Ministry of Agriculture
of the Republic of Uzbekistan

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AGRICULTURE IN THE NEW UZBEKISTAN

CREATING A MORE PRODUCTIVE, SUSTAINABLE, AND RESILIENT FOOD SYSTEM

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SEPTEMBER 2023

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Dear Delegate,

On behalf of the people of Uzbekistan, I welcome you to Samarkand for the International Conference on Food Security, an event that addresses important development priorities for the Republic of Uzbekistan, as for countries around the world.

Since 2016, my administration has implemented an ambitious reform program, seeking to unlock the economic and social potential of our nation. But even as we embrace the "New Uzbekistan," some things will remain unchanged, including the central role that agriculture plays in our economy and society.

The importance of agriculture is reflected in our state emblem. The sun rises over a fertile valley, bounded by two mighty rivers, the Syrdarya and the Amudarya. The scene is framed by a sheaf of wheat on the right and a bundle of cotton on the left, representing our two most strategic crops. The emblem reminds us that if Uzbekistan is to flourish, it must have successful harvests and prosperous farmers.

In recent years, my administration has sought to modernize the agri-food sector. We are currently implementing the Agricutlure Development Strategy for 2020-2030, working closely with international partners to facilitate the investment and knowledge transfer necessary to make our agri-food sector more productive and sustainable.

While Uzbekistan has been blessed with ample agricultural lands, it is also a double landlocked country. We have an inherent understanding that supply chains can be fragile. In just the last few years, the COVID-19 pandemic, geopolitical turmoil, and climate events have made clear the importance of resilient food systems.

To this end, we are diversifying our horticultural production. Agriculture in the New Uzbekistan about far more than cotton and wheat. Our farmers have been working hand-in-hand with policymakers to create the conditions necessary for more diverse agricultural production.

Today, a wider variety of Uzbek vegetables, fruits, and nuts are available in traditional bozors and modern supermarkets. These products are also being exported to new markets around the world. We have also made important strides to strengthen our livestock sector, which supports the livelihoods of millions of our citizens. But there remains much work to be done to improve food security at the local, regional, and global levels.

By hosting the International Conference on Food Security, Uzbekistan is providing a platform for coordinated action. New policy solutions are needed to achieve Sustainable Development Goal 2, which aims to eliminate world hunger by the end of this decade.

I thank the Food and Agriculture Organization of the United Nations for convening this important conference and the attending agriculture ministers for their tireless efforts to advance food security and safety.

I wish you productive deliberations.

Shavkat Mirziyoyev
President of the Republic of Uzbekistan


INTRODUCTION

Welcome to the New Uzbekistan

The Republic of Uzbekistan is the geographic heart and largest population center of Central Asia. Uzbekistan borders Kazakhstan to the north and north-east, Kyrgyzstan and Tajikistan to the south-east, Turkmenistan to the west, and Afghanistan, to the south. The total length of the country's borders is 7090 km. Uzbekistan is located at the center of the Great Silk Road and has been known since ancient times as an intersection for caravan routes crossing Asia, Europe, and Africa. It was on the territory of ancient Mawarannahr, where modern Uzbekistan is located, that the mutual enrichment of civilizations and cultures took place, fostering exchange between Chinese, Indian, Persian, Byzantine, and Egyptian civilizations. With a history of statehood spanning more than 3,000 years, Uzbekistan has long been one of the world's most developed centers of commerce, science, culture, and art. The Republic of Uzbekistan declared independence in 1991.

This report provides an overview of Uzbekistan's agriculture sector and highlights its recent development and achievements. The adoption of the Agriculture Development Strategy for 2020-2030 introduced ambitious goals for the sector, which is a cornerstone of Uzbekistan's economy. Sustainable growth of the agriculture sector is a priority within Uzbekistan's broader reform and development agenda. Following his election in 2016, President Shavkat Mirziyoyev embarked on an ambitious reform agenda to create the "New Uzbekistan." During his first five-year term, Mirziyoyev, who was recently re-elected, revamped its foreign policy, building diplomatic bridges that would help reconnect the country to the global economy. Economic and legal reforms were implemented to facilitate foreign trade and attract foreign investment. The Uzbek government also reviewed the basis of the country's social contract, pursuing political reforms to create greater space for civil society and to promote transparency and accountability in government at the national, regional, and municipal levels. Today, Uzbekistan enjoys a strong foundation for the country's continued economic development, including the further development of the agriculture sector.

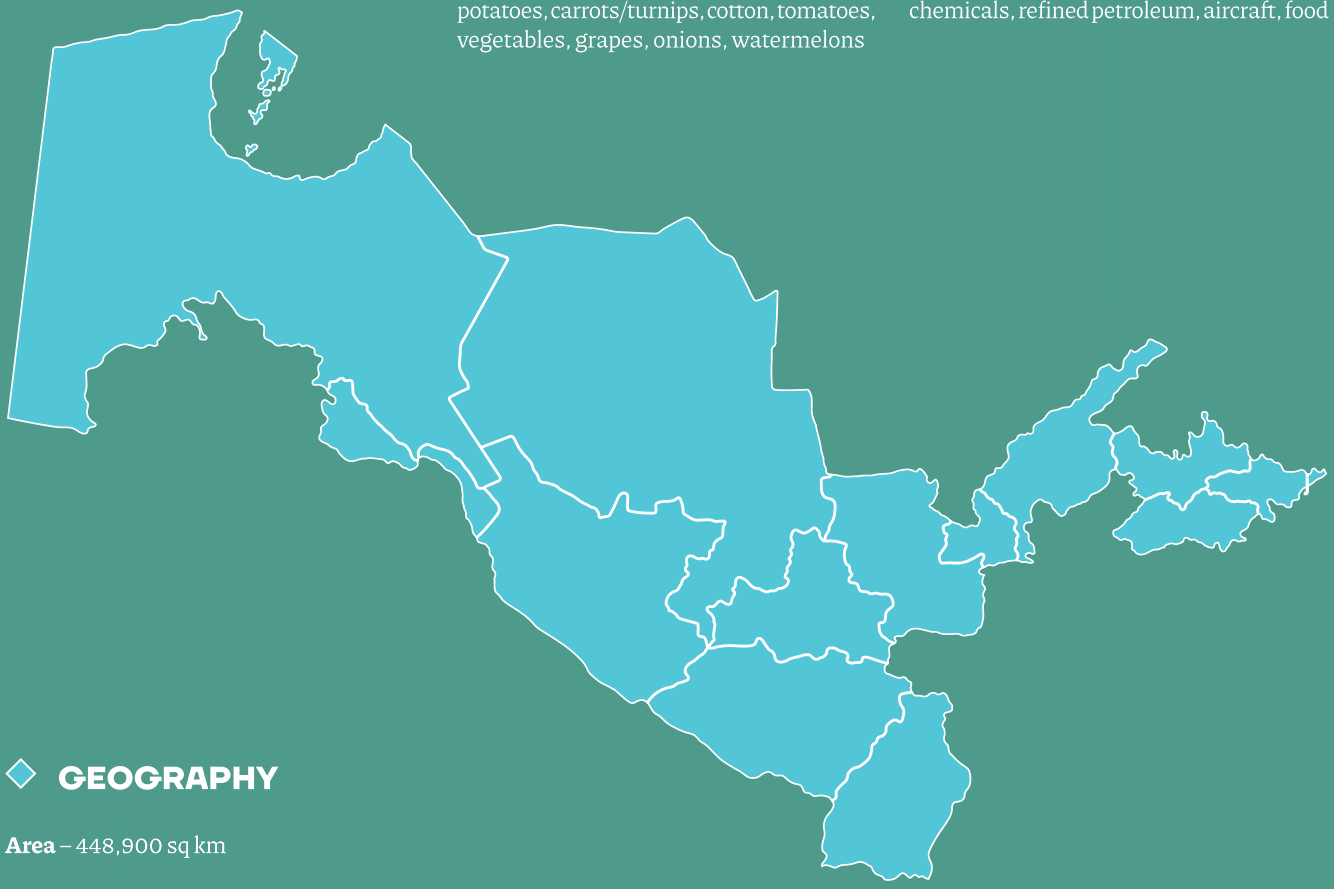
ECONOMY

Industries – Textiles, food processing, machine building, metallurgy, mining, hydrocarbon extraction, chemicals

Agricultural products – Milk, wheat, potatoes, carrots/turnips, cotton, tomatoes, vegetables, grapes, onions, watermelons

Major exports – Copper, steel, gold, natural gas, agriculture products, cotton fibers, ethylene polymers

Major imports – Vehicles and machinery, chemicals, refined petroleum, aircraft, food



GEOGRAPHY

Area – 448,900 sq km

Divisions – 12 provinces, Republic of Karakalpakstan and the capital city – Tashkent

Climate – Mostly mid-latitude desert, long, hot summers, mild winters; semiarid grassland in east

Natural Resources – Natural gas, gold, uranium, petroleum, coal, silver, copper, lead and zinc, tungsten, molybdenum

GOVERNMENT

Government Type – Presidential Republic

Head of State – President (Mr. Shavkat Mirziyoyev, since December 2016, elected to a third term July 2023)

Head of Government – Prime Minister (Mr. Abdulla Aripov, since December 2016)

Legislature – Bicameral Supreme Assembly or Oliy Majlis, consisting of the Senate (100 seats) and the Legislative Chamber (150 seats)

Economic Context

Uzbek policymakers are working hard to implement a complex set of economic reforms. These reforms are intended to boost general economic prosperity in Uzbekistan, in large part by growing the country's share of global trade and global foreign direct investment. Befitting its location at the crossroads of Europe and Asia, Uzbekistan's economic reform agenda shares features with two major development models. On the one hand, the country is seeking to eliminate vestiges of the Soviet plan economy following the model of Eastern European countries that liberalized during the 1990s. On the other hand, the country is seeking to boost the production and export of value-added products following the model of the fast-growing East Asian economies.

At the heart of Uzbekistan's reform agenda is more astute monetary policy. In September 2017, the Central Bank of the Republic of Uzbekistan unified the exchange rate and liberalized the foreign exchange market. Today, according to the World Bank, "Uzbekistan's economy is reaping the benefits of structural reforms." The devaluation of the Uzbek currency, the sum, was highly successful. The move helped improve foreign exchange liquidity and improved the price competitiveness of Uzbek exports. Meanwhile, the inflationary impacts were minimized. Since peaking at around 20% in 2018, annual inflation has continued to decline, falling to 10% in the second quarter of 2023.

The government has also made moves to strengthen its fiscal policy through interventions in tax policy and public spending. Beginning in 2017, the government moved to streamline tax administration and reduced the tax burden on businesses, culminating in a new tax code introduced in January 2020. While tax rates for corporate profit tax, personal income tax, and the social tax were unified and reduced, the lower tax rates were offset by improved collection as the tax administration was reformed. Looking to government spending, the role of public expenditures in Uzbekistan's economy remains high—a legacy of the country's formerly state-led economic model. In 2020, government spending amounted to about 35% of GDP, seven percentage points higher than the average among global peers (World Bank, 2022). So far, the government's focus has not been to reduce spending so much as to spend more intelligently, including by making a larger proportion of public spending subject to budgetary regulations. Today, that proportion is 90% (World Bank, 2022). Uzbekistan continues to run a structural deficit as it pursues a growth-minded fiscal policy. However, the government continues to enjoy fiscal space. According to projections from the IMF, general government debt is expected to peak at 41% this year, before beginning to subside. According to the 2021 budget law, government debt cannot exceed 60% of GDP.

