political stability in the country. Situations such as natural disasters, lack of water for irrigating land, and droughts on earth as a result of climate change make it difficult to grow food products. As a result, prices in the world food markets are rising.

It is a clear proof that the level of financial condition of families has decreased in 54 countries of the world, the majority of the population of more than 20 countries is suffering from hunger, the average life expectancy of the population has decreased in 12 countries, and more than 840 million people of the world are suffering from hunger in recent years [1]. That is why issues of ensuring food safety are given great importance all over the world.

The criteria for ensuring food security and independence are linked to indicators of the share of domestic products in the total volume of commodity resources of the domestic market. These indicators for different types of products are at the following levels: at least 80% - sugar, vegetable oil, fish; at least 85% - meat; at least 90% - milk and dairy products; at least 95% - grain, potatoes.

DATA AND METHODS

In the process of research, theoretical methods of induction, deduction, generalization and comparison were used. The necessary materials are investigated on the basis of the methods of typological analysis, the synthesis of statistical data.

MAIN RESULTS

In 2010–2020 the share of agriculture in the gross domestic product of Uzbekistan has slightly decreased - from 28.7% to 26.1% [2]. The industry is characterized by sustainable growth rates (4.7% annually on average for the period 2010-2020). In the context of the pandemic in 2020, agriculture recorded a growth of 3.0%. In Central Asia, Uzbekistan is one of the leading producers of cotton, horticultural products, fruits and berries. However, the volume of gross value added at purchasing power parity of agriculture per one employed in the industry in Uzbekistan amounted to 17.7 thousand dollars, which is two times lower than labor productivity in Belarus and Russia.

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Food production is still important for the economy, despite a significant decrease in the share of this industry in the volume of industrial production - from 14.5 to 11.5% in the period from 2010 to 2020. The food industry amounted to 8.9% over period 2010–2020 The industry is a priority, has strategic and social importance in terms of food security and employment policy. Within the framework of state and regional development programs in the industry, large investment projects are being implemented aimed at deep processing of raw materials and equipping enterprises with innovative technologies. In the context of the COVID-19 pandemic, the industry provided significant support to the economy, with the food industry recording an 8.7% growth in 2020. Uzbekistan is a net importer of food items. Th e negative trade balance is about $500 million per year. More than 60% of all food imports of Uzbekistan are high-calorie basic products, such as grain and grain products, vegetable oil and raw materials for its production, as well as sugar.

The main risks and factors affecting food security are population growth, increasing demand for land, water and energy resources, as well as dramatic climate change. In recent years, as a result of the implementation of a number of measures in the country to strengthen food security, Uzbekistan has gradually strengthened its position in the world and gradually improved its status in global rankings. In the overall ranking from 2019 to 2021, having taken 78th place out of 113 in 2021, the total score of Uzbekistan decreased by 0.7 units [3]. Thus, the improvement in ranking positions is due to a large regression in achieving food security in other countries during the pandemic. The score allowed Uzbekistan to maintain its place in the group of countries with a moderate level of food security. In 2021, Uzbekistan ranked 21st out of 135 countries in the Global Hunger Index. It is worth noting that in 2020 the country was in 30th place. Kazakhstan is in 28th place, Kyrgyzstan is in 40th, and Turkmenistan is in 48th [4].

The ranking of countries is determined by summing up the following indicators - the proportion of the undernourished population, the proportion of children under the age of five who are underweight, the proportion of children under the age of five who are stunted, and the mortality rate of children under the age of five. However, the main challenges that need to be addressed are the problems of achieving a stable food supply for vulnerable segments of the population, increasing the purchasing power of low-income households, and preventing sharp fluctuations in prices and output.

In Uzbekistan, between 2000 and 2020, despite the fact that the permanent population of the country increased by 1.4 times and the total area of cultivated land decreased by 12.1%, wheat production from food products was increased by 1.63 times, potatoes -4.29, vegetables -3.5, fruits- 3.62, grapes -2.62, meat (live weight) -3.0, milk- 3.03. and eggs -6.23. Most importantly, this growth was not driven by extensive factors, but by intensive factors such as productivity and productivity [5].

In 2019, the Ministry of Health of the Republic approved the medical standards for food consumption. According to these norms, self-sufficiency in grain for the production of bakery products is 32.4 percent, fruits and berries - 14.4 percent, rice - 58.1 percent, eggs - 68.3 percent, fish products - 43 percent (Table 1). Increasing the volume of production of these products changes the per capita consumption of products in the country in the direction of quality.