Privatization is also a central feature of the economic reform agenda. Uzbekistan's economy remains dominated by 2,800 state-owned enterprises (SOEs) accounting for around half of GDP. In January 2019, President Mirziyoyev established the State Assets Management Agency of the Republic of Uzbekistan (UzSAMA). This agency was responsible for improving the management and corporate governance of SOEs and for the planned privatization of 1,100 SOEs in the coming years. The remaining companies will be merged or liquidated. In March of 2021, a new strategy was approved on SOE ownership that outlined steps for the transformation of SOEs in advance of their privatization. While the number of completed privatizations remains limited, a flagship deal was completed in August 2021. UzSAMA oversaw the sale of the Uzbek government's 57% stake in Uzbekistan's Coca-Cola bottler to Turkey-based Coca-Cola İçecek A.Ş. in a $252 million transaction. The deal exemplifies the opportunity for foreign investors to participate in the Uzbekistan's privatization process and to acquire promising assets in a wide range of economic sectors.

GDP – $80.4 billion (2022, nominal)

GDP growth – 5.7% (2022)

GDP per capita – $2,255 (2022, nominal)

Goods export turnover – $19.31 billion (2022)

Goods imports turnover – $30.67 billion (2022)

CHAPTER 1: AGRICULTURE IN UZBEKISTAN

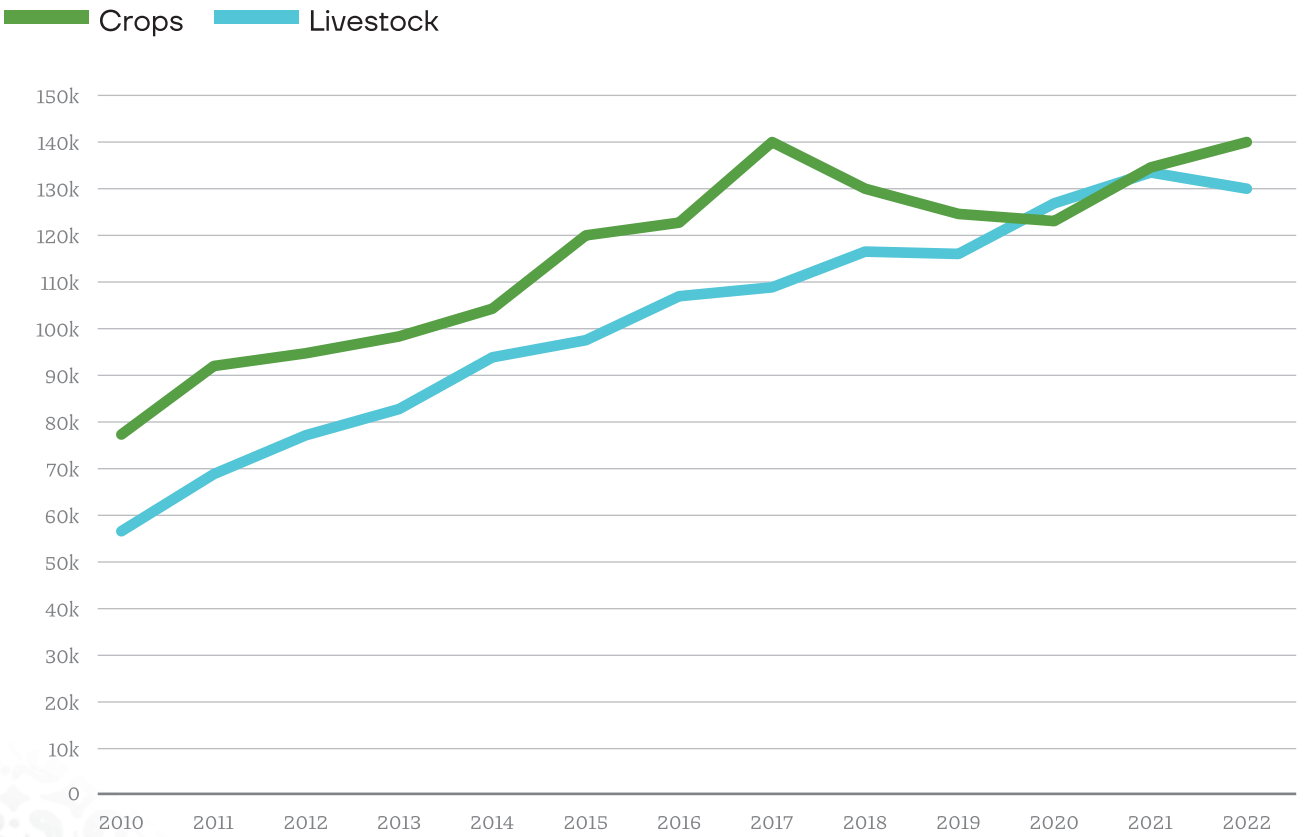
Importance of the Agri-Food Sector

Uzbekistan has 21.5 million hectares of agricultural land, of which 4.2 million hectares are arable land. Given its favorable agricultural conditions and 320 sunny days per year, two to three harvests during a year are possible. Cotton and grains are the country's principal crops. However, thanks to the elimination of quotas and price controls in 2020-2021, Uzbekistan is experiencing a shift to more diverse agricultural production, including horticulture. In recent years, the Government of Uzbekistan has emphasized wheat production and supported poultry and animal farming. At the same time, the profitability of fresh fruit and vegetables cultivation has increased, with many developing export markets.

The agri-food sector includes agriculture, forestry, fishing, food industry and beverages manufacturing, textile manufacturing and agri-food-related trade. It is an important economic sector in Uzbekistan, accounting for around 25% of the country's GDP. According to data from the Statistics Agency under the President of the Republic of Uzbekistan, nominal output in the agriculture sector was UZS 364.5 trillion, comprised of UZS 179.9 trillion in crops output and UZS 167.7 trillion in livestock output. When presented in real terms, agricultural production shows a strong growth trend over the last decade.

Uzbekistan's Agricultural Production

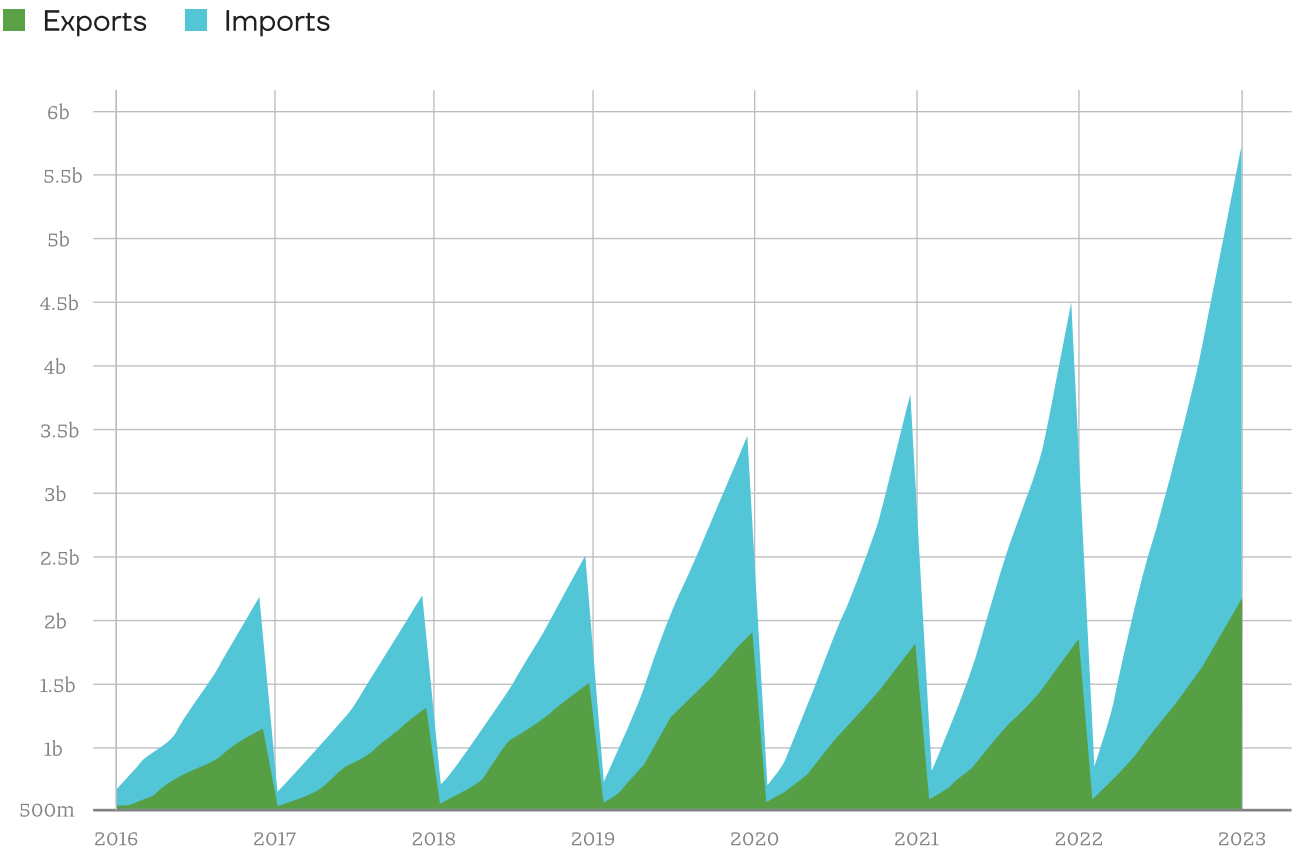
Output in billions (constant 2020 UZS)



Uzbekistan's agricultural-related trade turnover has also been growing. In line with the country's overall trade balance, Uzbekistan remains a net importer of food products. According to data from the Statistics Agency under the President of the Republic of Uzbekistan, total food exports reached $1.76 billion in 2022, while imports totaled $3.59 billion. However, food exports have risen dramatically since the outset of the country's economic reform agenda. Between 2016 and 2022, exports have grown at an average annual rate of 18.5%. As part of its drive to increase agricultural exports, Uzbekistan has registered about 500 agricultural products in the GSP+ preferential trade scheme and already counts around 60 export-oriented logistic centers across the country (Ministry of Agriculture of the Republic of Uzbekistan 2023).

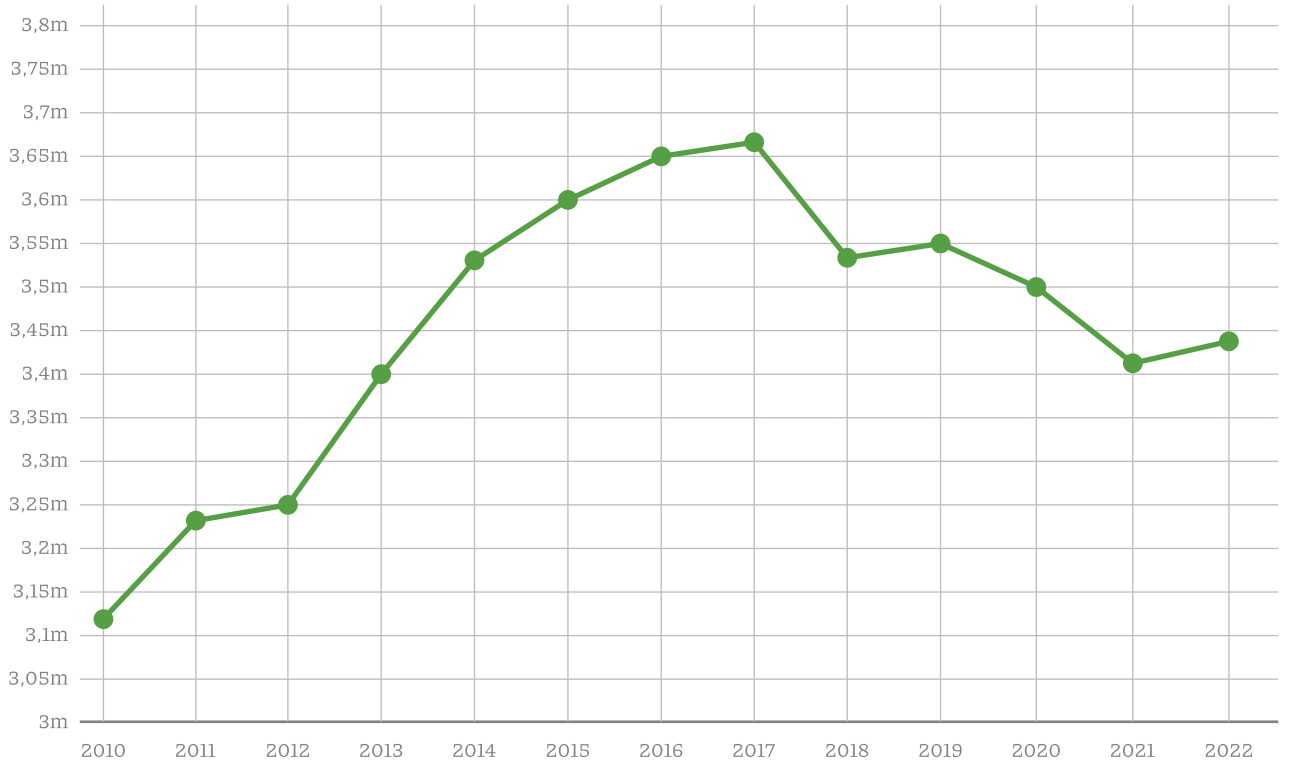
Uzbekistan's Food Trade

Year-to-date trade in USD



Around 49,1% of the total population of Uzbekistan lives in rural areas. The agriculture sector provides employment to about 3.4 million people, over 26% of the national labor force (IFAD 2022). However, a large share of the rural population is underemployed and 80% of agricultural workers are employed informally (EU Delegation to Uzbekistan 2022). This shows that employment in the agri-food sector has a high potential for generating better incomes and living conditions, especially for the rural population. The total number of people employed in agriculture, forestry, and fishing has fallen in recent years, even as output has increased. This reflects the productivity gains from efforts to modernize the sector, including the increased use of agricultural machinery and the adoption of more efficient farming practices. The employment structure has been changing and is now starting to include more value-added activities along the whole agri-food supply chain, including food and textile processing, among other services. Working conditions in the agriculture sector are improving. For instance, the average wages of cotton pickers have doubled, from an average of 450-700 UZS/kg of cotton in 2017 to 1,500-1,800 UZS/kg in 2022.

Employment in Agriculture, Forestry, and Fishing



CHAPTER 2: FEATURES, POTENTIAL, AND KEY REFORMS

Development Strategy

Uzbekistan's Agriculture Development Strategy for 2020-2030 introduces reforms that will ensure the country's sustainable production of agri-food products, all while preserving natural resources, improving rural livelihoods, and modernizing sector operations. The Strategy provides a framework for actions that optimize the sector's economic, environmental, and social potential. It promotes developments that increase investment in farm support services, accelerate the transition to sustainable water management and resource-saving technologies in crop cultivation, and increase investment in agriculture research, farm modernization, and market infrastructure. The nine key priorities identified in the Agriculture Strategy for 2020-2030 are:

PRIORITY 1
Ensuring food security and nutrition.

This priority includes improving the availability, access, utilization, and stability of food security. The main challenges in this area are food price fluctuations, the global recession and pandemic, low soil fertility, the low efficiency and competitiveness of agriculture and the food processing industry, as well as policies that still restrain a market-oriented economy. To begin with, the Ministry of Agriculture drafted a Food Security and Nutrition Strategy (FSNS) and Roadmap in 2020, with technical assistance from the EU. Despite the global pandemic, many advances have been made to ensure food security in Uzbekistan.

PRIORITY 2
Creating a favorable agri-business climate and value chains.

Uzbekistan aims to create more favorable conditions for agri-businesses, both in terms of investing in foreign farmlands and facilitating international trade. Among the measures that have been adopted so far is the development of an e-commerce platform that will help simplify transactions in the agri-food sector, the promotion of organic farming and international standards in agriculture and the introduction of business environment indexes.

PRIORITY 3
Reducing the role of the state in sector management and increasing investment attractiveness.

The Uzbek government has been undertaking systemic measures in the past year to increase farmers' freedoms and strengthen market conditions. Among others, the government is abolishing state cotton and grain procurement, eliminating forced labor, supporting private investments to water-saving technologies, improving land distribution criteria, privatizing state-owned businesses in agri-food supply chains, improving climate change resilience, and encouraging international investment.

PRIORITY 4
Ensuring rational use of natural resources and environmental protection.

A healthy environment and the sustainable use of natural resources both directly impact agriculture and are in turn impacted by it. With the livestock sector being one of the most important agriculture sectors in Uzbekistan, a new livestock strategy will provide a framework for a more sustainable and resilient development of this subsector. Because Uzbekistan is very vulnerable to climate change related risks, another priority area is climate change mitigation and adaption. Finally, an emphasis is put on the sustainable development of the water sector.

PRIORITY 5
Development of modern public administration system.

As part of creating an efficient public administration system for the agri-food sector, several measures are being adopted in Uzbekistan. The responsibilities of the Ministry of Agriculture are expanding, while the agricultural education system is being reformed. Another emphasis is on communicating and increasing sector awareness among the public, specifically through a new Media Centre in the Ministry of Agriculture. Finally, to improve public services for agribusinesses, a new Agricultural Knowledge and Information System (AKIS) was created.

PRIORITY 6
Gradual diversification of public expenditures on sector support.

Along with the shift from the emphasis on cotton and wheat to a more diversified range of crops, more public resources are being directed towards smallholder (dehkan) farmers, high-value horticulture, water-saving technologies, vocational training, research, and education. Furthermore, international support from the European Union, World Bank and other donors is also helping to shape a more diverse public support system for agriculture.

PRIORITY 7
Development of research, education, and a system of information and advisory services.

The recently developed AKIS system unites a wide range of advisory services for farmers, made available through several regional agriculture service centers. Newly equipped laboratories, staff training, consulting, and legal services as well as veterinary, plant health and land management advice will complete the picture. The government of Uzbekistan recognizes the importance of education for developing the agri-food sector and has established Farmers' schools in five regions.

PRIORITY 8
Development of rural areas.

Given the high percentage of Uzbeks being employed and/or living in rural areas, rural development is an important issue. According to the Multi-Annual Indicative Program 2021-2027 for collaboration between the EU and Uzbekistan, "The agri-food sector demonstrates major growth and export potential and is the foundation for promoting rural livelihoods, creating decent jobs, and improving food security and nutrition. However, the market inclusion and competitiveness of small holder farmers, who comprise the majority of producers, is limited. Employment potential in the agriculture, food, and textile industries, especially for rural women and youth, is significant." Rural entrepreneurship and infrastructure, smart villages and bottom-up development concepts are being invested in. Women in rural areas are also being supported to achieve economic and social goals through various training opportunities.

PRIORITY 9
Development of statistics, information systems and digitalization.

Agricultural data can be a helpful tool for decision-makers, and to make the best use of them, a new strategy and Roadmap for the Development of Agri-Food Information and Statistics have been created. With digitalization playing an increasingly important role in all aspects of life, the Ministry of Agriculture also plans to strategically develop "smart agriculture" technologies.

As part of the President's Decree on the Strategy of Development of New Uzbekistan 2022-2026, several particularly important goals have been identified. Among these, measures are being undertaken to at least double the income of dehkan farmers. 464,000 hectares of land are to be allocated to agricultural clusters, and another 200,000 hectares of land under cotton and grain are to be allocated to the population for long-term lease through an open competition.

Another priority is the expansion of export-oriented products through the development of horticulture. More precisely, the area of intensive orchards is planned to be increased threefold, and the area under greenhouses is to be doubled. Along with these ambitious goals, agro-logistic centers and modern laboratories are planned to be developed.

Furthermore, the Government intends to save at least 7 billion cubic meters of water by implementing the state program to reform the water management system and water conservation fundamentally. Finally, to accompany the high growth potential of the livestock sector, fodder production is planned to be increased by 1.5-2 times.

Interview with Aziz Voitov

Minister of Agriculture of Uzbekistan

What are the most important achievements in the agri-food sector of Uzbekistan?

- In recent years, large-scale reforms have been carried out under the leadership of the President in all areas of the agriculture and food sectors. A number of positive results have been achieved. These results reflect the work of farmers, field scientists, and leading specialists working selflessly in the field.

The ongoing implementation of the Agriculture Development Strategy for 2020 – 2030 has also led to important achievements, including an improved position in various international rankings.

For example, in 2022, Uzbekistan rose 15 places to 73rd in the Global Food Security Index with the score of 57.5.

Among the countries considered the best in the Global Hunger Index published by the United Nations' Food and Agriculture Organization for 2022, Uzbekistan improved its performance by 33 places and and rose to 21st place.

To create better incentives for farming entities, free market principles were introduced in cotton and grain production, and the state order practice was abolished.

Abolishing the practice of fixing the purchase price of cotton raw materials and purchasing more than the necessary amount of grain created a great opportunity for farmers.

Today, our farmers are working together using a cluster model. Clusters provide agrotechnical activities in farmers' fields using the most modern equipment and high-quality services.

As a result, in the last 7 years, cotton yield increased from 29.6 to 34 centners (in 2022, 3.5 million tons of cotton were grown), grain yield increased from 58.7 to 70 centners, and extra 4.4 million tons of grain remained at the disposal of farms and residents in 2023.

In the last 3 years, special attention was paid to the digitization of the agricultural and food sector.