Table 1

Level of self-sufficiency in agriculture and food products of the Republic of Uzbekistan, 2020 year [6]

№	Product type	Unit of measure	2020 year	Produced per capita (population 34,558 million people)	Average demand per person per year, kg	Food self-sufficiency level, in %
1	Wheat	thousand tons	6016,3	27,5	84,2	32,6
2	Rice	thousand tons	284,9	8,2	14,2	58,1
3	Legumes	thousand tons	330,9	9,6	5,4	177,3
4	Potatoes	thousand tons	3143,5	91,0	48,6	187,2
5	Vegetables, total	thousand tons	10459,5	302,7	107,1	282,6
7	Fruits and berries	thousand tons	2864,0	9,5	65,8	14,4

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8	Grapes	thousand tons	1639,2	47,4	15,5	306,0
9	Meat (live weight)	thousand tons	2 526,2	55.4	44,2	125,3
10	Milk (dairy products)	thousand tons	11 009,9	318,6	301	105,8
11	Egg	million pieces	7 825,0	226,4	331,7	68,3
12	Fish	thousand tons	144,08	4,2	9,7	43,0

As the President of the country Sh.Mirziyoev noted, "Strengthening the health of our people, establishing a healthy lifestyle is a vitally important issue for us. The purpose of agricultural reforms is to ensure food security and increase people's well-being, along with economic benefits" [7].

As a result of various external influences, at a time when serious risks are arising in the field of food supply all over the world, it should be noted that remarkable measures are being taken to strengthen food security in our republic. At the same time, the increase and fluctuations (volatility) of the prices of some agricultural products were observed in the food markets of our country. In order to provide the population with socially important food products and prevent price fluctuations, it is appropriate to introduce state procurement and commodity interventions using minimum and maximum prices.

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The ranking of countries is determined by summing up the following indicators - the proportion of the undernourished population, the proportion of children under the age of five who are underweight, the proportion of children under the age of five who are stunted, and the mortality rate of children under the age of five. However, the main challenges that need to be addressed are the problems of achieving a stable food supply for vulnerable segments of the population, increasing the purchasing power of low-income households, and preventing sharp fluctuations in prices and output.

An important factor in ensuring the competitiveness of agriculture is the development of value chains. The high costs of collection, transportation, storage, processing, packaging and certification in the delivery of products from the field to final consumers reduce the profits received by agricultural producers. For example, the average cost of mineral fertilizers in the world has increased by 70-80% compared to last year. The most significant increase was in the prices of nitrogen fertilizers, which are the basis for the growth of all agricultural crops. In the cost of nitrogen fertilizers, up to 80-90% are the costs of natural gas. Many plants for the production of nitrogen fertilizers simply stopped, because it is necessary to raise prices for nitrogen fertilizers by 5-8 times in order to maintain the economic feasibility of production. However, fertilizers, despite some recent weakening of gas prices, continue to rise in price, and demand remains high [10].

The low level of development of the food industry limits the opportunities for increasing the production of high value-added products. In order to attract investment in infrastructure development, developed financial markets, a favorable business climate, and measures to support producers and promote the development of value chains are required. The limited capacity for processing and packaging products in dekhkan farms, which produce the bulk of exported fruits and vegetables, leads to significant losses. At the same time, seasonal price fluctuations and volatility in market conditions also have a negative impact on their operations [11].

It is necessary to ensure the safety and quality of agricultural and food products by bringing the national legal framework for sanitary and phytosanitary control in line with the requirements of the World Trade Organization and the standards of target international markets. In addition, partnerships between procurement, processing enterprises and exporters with dekhkan farms and owners of household plots, which account for more than 70% of gross agricultural output, are not sufficiently developed.

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The lack of legal protection for individual land use rights currently limits effective land management and limits investment. Clear and transparent mechanisms for the distribution of land plots and protection of the rights of land users have not yet been fully developed. In addition, the lack of legal sub-leasing mechanisms hinders the transfer of agricultural land to users with the greatest demand and potential.

Of the 20.2 million hectares of agricultural land, only 20.7% are irrigated. Over the past 15 years, the availability of irrigated land per capita has decreased by 24% (from 0.23 ha to 0.16 ha). This is a result of population growth, reduced water supply and the transfer of agricultural land to other categories of the land fund. According to forecasts, over the next 30 years, the area of irrigated land may decrease by another 20-25%. Insufficient level of guarantee of the right to land use hinders the growth of the efficiency of farm management and limits the attraction of investments [1].

Currently, clear and transparent mechanisms for the distribution of land plots, as well as the protection of the rights of land users, have not been fully developed. It also does not provide for the possibility of subleasing land plots, which prevents the transfer of agricultural land to users with great potential. About 80% of the country's water resources are formed by transboundary watercourses. This highlights the importance of inter-regional cooperation for sustainable water management in Central Asia and in the Republic of Uzbekistan in particular. In the country, 70% of irrigation networks do not have anti-filtration coverage, as a result of which part of the water is lost during transportation to the fields. The existing irrigation infrastructure, most of the pumping stations have been in operation for more than 30-40 years and need to be reconstructed or overhauled. At present, only 1.7% of irrigated lands have drip irrigation. Given the high dependence of agriculture on irrigation, the situation may worsen with increased aridity as a result of climate change and the continued use of traditional irrigation methods.

According to the forecast of the World Resources Institute, by 2040 Uzbekistan will become one of the 33 countries with the largest water deficit. Reduced yields will have serious negative impacts on food security and the balance of payments, highlighting the need for a shift towards sustainable water management and resource-saving practices in crop production. The lack of a mechanism for reimbursing the cost of providing water for agriculture hinders the widespread introduction of water-saving technologies.