In 2021-2023, six information and geoinformation systems were implemented: "E-IJARA," "Agrosubsidiya," "Rubicon Water," "AKIS Education," and "Technical Register." In addition, a system for real-time monitoring of agricultural crops has been developed.

Continuous monitoring and analysis of the vegetation period, condition, water supply level was established using the NDVI, NDMI, GNDVI, and NDWI indices.

For the first time, intensive cultivation of vegetables was implemented in fruit and vegetable farming, and the productivity increased by 200-300 c/ha for vegetables and by 10-15 c/ha for potatoes.

In addition, 9 new in vitro laboratories for growing fruit and grape seedlings were launched and more than 40 million virus-free intensive cuttings were grown. This meant that 60-70% of the demand for seedlings was covered domestically.

In the past 2 years, a total of 193,000 hectares were allocated to 643,000 people, resulting in employment of 2.5 million people. Alongside land allocations, there are also efforts to improve the quality and fertility of farm land. In 2019-2022, a total of 590,000 hectares of land was improved through restoration or improved irrigation.

In 2017-2022, water saving technologies were introduced on a total of 1.4 million hectares of land—398,000 were drip-fed, 31,000 were advanced sprinklers, 16,000 had discrete irrigation, 273,000 had flexible pipes, 236,000 had film hole irrigation, and 452,000 had laser leveling. As a result, 3 billion m 3 of water was saved, and water supply was improved on an additional 400,000 hectares.

What can other countries learn from Uzbekistan in terms of agricultural and rural development?

- We have had many achievements as a result of the work done in the agricultural sector.

The AKIS (Agricultural Knowledge and Innovation Systems) created and implemented in Uzbekistan is a unique system that has almost no analogues in the whole world.

Many countries have various advisory services for farmers and agricultural producers, but there isn't anything exactly like ours. AKIS is an integration of education, science and production. Today, more than 100 types of services are provided to our farmers through this system.

It is possible to carry out aerial photography of all areas in order to ensure accurate accounting of agricultural land and its updating, and to form a database on each field contour section.

The more the agricultural sector is industrialized, the more the country's export potential will increase, new jobs will be created in rural areas, and the people's well-being will improve.

Agriculture, forestry and fishery of the Republic of Uzbekistan in January-December 2022

For the first time in the agricultural sector, market mechanisms and a system of interest-based clusters were introduced, and 844 agro-industry clusters (134 in cotton-textile, 195 in grain, 261 in fruit and vegetable, 41 in rice, 8 in medicine, 34 livestock, 46 cattle breeding, 11 poultry farms, 38 fish farms, 76 cocoon farms) were launched. In 2018-2022, the clusters invested $5.3 billion, of which $1.2 were invested in agriculture.

265 projects worth $4.1 billion were launched to create the added value chain, and more than 288 thousand jobs were created.

In what areas of agriculture does Uzbekistan benefit and learn from cooperation with partners?

- In recent years, Uzbekistan's open policy has expanded the possibilities of direct cooperation with international organizations, including UN FAO, JICA (Japan), KOICA (Republic of Korea), the agricultural support programme of the European Union (ASK Facility), the German Society for International Cooperation (GIZ), the United States Agency for International Development (USAID) and other foreign organizations.

As a result, the opportunity to attract the experiences of developed countries in the field of agriculture and food was expanded.

First of all, international experts, especially from the EU-funded ASK Facility, are directly involved in the preparation of regulatory documents for agricultural reforms.

Also, based on the experience of Turkey and Azerbaijan, which have a developed insurance system in the field, a draft of the regulatory legal document is being prepared on the introduction of mechanisms for effective insurance of agricultural producers' risks and new methods of financing. This, in turn, closely supports the preparation of the documents in accordance with the requirements of international standards.

Secondly, we are well aware that our goals of modernizing agriculture, creating an added value chain in the sector, increasing the volume of production, expanding their type and quality cannot be achieved without attracting foreign investments and relying on the help and support of IMF and banks.

In this regard, we greatly appreciate the support of the International Fund for Agricultural Development, the Asian Development Bank, the World Bank, the International Bank for Reconstruction and Development, the International Development Association, UN FAO, JICA, as well as the agencies of foreign governments.

With their participation, more than $2.5 billion were attracted for the implementation of more than a hundred investment and grant projects. Thousands of projects totaling $1.3 billion were launched, of which $1.1 billion were invested in fruit and vegetable farming, $270 million in livestock sector, and $12 million in other areas.

Thirdly, with the help of international organizations, cooperation with prestigious scientific research institutes of developed countries has been established, and joint projects are being implemented. Some of them have even established branches here.

For example, the Potato Research Center was established in cooperation with the Hungarian state, and the Uzbek-Chinese Rice Research Center was established in cooperation with China. Also, intensive work is being done with China on the establishment of the Yanlin agro-innovation park worth $15 million.

The International Agricultural University and a specialized International School based on the British educational system were established under the Royal Agricultural University of Great Britain.

The International Institute of Food Technology and Engineering was opened in Fergana with the participation of Atyab International Services of the Sultanate of Oman.

Furthermore, investment projects are being implemented in cooperation with large foreign companies.

For example, a poultry cluster in cooperation with "Bonofarm Group" LLC was established to introduce the experience of Hungary;

In cooperation with the leading Qatari company Baladna, relevant works are being carried out on the establishment of a livestock cluster in the Forish district.

A cooperation agreement was signed between the association "Parranda sanoat" and the National Poultry Association of Russia.

A modern agro-logistics center worth $57.7 million is being established by the Russian "Natsionalnaya Rezervnaya Korporatsiya" and the Uzbek BMB Trade Group companies.

The project plans to install a 10,000 ton refrigeration system, processing equipment for fruits and vegetables with a capacity of 50,000 tons, and packaging equipment with a capacity of 270,000 tons. The partners will also establish logistics services with 20 refrigerators and 30 trucks, and a modern greenhouse for 20 hectares.

A $14 million project is being implemented between the Ministry of Agriculture and the Korea Institute for Advancement of Technology to build a greenhouse equipment production complex in Tashkent region and high-tech mini-greenhouses in 5 regions.

An export contract for the supply of dried fruits and vegetables to Germany worth $22 million was signed, and a grant project of $1 million was signed for the sustainable cultivation of fodder crops.

In addition, cooperation with the neighboring countries is also being strengthened. For example, the Republic of Kyrgyzstan

and the Ministry of Agriculture approved the Roadmap aimed at implementing investment projects in agro-industry and increasing trade between two countries for 2022-2025.

An agreement was reached with Tajikistan on the establishment of the orchard "Dostlik Bogi" in the Hisar district using fruit seedlings of Uzbek selection. Today, the final works on the organization of the park are being carried out, and it is planned to open the park in October 2023.

The Agreement on cooperation in the field of agriculture was signed between the Ministries of Agriculture of Uzbekistan and Russia with the Roadmap for cooperation for 2022-2024.

We would like to take this opportunity to express our gratitude to foreign countries and international organizations and express our intention to further expand cooperation.

What do you see as the main problems of the agro-food sector of Uzbekistan today?

At present, the rate of development of the agricultural sector of Uzbekistan is associated with some problems.

Firstly, land degradation and the loss of large areas of pastures from agricultural use. According to studies, currently degraded pastures in the country are about 1.5 million hectares, and this figure is increasing every year. And the desertification of agricultural land is underway. The reasons for the degradation include rather intensive climate change in the region, a decrease in the volume of irrigation water every year, the unsatisfactory state of reclamation systems and acidification of the soil, and the lack of use of mineral and organic fertilizers. As a result, productivity of soil and livestock remains at a low level. These problems directly affect the food security of the country and the whole region.

Secondly, the level of technological modernization of the industry is low. This includes land cultivation and harvesting machinery. After 2017, the renewal of the agricultural machinery amounted to about 10-12% annually. But, at present, the share

of obsolete equipment remains high and amounts to about 30-35%. The fruit and vegetable and livestock industries are being modernized quite effectively. But the level of provision with new highly efficient agricultural machinery is not at a high level and is about 30-35%.

Thirdly, the low level of market infrastructure development. It hinders the access of commodity producers to monetary, informational, and material resources. The insufficient level of knowledge among farmers and other agricultural producers limits access to the markets of material, technical, financial, information resources, and makes it difficult for both small farms and large producers to operate. They experience difficulties with the purchase of seed, feed, raw materials, equipment, and subsequent storage and marketing of finished products.

Fourthly, the financial instability of the industry manifested in the lack of support and investment. The investment attractiveness of the agro-industrial complex is naturally lower than that of other sectors of theeconomy. It is associated with a high level of risks. Thus, in 2017-2022, the volume of inflow of resources into the industry amounted to about $9 billion, which amounted to about 7.4% of the total investment in fixed capital of the country's economy. In addition to the lack of investment, the industry suffers from an unsatisfactory level of insurance in production, instability in the markets for raw materials, agricultural products and food.

Fifthly, there is a dependence on imports, mainly for capital goods. The most serious import dependence is observed in the technical equipment of farms, the acquisition of means of production, seed material and breeding products, plant protection products, and feed amino acids. Increased costs for the purchase of raw materials, equipment and fertilizers from abroad reduce profitability and industry efficiency. Experts estimate the share of imports at 30-40% and in breeding products up to 100%.

Other critical measures are the creation of attractive working conditions for highly qualified personnel, the introduction of innovative technologies, and the provision of an inflow of investments.

What do you see as the main problems of the agro-food sector of Uzbekistan today?

We have defined the medium-term and long-term plans for the agricultural and food sectors of Uzbekistan.

On the basis of international experience, a national program on adaptation to climate change in agriculture and mitigating its negative consequences will be developed. A system for informing farmers and dehkans about climate change problems, opportunities and ways to adaptation and a mechanism for economic stimulation of climate change adaptation will be created.

The Law "On Agricultural Cooperatives" has been adopted, and legal norms have been guaranteed. As a result, the participation of agroclusters, farmers, smallholder farmers, landowners and other entities in cooperative relations will be activated and systematized.

Legal foundations will be created for reliable protection of land rights and the improvement of the system of turning them into a market asset. This document entitles entrepreneurs who have long-term leases to exchange, transfer, mortgage and use land plots as collateral.

Land rotation and methods of combating soil erosion will be introduced. By 2030, 500,000 hectares of land will be put into use, an additional 5.5 million tons of food products will be grown, and 200,000 jobs will be created.

On the basis of modern geoinformation technologies, a permanent control system of soil fertility will be established on 20.2 million hectares of pastures and hayfields, 4.3 million hectares of irrigated and 700,000 hectares of dry land. Also, mobile laboratories will be established to increase the soil fertility of 2.5 million hectares of irrigated lands with low productivity (less than 1% humus), to analyze the soil rapidly, and gradually increase the productivity of 400,000 hectares of land.

Organic products will be grown on 50,400 hectares by 2030 to improve the health of the soil, preserve and protect the ecosystem, as well as ensure the richness of macro and micronutrients in food and expand the geography of exported products. To use water efficiently and prevent soil erosion in irrigated lands, laser leveling and water-saving technologies will be introduced on 2.5 million hectares by 2030.

A state support system for seed farms will be created. Guaranteed seed supply will be established by opening 12 modern laboratories for seed quality indicators and virus disease detection. In cooperation with Japan, Israel, Republic of Korea, and Turkey, high-generation seed production of tomato, cucumber, watermelon and cabbage crops for greenhouses will be launched. As a result of the above-mentioned systematic measures, the supply of local vegetable, melon and potato seeds will be increased from 15% to 50%.

Also, 16 seed production workshops will be modernized, and processing, sorting and packing of seeds of 24 types of crops will be launched. Around $23.5 million will be allocated from the World Bank for this purpose.

The number of livestock farms using computerized programs for keeping livestock will be increased from 25% to 50%. Based on international experience, a national system of complete identification of domestic animals will be introduced. Well infrastructure to provide water for livestock on pastures will be improved from 5% to 80%. Merino, Edilbay, Romanov sheep and Angora, Saanen goats will be imported and regionalized for meat production. The share of purebred sheep and goats in the meat and wool production will be increased from 20% to 35%.

The share of farms producing high-value trout, salmon, sturgeon, and tilapia fish in fisheries will be doubled. Innovative value-added fisheries (fishing, ornamental aquaculture, aquaponics, ecotourism, etc.) will be increased. The production of canned and frozen fish products, natural semi-finished products, ground semi-finished products, ready-to-eat products will increase from 2.5% to 10%.

It is necessary to continue serious work on prevention of defects in the delivery of vegetables, fruits and grapes from the field to the consumer. It is necessary to further expand warehouses and freezers that store fruits and vegetables, and to solve problems related to logistics and road costs.

By 2030, 100 agro-logistics centers with a value of UZS 5.3 trillion will be established, and the capacity will be increased from 1 million tons to 3.5 million tons. In particular, three large modern agro-logistics complexes with a capacity of 1.7 million tons will be established in Tashkent ($110 million), Samarkand ($45 million), and Andijan ($32 million) regions by 2025 at the expense of $197 million from the ADB. 570 modern refrigerated warehouses worth 1.2 trillion sums will be built in the regions, and their capacity will be increased from 1.2 million tons to 1.7 million tons.

As a result, by 2030, measures will be taken to increase the volume of exports in the sector from the current $1.6 billion to $10 billion per year.

Transformation and Diversification

The agriculture sector in Uzbekistan has been undergoing significant transformation and diversification in recent years. Traditionally focused on cotton production, the country has recognized the need to broaden its agricultural portfolio for enhanced food security, economic stability, and sustainable development. This transformation involves shifting from a mono-crop economy to a more diverse agricultural landscape. The government has implemented policies to encourage the cultivation of a wider range of crops, including fruits, vegetables, and cereals. This diversification not only reduces the nation's reliance on a single commodity but also addresses nutritional needs and fosters rural livelihoods. In addition, the employment structure in the agri-food sector is also diversifying and increasingly includes more value-added products and services. This significantly increases the income from agricultural production. For instance, Uzbekistan now not only relies on cotton and fruit growing but has expanded its textile and processing industry to create a wide range of new products and employment opportunities.

Furthermore, modernization efforts have been instrumental in this transformation. The adoption of advanced technologies, precision farming techniques, and efficient water management practices has improved productivity and resource utilization. Land fertility is being improved to conserve natural resources and extend the arable land area. For this end, draining and drip irrigation of waterless lands have been implemented. Digitalization is also an important driving force for development in the agriculture sector. New digital tools, such as the recently introduced information system "Agroplatform" (which is part of the Digital Agriculture Platform), are increasing the efficiency of the sector. The introduction of cooperatives and clusters has facilitated knowledge exchange and value chain enhancement, bolstering agricultural output and competitiveness.

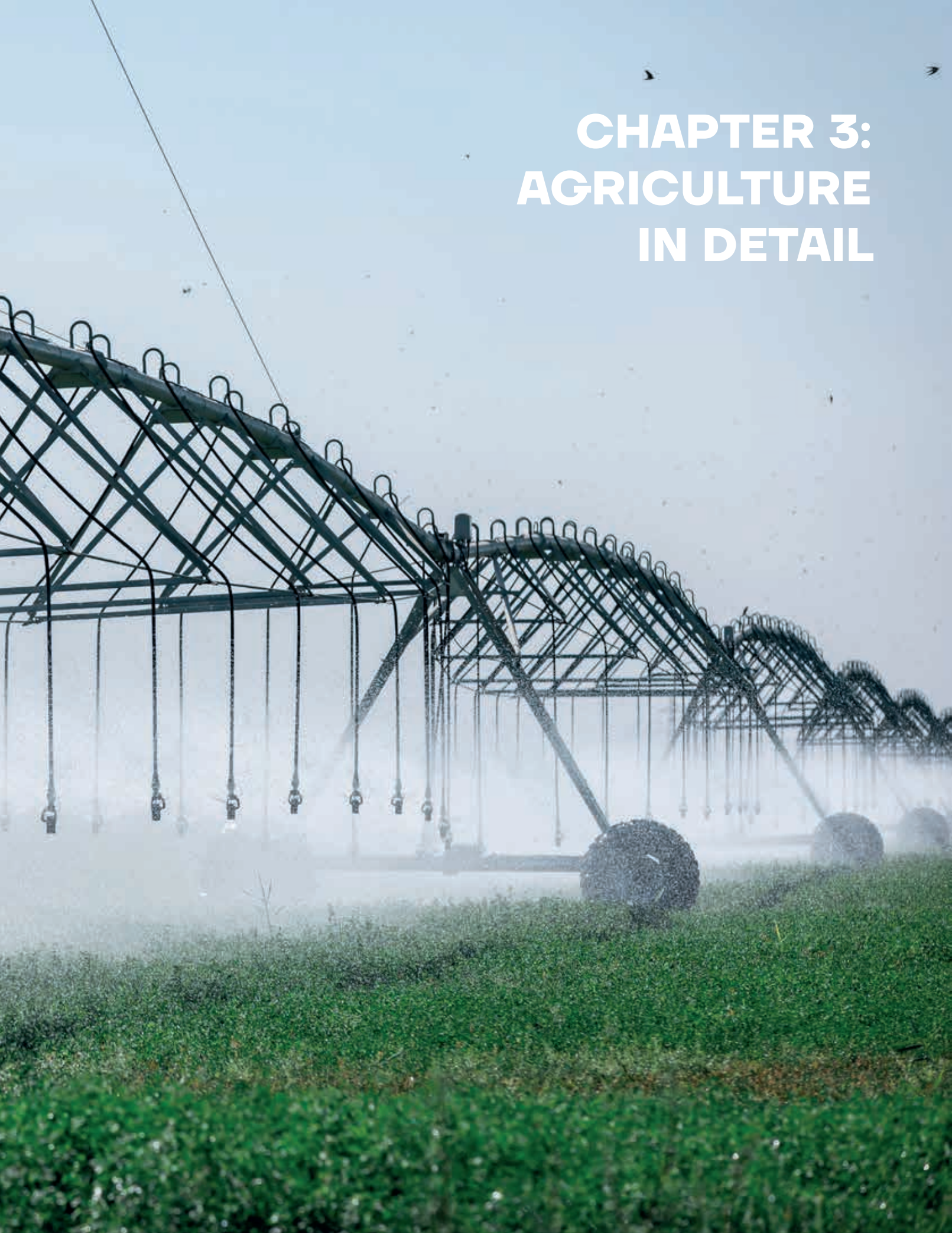
Alongside the adoption of new technology, regulatory and legal reforms are also necessary. As a former Soviet republic, Uzbekistan has been undergoing a national land reform since the 1990s. A successful land reform plays a crucial role in a country's prosperity and resilience. Many experts believe that access to land and the related ownership rights are the most fundamental challenge that the agri-food sector in Uzbekistan is facing. Fully moving to a market-based economy requires granting transparent land rights and giving farmers the freedom to make entrepreneurial decisions.

Uzbekistan is making steps in this direction. The Government of Uzbekistan has identified "reducing the role of the state in sector management and increasing investment attractiveness" as one of the priorities of its Strategy (2020-2030). The abolishment of state cotton and grain procurement has been a significant factor in increasing farmers' freedoms to determine, based on market conditions, how and how much cotton to grow (Delegation of the European Union to Uzbekistan 2021). As Uzbekistan continues this path, the land reform, modernization, and diversification of the agriculture sector are poised to contribute significantly to sustainable economic growth, rural development, and the well-being of its population.

Spotlight on the Agricultural Knowledge and Information System

The Agricultural Knowledge and Information System (AKIS) encompasses the whole knowledge exchange system: the ways farmers, businesses, authorities, and research institutions interact within a country or a region. As part of the implementation of the Agriculture Development Strategy for 2020-2030, Agricultural Service Centers will be established and opened in all regions of Uzbekistan and the Republic of Karakalpakstan. One of the first pilot AKIS centers was opened in April 2021 in Yukory Chirchik District. AKIS was created in cooperation and with the support of the European Union, the World Bank and other international partner donor organizations. The main goal of AKIS is to contribute to an inclusive transition to a "green" economy in the food and agriculture sector. Some of the tasks of the centers involve:

- Ensuring the integration of education, science, and industry in agriculture
- Implementation of the concept of the System of Knowledge and Innovation in Agriculture (AKIS)
- Establishment of mutually beneficial scientific and production cooperation with farms, agricultural clusters, and cooperatives, as well as advanced foreign research institutions, introduction of new scientific developments, innovations, and digital technologies
- Coordination of research activities of scientific and higher education institutions in the field of agriculture
- Ensuring retraining and advanced training of personnel, considering the current and future needs of the agriculture sector in qualified specialists
- Carrying out fundamental, applied, and innovative research in the field of agriculture, training of highly qualified science and education staff
- Development of a network of national information and consulting services that will ensure the effective exchange and transfer of knowledge, skills, and abilities with the broad involvement of the public and private sectors in agriculture
- Assistance in the implementation of international quality standards and the establishment of a platform for cooperation between producers and agribusiness.



CHAPTER 3: AGRICULTURE IN DETAIL

Uzbekistan's Horticulture Sector

Uzbekistan, a double landlocked country in Central Asia, has a rich history of agriculture dating back centuries. One of the most significant segments of its agricultural industry is the horticultural sector, which encompasses the cultivation of fruits, vegetables, and other high-value crops. This sector plays an increasingly important role in the country's economy, contributing to both domestic consumption and exports, while also providing employment opportunities to a substantial portion of the population.

The country's favorable climate and diverse landscapes have allowed for the cultivation of a wide variety of fruits and vegetables. Notably, Uzbekistan is one of the world's leading producers of cotton, but it also boasts an impressive output of fruits like grapes, pomegranates, apricots, peaches, nectarines, cherries, and melons. Additionally, vegetables such as tomatoes, peppers, and cucumbers thrive in the country's soils. Horticultural export revenues have more than tripled since 2006. Of the 20 million tons of horticultural products grown in 2016, 15% were processed. Of the 3 million tons of fruit produced, around 69% are consumed fresh, 20% are processed, and 11% are exported, while for the 10 million tons of vegetables, 81.0% are consumed fresh, 11.3% are processed, 4.3% are used for seeds, and 3.4% are exported (UZAIFSA 2021).