The bulk of government funding for the sector is spent on irrigation (63%), used for cotton and cereal production. Most of the budget funds are spent on paying for electricity for pumping stations, as a result, the costs of operation, maintenance, development, and modernization of irrigation and drainage systems are not fully covered. At present, public funding for the provision of general services is very low and without a strategic plan. There is no link in the budget system between international financial and credit programs to support the sector (more than $3.5 billion) with major government investment programs or strategic planning processes [15].

Many of the local varieties of agricultural plants have low yields and do not meet the requirements of foreign markets. There is an increasing dependence on expensive and unadapted imported crop varieties.

Uzbekistan is ranked 88 out of 180 countries according to the 2020 Environmental Performance Index (EPI), which quantifies performance across 24 indicators in 10 categories covering environmental health and system viability.

Natural resources, if used in a sustainable manner, have the potential to contribute to growth and poverty reduction as Uzbekistan has a rich resource base including natural gas, oil, gold, copper, lead, zinc, tungsten and uranium. However, the irrational exploitation of these resources has led the country to serious environmental problems. The effects of climate change, degradation of natural resources, and toxic waste from mining and agriculture also seriously limit the prospects for the country's future economic growth, as well as the opportunities of the population.

From 2009 to 2017, water use in agriculture accounted for 89-92% of the total water used, while about a third of the total water used in this sector is wasted. Losses due to inefficient water use are estimated at around 8 percent of GDP. By reducing or eliminating losses, the country would solve the problem of water scarcity and save enough water to mitigate the problem of changes in available annual water resources caused by variable rainfall (SDG 6.4) [4]. However, despite ongoing institutional reforms in this area, the scope of water-saving technologies is not expanding at a satisfactory pace. In 2019, the total area covered by water-saving technologies reached only 9.6 percent of irrigated land, and according to the recently adopted Agricultural Development Strategy for 2020-2030, the goal is for this figure to reach 32 percent by 2030 [2].

At the same time, the analysis showed the presence of interrelated problems and needs in ensuring an efficient, resource-saving and environmentally friendly economy in the face of climate change. In particular, accelerated industrialization and population growth significantly increase the economy's need for resources, as well as increase the negative anthropogenic impact on the environment and the growth of greenhouse gas emissions [8].

The low level of energy efficiency of the economy, the irrational consumption of natural resources, the slow renewal of technologies, the weak participation of small businesses in the implementation of innovative solutions for

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the development of the "green" economy hinder the achievement of priority national goals and objectives in the field of sustainable development of the country.

It is worth noting that solar energy in Uzbekistan is a very promising area of development. The potential of solar generation in the country is from 525 to 760 billion kWh.

Despite the fact that the share of agriculture in the total volume of gross domestic product tends to decrease, high growth rates of agricultural production are observed. In particular, in 2020, the volume of agricultural production increased by 2.2 times compared to 2016, amounting to 249,754.5 billion soums, including crop production reached 123.6 trillion soums. sum, livestock products - 126.2 trillion. sum [15].

In the structure of GDP the share of agriculture, forestry and fisheries in 2020 amounted to 28.2%. This year, the growth rate of products (services) of agriculture, forestry and fisheries, compared to the corresponding period of 2019, amounted to 103.0%, including in crop production - 103.4% and livestock - 102.1%.

It is also important to encourage the introduction of modern agro-technologies, to create an effective system of procurement and preparation, distribution, processing and sale of agricultural food products in order to solve the problems of increasing the productivity of agricultural products and productivity in animal husbandry. In particular, it is necessary to create a mechanism that provides food products throughout the year and reduces seasonal price fluctuations. From this point of view, it is necessary to implement effective methods of storage of fresh and processed food products. By 2030, it is intended that Uzbekistan will join the group of countries with higher than average income [9].

CONCLUSION

It is necessary to develop and effectively implement a state policy aimed at providing safe and quality food at stable prices for the entire population, namely:

- improvement of mechanisms for providing food to socially vulnerable segments of the population, as well as the integration of agricultural producers with objects of social importance;

-introduction of a food security assessment system and ongoing monitoring based on internationally recognized methodologies and best practices;

-development of long-term programs to promote a culture of healthy eating;

-development of sectoral programs to intensify the production of socially significant types of products;

- carrying out research work aimed at increasing the productivity of animal husbandry, sustainable intensification of the production of fish and poultry meat, as well as milk.

-introduction of a system of intervention purchases in the domestic market of agricultural products;

- improvement of mechanisms for providing food to socially vulnerable segments of the population, as well as the integration of agricultural producers with objects of social importance.

This leads to a corresponding change in lifestyle, behavioral patterns, and diet. Taking this into account, it will be necessary to ensure the increase in the share of processed food products for several goods. In addition, the introduction of food standards and norms (including the presence of microelements and necessary nutrients, control of harmful substances, various additives, dyes, flavors, emulsifiers, control of compliance with preparation, transportation technologies), as well as control over the quality of food it is necessary to further develop the mechanism.

In order to improve the diet of the population, it is necessary to spread the necessary information about healthy nutrition, and in this regard, it is necessary to increase the activity of medical institutions.

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