The cooperative movement in Uzbekistan has significantly contributed to the growth of the horticultural sector. These cooperatives bring together small-scale farmers and producers, enabling them to pool resources, share knowledge, and access markets more effectively. Cooperatives have played a crucial role in improving the quality and quantity of horticultural products, as well as in facilitating the adoption of modern agricultural practices. Uzbekistan's horticultural cooperatives are instrumental in addressing challenges that individual farmers might face. These challenges include limited access to credit, lack of modern farming equipment, and difficulties in marketing their produce. By forming cooperatives, farmers can jointly invest in machinery, irrigation systems, and storage facilities. This shared infrastructure enhances their productivity and efficiency, leading to improved yields and profitability. Moreover, cooperatives provide a platform for knowledge exchange. Traditional farming methods are combined with innovative techniques to ensure sustainable production. Farmers can learn from each other's experiences and collaborate to implement best practices. This knowledge sharing contributes to the sector's overall growth and development.

In recent years, the concept of agricultural clusters has gained momentum in Uzbekistan. Clusters involve the concentration of various agricultural and horticultural activities in a specific geographical area. Today, 463 agro-clusters effectively operate in all areas of agriculture, from cotton and textile, to rice, grain, fruit, and vegetable cultivation, etc. The clusters comprise over 2.2 million hectares of agricultural land (Yunusov et al. 2023). This strategy fosters synergy among producers, suppliers, and other stakeholders in the value chain. By clustering related activities, economies of scale are achieved, and the sector becomes more competitive in both domestic and international markets. Clusters also enable better resource management. Water resources, for instance, can be optimized within a cluster through coordinated irrigation practices. This is particularly important in a region where water scarcity is a significant concern.

Uzbekistan's horticultural sector holds promising potential for growth. The government has recognized the importance of diversifying the country's agricultural output and reducing its dependence on cotton. Policies are being implemented to support the development of horticulture, including incentives for investment, modernization, and the establishment of export-oriented production. To capitalize on this potential, continued investment in infrastructure, technology, and human capital is essential. Research and development efforts should focus on breeding high-yielding and disease-resistant varieties of fruits and vegetables and introducing organic and greenhouse farming. Furthermore, training programs can equip farmers with the skills needed to implement sustainable and efficient practices.

Expert Opinion

Agriculture Sector Development

Adrian Neal

ASK Facility Team Leader

How has the horticulture sector changed in the past years?

- One of the key reforms that happened was in 2020, when the government started to remove the state order system for cotton and wheat. That began a number of initiatives, particularly in the private sector, where there was opportunity to use land for particularly intensive orchards and intensive greenhouse production.

We've had some successes in that, but there's also been a lot of people getting involved in the sector that maybe didn't have enough knowledge or experience. My main concern as the transition has started is that there is not enough information provided to people making those business decisions. It's great to be able to produce higher value commodity, but if you haven't thought through the markets, the opportunities, both domestically and internationally, then you're working somewhat blind.

There is a real need to get closer to the areas of production and manage the supply chains more effectively to reduce losses. In a place like Uzbekistan, you have extreme heats during harvest season most of the time, so you have higher potential for deterioration of those products before they even get to the cold storage.

It's a good start, but not enough planning for value chain development, which would build the real value. A lot of horticulture products are sold as primary products without further processing. But we are seeing small success stories, small producers that are coming into different high value commodities and some of those products coming into supermarkets.

It needs a lot more of a farm to fork approach by the government to really help that process on the way. We need a lot more investment in knowledge and information systems and the understanding of both farmers and agro-processors in how they can scale their businesses, in how they can build for market rather than build for government.

Where do you see potential for development?

- For example, in market information, it's not enough to know the price of a particular commodity in Tashkent. We need more risk management and profiling, so that it can have some forecasting potential. Then we have threats of climate change adaptation and mitigation which also need to be managed in business plans. Because, as we move to more intensive production, we also move to greater use of water. And that's a problem in a country that has already been handling the lack of water available for irrigation.

Can you share an example of a success story or an important lesson that has been learned in the horticultural sector?

- The most recent one that I observed personally was that we had crazily overvalued blueberries coming into the supermarkets. And then we have seen a domestic producer entering that market just in the last 18 months and competing very favorably against those international competitors. These blueberries were previously coming from Morocco, Spain, Chile. You can imagine the carbon cost of that product. If you could compete and capture that value from Uzbekistan, then you can do lot in developing that. But I emphasize that it really does require people to be more broadly educated in how they could start growing for market, but with a balance that would ensure the stability of their production and of their businesses. There is gold to be made, but you have to harvest the gold very, very cautiously in order for everybody to benefit from that, too.

What should Uzbekistan focus on as it develops its horticulture sector and promotes food security?

- If you develop horticulture, you also have an impact on other sectors. The question then for the country is what are the most important commodities to be producing and why? And to ensure that, when we start to develop more regional focus policies, that we have the whole package in place. That includes access to good advice and information, but it also includes access to affordable inputs, so farmers can produce better. For example, quality fertilizer, seed, pesticides—if they are going to be used, they must be regulated, and currently they are not. If you are really focused on food security, you also need to be focused on food safety, and that food safety must be underpinned by better knowledge and regulation.

Modernization of Horticultural Production

Uzbekistan's horticultural sector is undergoing a remarkable transformation driven by major policy changes, modernization, and technological advancements. As the country seeks to diversify its agricultural output and enhance productivity, it has embraced innovative approaches to cultivation, resource management, and market access. This concerted effort toward modernization is reshaping the landscape of horticulture in Uzbekistan and holds great promise for the sector's future. A wide range of new technologies and practices are now being adopted:

Precision Farming and Technological Advances

Precision farming techniques are revolutionizing the way crops are cultivated in Uzbekistan. Farmers are increasingly adopting technologies such as Geographic Information Systems (GIS), remote sensing, and satellite imagery to monitor and manage their fields. These tools provide real-time data on soil conditions, moisture levels, and crop health. By analyzing this information, farmers can make informed decisions about irrigation, fertilization, and pest control. This approach not only optimizes resource utilization but also minimizes environmental impact by reducing the need for excessive water and chemical inputs. This will help to save energy and resources in the agri-food sector significantly. In addition, agro-logistic centers and loans for agri-businesses are intended to improve storage and processing capacities for horticultural producers in the country.

Organic Farming

With the global demand for organic produce on the rise, organic farming holds promising potential for Uzbekistan's export potential and the well-being of the environment and the population. This is why the Government developed the Concept for the development of production of organic agricultural and organic food products, which will also facilitate the implementation of internationally recognized quality standards.

Drip-Irrigation Systems

Water scarcity is a significant concern in Uzbekistan, making efficient water management crucial for sustainable agriculture. Drip irrigation systems have gained popularity in the horticultural sector due to their ability to deliver water directly to the plant roots, minimizing wastage. These systems are especially effective in arid regions, helping to conserve water resources while ensuring that crops receive the necessary moisture for healthy growth.

Greenhouse Farming and Controlled Environment Agriculture

To overcome the challenges posed by extreme weather conditions and extend the growing season, greenhouse farming and controlled environment agriculture (CEA) have gained traction. Greenhouses provide a controlled environment where temperature, humidity, and light conditions can be adjusted to suit specific crops' requirements. This approach enables year-round production, protection against pests and diseases, and improved crop quality.

Biotechnology and Crop Breeding

Biotechnology has played a role in developing improved plant varieties with desirable traits such as disease resistance, increased yield, and enhanced nutritional content. Uzbekistan's horticultural sector has benefited from research and breeding programs that aim to introduce these improved varieties to local farmers. Biotechnological advancements hold the potential to address challenges related to climate change, pests, and changing consumer preferences. A number of private and public plant breeding institutions are working on researching and introducing improved varieties of crops such as grapevines, tomatoes, cereals, cotton, almond trees, leguminous crops, forages and olives.

Market Access and E-commerce

Technological advancements have also facilitated improved market access for Uzbekistan's horticultural products. E-commerce platforms such as the recently introduced "Agroplatform" and digital marketplaces have emerged as avenues for farmers to directly connect with consumers and buyers. This eliminates intermediaries and allows farmers to command better prices for their produce. Additionally, traceability systems enabled by technology enhance transparency and food safety by tracking the journey of products from farm to table.

Digital Farm Management Tools

A suite of digital tools and mobile applications are now available to assist farmers in managing their farms more efficiently. These tools help in crop planning, monitoring, record-keeping, and financial management. Farmers can access weather forecasts, pest alerts, and best practices at their fingertips, empowering them to make informed decisions and optimize their operations.

The modernization and technological development in Uzbekistan's horticultural sector are driving a paradigm shift in how crops are grown, managed, and marketed. These innovations are contributing to increased productivity, resource efficiency, and sustainability. As the country continues to invest in research, infrastructure, and capacity building, the horticultural sector is poised to play a pivotal role in food security, economic growth, and the well-being of its population. By embracing these advancements, Uzbekistan is not only ensuring a prosperous agricultural future but also positioning itself as a leader in the region's agricultural innovation landscape.

In conclusion, Uzbekistan's horticultural sector is a vital component of its agricultural landscape, contributing significantly to its economy and livelihoods. The cooperative movement and the emergence of agricultural clusters have played pivotal roles in advancing the sector's growth. By fostering collaboration, sharing knowledge, and embracing modern practices, Uzbekistan's horticultural sector is poised to flourish, contributing to food security, economic prosperity, and sustainable development in the region.

Expert Opinion

Horticulture Development

Khamdam Karshiboev

Senior Specialist/ Crops advisory expert (Uzbekistan)

How has the horticultural sector of Uzbekistan changed in the past years?

- In recent years the global community in agriculture emphasized the importance of intensive gardens development and its benefits to the horticulture sector. Uzbekistan has a great potential in expanding this sector. Particularly, there were 15,000 hectares of land for horticulture in 2013, whereas the area has expanded significantly to 70,000 in the ten-year period. The desert land in Samarkand, Namangan and Tashkent was provided for large agro-holdings to create intensive gardens. This decision benefited the economy of the country in the following ways:

- The yields have increased rapidly, and products of a higher exportable quality have been grown. Most of local extensive gardens are planted with apples, cherries, peaches, orchards or vineyards with good harvest in a very short period of time.
- Water saving and efficient technology – drip irrigation – was applied, allowing to drip water slowly to the roots of plants, either from above the soil surface or buried below the surface. The goal of the technique is to water directly the root zone and minimize evaporation.
- More job opportunities from local neighborhoods were created to maintain the operation of intensive gardens, harvesting and storing the yield under appropriate conditions.

Can you share an example of a success story or an important lesson that has been learned in the horticultural sector of Uzbekistan?

- Talking about the area that should be developed, I would recommend to organize more intensive gardens on unused or desert areas with the support of state subsidies to farmers and large agro-holdings. Modern technologies are used from planting, cultivation, and irrigation to harvesting, allowing a waste land to be transformed into highly productive territory. Successful examples include cherry gardens in Torakorgan territory of Namangan Region and Agromir agro-holding in Samarkand Region.

Moreover, our farmers have to pay attention to the appearance and use of pesticides of exportable products. For example, prices of local fruits are 1.5 times lower than of Moldavian and Polish just because the appearance of our fruits is not good enough, and the composition does not meet the laboratory standards. When improved, Uzbek fruits can be widely imported to Europe, for example.

Where do you see potential for development?

- Standardization of the products appearance and composition is of a great importance since it allows to enter new markets and expand the export potential of the country. Uzbekistan has very fertile soil that allows growing variety of delicious fruits and vegetables. World community has already recognized the potential of Uzbek horticulture. According to GSP+, 7,200 products are exempted from customs duty when exported to Europe, but there are also about 50 requirements for the products to fit. So, it is a matter of enhancing the quality of local products in order to make them competitive in European markets. Government authorities have to make a guide and set standards on appearance and limitation on chemical composition for farmers that is mandatory to follow.

Uzbekistan's Livestock Sector

The livestock sector plays a pivotal role in Uzbekistan's economy, contributing significantly to food security, rural livelihoods, and the country's overall economic growth. This sector encompasses various sub-sectors such as meat, milk, fodder, and leather production, providing employment opportunities, income generation, and a vital source of nutrition for the population. The importance of the livestock sector is reflected not only in its economic contributions but also in its cultural and social significance. Thanks to strategic investments, the livestock sector has seen significant development in recent years. The new livestock subsector development strategy and roadmap contributes to the implementation of the Agriculture Development Strategy of Uzbekistan for 2020-2030 in its priority areas, including: food security, value chains, sustainable use of natural resources and environmental protection, development of rural areas, science, and education in agriculture.

While the livestock sector in Uzbekistan holds immense potential, it also faces challenges that lead to low productivity. These challenges include inadequate infrastructure, limited access to modern technologies, and issues related to animal health and husbandry practices. Ensuring sustainable production practices, improving animal health services, and enhancing the sector's value chain through processing and marketing are areas that require focused efforts.

However, these challenges are accompanied by significant opportunities. Uzbekistan's increasing urban population, rising income levels, and evolving dietary preferences contribute to growing demand for livestock products. As the country continues to invest in modernizing its agricultural practices, expanding veterinary services, and promoting research and development in livestock farming, the sector's productivity and contribution to the economy are likely to further improve.

In conclusion, the livestock sector in Uzbekistan plays a pivotal role in the country's economy, providing food, employment, and income to millions of people. With a focus on modernization, technology adoption, and sustainable practices, the sector has the potential to not only meet domestic demand but also become a significant player in international markets. As Uzbekistan strives for agricultural growth and development, the livestock sector will remain a cornerstone of its economic and social progress.

The livestock sector holds a prominent place in Uzbekistan's agricultural landscape. It contributes 13% to the nation's GDP and accounts for about half of agricultural value added (World Bank 2023), while providing raw materials for various industries and supporting rural communities. The sector employs about 27% of agricultural workers and generates around half of rural household income (Statistics Agency under the President of the Republic of Uzbekistan, 2023). The sector's value chain extends beyond primary production to processing, marketing, and export. Livestock farming generates income for millions of households, especially in rural areas where agriculture remains a major source of livelihood. Livestock breeding has historically been present in Uzbekistan, especially that of cattle and sheep. Poultry and rabbit breeding as well as fish farming are currently being developed. The sector is comprised of four main economic activities: meat production, milk production, leather and textiles, and fodder production.

MEAT PRODUCTION

Uzbekistan's meat production is a crucial component of the livestock sector. The country produced 2.726 million metric tons of meat in 2022, including beef, mutton, and poultry. These products not only fulfill domestic consumption needs but also contribute to export revenues. Meat production has experienced experienced 3.5% year-on-year growth since 2022, in response to increasing demand driven by population growth and rising income levels. By 2026, meat production is predicted to reach 3.3 million metric tons (Agency of statistics under the President of the Republic of Uzbekistan and the Ministry of Agriculture data forecast).

MILK PRODUCTION

Milk production is another essential sub-sector within the livestock industry. Uzbekistan's dairy sector contributes to the availability of milk and dairy products for its population. Dairy farming is practiced both on large-scale commercial farms and dehkan farms. Milk is a vital source of nutrition and an important income source for rural households. Uzbekistan produces around 10 million tons of milk per year, which makes it the largest milk producer in Central Asia (Statistics Agency under the President of the Republic of Uzbekistan 2023). However, around 93.4% of milk Uzbekistan is produced in dehkan and subsidiary farms (Statistics Agency under the President of the Republic of Uzbekistan 2023; World Bank 2023).

LEATHER AND TEXTILES

Livestock, particularly cattle, also contributes to the leather industry. Leather and leather products are used in various industries, including fashion and accessories. The leather sub-sector provides additional value to the livestock sector, demonstrating the diverse uses of livestock beyond direct consumption.

FODDER PRODUCTION

Quality feed is the precondition for successful livestock production. However, during the last 30 years, areas in Uzbekistan planted with forage and feed crops have been reduced by 70%, whereas the cattle population has increased by 150%, reaching 15 million head (World Bank, 2019). Given that the demand for livestock products is continually rising, high-quality pasture and animal fodder production opens up opportunities for poverty production, particularly for dehkan farmers. Plant breeding programs, therefore, also focus on the development of new and improved forage and legume varieties. Modern laboratories and other agricultural testing facilities will contribute to further improving the quality and safety of animal fodder produced in the country. Another key component is the scientific research and training of agricultural scientists and workers, which will help them better understand the complex systems of fodder production, from the field all the way to the microbial fermentation processes.

Modernization of the Livestock Sector

In recent years, Uzbekistan has made significant strides in modernizing its livestock sector, marking a transformative shift in the country's agricultural landscape. Embracing the potential of technology, the nation has embarked on a journey to enhance livestock production efficiency, improve animal welfare, and bolster food security. In addition, Uzbekistan has carried out national livestock breeding programs and imported high quality stock of pedigree animals. Integrated digital solutions have been implemented to monitor and manage livestock health, feeding, and breeding practices. Access to finance has enabled livestock producers, including dehkan farmers to embrace modern and more efficient technologies and equipment. Data-driven insights facilitate informed decision-making, leading to optimized resource allocation and reduced waste. Precision agriculture techniques are applied to ensure the right balance of nutrition, minimizing environmental impacts, and maximizing yields. The government's support for agro-tech startups, research collaborations, and training initiatives has catalyzed this transformation. By embracing modernization and technology in its livestock sector, Uzbekistan is not only securing its agricultural future but also positioning itself as a regional leader in sustainable and efficient livestock production.

Case Study: Livestock Sector Development Project

Between 2017 and 2022, the Livestock Sector Development Project was carried out in cooperation with the EU and other partners. The Project paid special attention to dehkan farmers, since the key feature of the Uzbek livestock sector is that the main products are produced by 4.7 million dehkan farms. Dehkan farms own 94% of the livestock, 83% of the sheep herd, and account for 95% of meat production, 96% of milk production and 89% of wool production.

During the Project implementation, credits and grants improved access to finance for livestock producers, including dehkan farmers, cooperatives, commercial farmers, and agribusinesses. This helped facilitate their access to technologies and markets, resulting in increased production, productivity, and income; improved quality of agricultural products produced and sold; and creation of new and better-paying jobs, including for women. In addition, the Project provided the opportunity for training on policy and regulatory issues to employees ofthe State Committee of Veterinary and Livestock Development of Uzbekistan and agribusinesses. One of the main goals of the Project was the inclusion of dehkan farms in all livestock value chains (milk and meat production and processing, poultry farming, apiculture, etc.). The funds of the Project were used to purchase modern equipment and technologies, which in turn increase the productivity and profitability of dehkans and farmers, thus improving their livelihoods and welfare. As part of the Livestock Sector Development Project, several companies and cooperatives were supported through a grant, in collaboration with the State Committee of Veterinary and Livestock Development of Uzbekistan, the European Union and the World Bank. The objective of the Project was to increase the productivity and profitability of the livestock farming in Uzbekistan through the modernization of research and production capacities and the introduction of international product quality standards. Dehkan farms provide the majority of milk in the country, but their productivity remains relatively low.

Dodiq Invest LLC is a milk processing and packing enterprise. This dehkan farm was established in 2020 by 15 local farmers and operates in a form of cooperative. Cooperatives are a voluntary association of individuals and legal entities, and their activity is based on personal labor participation of their members.

Through the Project, Dodiq Invest LLC was able to procure new processing equipment. This support enabled the company to increase production of dairy products, including cottage cheese, cream, sour cream, suluguni (cheese sticks), and drinkable yoghurt. After modernization, the enterprise started processing six tons of milk a day in comparison to three tons before purchase of equipment. The provided milk processing line includes equipment for checking the quality of milk and manufactured products. Improved quality of products allowed to enter the market of the city of Karshi. Previously, the products were sold mainly in Chirakchi district and nearby areas.

Dodiq Invest LLC plays an important role in the local economy. More than half of the milk processed by the company is provided by dehkan farmers. “The modern processing equipment we received has increased the quality and capacity of our production of cheese and yogurt. Over 270 smallholder farmers now provide us with milk, and we help them to earn a better livelihood,” says Azamat Eshmirzaev, Executive Manager of Dodiq Invest.

Another cooperative that benefited from this project is Kashkadarya Cooperative LLC. The cooperative was founded in 2020 by 21 local farmers, and it rents mechanical equipment for farming and construction activity. By participating in the Project, they received grants that helped them purchase new mechanical equipment, such as a tractor and a front-end loader. This enables them to rent more farm equipment to smallholder farmers who do not own tractors or other heavy equipment, thus improving farm productivity.

Expert Opinion

Livestock Sector Development

Bakhriddin Rakhmonov

Deputy Head of the Livestock Development Department, State Committee of Uzbekistan of Veterinary and Livestock Development

1. What are the results of the new livestock development strategy so far?

- On February 8, 2022, the decree of the President of the Republic of Uzbekistan No. PQ-120, "On approval of the program for the development of the livestock sector and its industries in the Republic of Uzbekistan for 2022-2026", was approved. To ensure the implementation of the tasks defined by this decree, the Cabinet of Ministers annually adopts a plan of measures for developing livestock and its branches.

Based on the program, 3,436 projects worth 13 trillion sums have been implemented, and 171,200 new permanent and seasonal jobs have been created in the livestock industry since last year. 80,500 cattle and 448,700 sheep and goats were imported from foreign countries within these projects.

From these, new breeds are being bred such as Holstein, Fleckvieh, Estonian Red, Kholmogory, Tagil, Jersey for milk production; Aberdeen Angus, Charolais, Hereford, Limousin, Auliekol and Montbéliarde are for beef production, as well as Merino, Romanov, Edilbay, Dorper sheep, Angora and Saanen goats. In addition, 25,700 heads of livestock were delivered to households by 300 meat and dairy production and processing enterprises based on the principles of the "From Farm to Fork" Strategy.

To plant nutritious crops for livestock in 430.7 thousand hectares of fodder areas, 70.2 thousand hectares have been planted with new alfalfa crops (there are 111.6 thousand hectares of existing alfalfa), 210.3 thousand hectares of corn, 37.9 thousand hectares of white corn, 13.5 thousand hectares of wild beets and fodder crops were planted on 216.9 thousand hectares of land freed from grain. On average, 10-11 tons of feed units are harvested from one hectare of fodder area.

Also, 170 livestock farms have started animal feed production based on modern intensive hydroponics technology. To develop breeding activities, more than 2 million heads of livestock kept in households and farms were artificially inseminated, and the number of breeding farms increased to 1,604.

As a result, the average milk yield of a cow in Uzbekistan increased to 3,400 kg (950 kg compared to 2021), and the average live weight of one head of slaughtered cattle was 390 kg (40 kg more).

2. Can you explain the importance of livestock industry in ensuring food security in Uzbekistan?

- There is a total of 18,167 livestock farms in the country, including 7,614 cattle farms, 3,263 sheep and goat farms, 142 horse breeding farms, 52 camel farms, 1,298 poultry farms, 4,829 fish farms, 715 bee farms and 254 rabbit farms. Of these, there are 648 cattle farms with 300 to 500 heads, 256 with 500 to 1000 heads, and 171 with 1000 heads and more.

To support these farms, the state allocated 162 billion sums in subsidy funds to 1,097 entities for imported and domestically bred cattle in 2020 and 2022, and in 2021 and 2022, 538 billion sums to 1,869 entities that grow and sell livestock products.

As a result, as of January 1, 2023, the number of cattle has increased to 13.9 million (102.3%), sheep and goats to 23.6 million (102.8%), and poultry to 93.3 million (105.8%). And 2 million 726 thousand tons of meat in live weight (103.4%), 11 million 629 thousand tons of milk (103.2%), 8.1 billion eggs (104.4%), and 177.4 thousand tons of fish (103.2%) were produced.

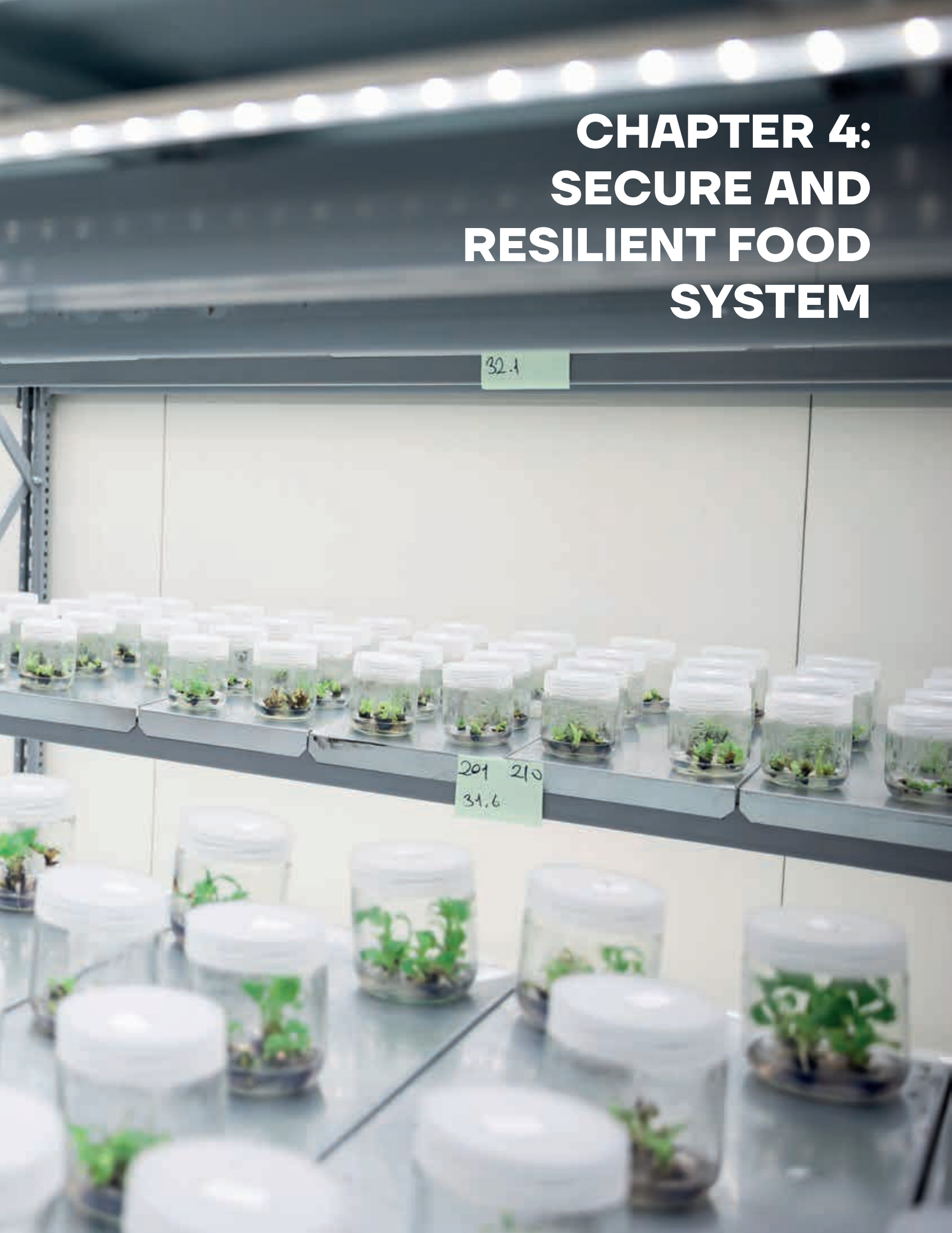
Due to the implementation of these measures, meat products per capita increased to 46.9 kg (standard 42.8 kg) or 109%, milk and dairy products 323 kg (standard 310.4 kg) or 108%, and egg products 226 units (standard 208 units) or 108%.

3. In which regions do you see the potential for the development of the livestock industry in Uzbekistan?

- Today, there are 2.3 thousand cattle-breeding entities in the Kashkadarya region, 1.8 thousand in Samarkand and Tashkent, and 1.7 thousand in the Khorezm region.

As of January 1, 2023, 316,000 tons of meat was produced in the Kashkadarya region or 11.5% of the total production in the country; in Samarkand – 313,200 tons or 11.4%; in Bukhara – 285,000 tons or 10.5%, in Tashkent – 283,000 tons or 10.4%, and in Jizzakh – 238 thousand tons or 8.7%. In milk production, Samarkand accounted for 1.4 million tons or 11.8%, Kashkadarya 1.3 million tons or 11%, Fergana 1.1 million tons or 9.5%, Khorezm 1.1 million tons or 9.4%, and Bukhara 1.1 million tons or 9%.

CHAPTER 4: SECURE AND RESILIENT FOOD SYSTEM



Food Security and Safety

The COVID-19 pandemic unsettled every country across the world and made clear the vulnerability of food systems. As a result of the pandemic, many people in Uzbekistan lost their source of income. The rural population has been among those who were worst hit by the consequences of the pandemic. In 2020, 5.6% of the population of Uzbekistan were affected by severe food insecurity, according to data from the Food and Agriculture Organization of the United Nations (FAO 2020). In addition, to the pandemic, the conflict in Ukraine has further demonstrated the need for Uzbekistan to strengthen its food supply chains. Food security and food safety have risen as a priority for the Republic of Uzbekistan. In the new Agriculture Development Strategy (2020-2030) food security is the top priority for policymakers.

In this regard, Uzbekistan is following a global trend. The World Food Summit defined food security as "all people, at all times having physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life." According to the UN FAO, food safety aims to have food that is free from substances that could harm a person's health and is therefore safe to eat (FAO 2006). Food safety and security are inextricably linked. Equally so, these topics play an important role in the European Union's New Green Deal and the United Nations' Sustainable Development Goals, which include "zero hunger" to be reached worldwide by 2030.

Improving Food Security

To boost food security in Uzbekistan, the Ministry of Agriculture adopted a "Food Security and Nutrition Strategy (FSNS) and Roadmap" in 2020. There are several challenges that need to be overcome to improve food security in Uzbekistan. The Uzbek government is acting to provide training and access to knowledge for farmers, improve employability in rural areas, address climate change risks, and increase food testing capacities. Whereas previous approaches to food security prioritized the domestic production of certain foodstuffs, a more modern approach to the issue is now being adopted, in which the availability, affordability, and stability of food supply is prioritized, whether through imports or domestic home-grown production.

> ***With the assistance of the EU Agriculture Support and Knowledge (ASK) Facility, we are improving food safety in Uzbekistan by enhancing regulations. We updated drafts of a National Food Security and Nutrition law and discussed steps that will be taken to create a more transparent system for the protection of land ownership rights."***
>
> ***Alisher Shukurov***
> Deputy Minister of Agriculture

Improving Food Safety

As Uzbekistan recovers from the consequences of the COVID-19 pandemic and aims to strengthen its supply chains, food security and safety are more important than ever. Investing in the agri-food sector will therefore not only benefit the 3,5 million Uzbeks working in the sector but also the rest of the population who depends on affordable, safe, and sustainably grown food. To ensure food safety, Ministry of Agriculture of Uzbekistan is implementing two strategies. First, the new Agriculture Knowledge and Innovation System (AKIS) project is enabling farmers and others involved in the agri-food sector to easily access a wide range of advisory services. This advice and trainings can help farmers grow a quality, disease and pest free product that is also fit for export. Second, Uzbekistan is building-up its testing capacities through the modernization of laboratories.

Success Story: Scientific-Research Institutes and Agencies

In its efforts to establish high food safety standards, Uzbekistan is developing scientific research institutes and plant quarantine and protection support services. The aim is to modernize research capacities and support services for plant breeding, seed production, and plant protection, as well as introducing international product quality standards. Such research institutes can then conduct bio-chemical analysis of soil, vegetables, and fruits at its state-of-the-art laboratories. Another important aspect is the additional staff training that is being provided for employees.

One such institution that is forging the way for food safety in Uzbekistan is the Agency for Plant Protection and Quarantine. The Agency receives around 500 samples each day, testing both imported food products for their quality and safety, as well as products destined for export. It issues certifications that allow local producers to sell their products abroad. Furthermore, The Research Institute of Vegetables, Melons crops and Potatoes is helping decrease import reliance of the Uzbek agri-food sector by breeding new varieties.

With the technical support of The Research Institute of Vegetables, Melon crops and Potatoes, the institute's specialists created 11 new local varieties of potatoes resilient to the local climate. The Research Institute has also applied for international accreditation with the new facilities, equipment, and knowledge, which will allow it to certify products for export in the future.

Expert Opinion

Food security and climate change

Sherzod Umarov

UN FAO Deputy Representative in Uzbekistan

1. How is Uzbekistan mitigating climate change impacts on agriculture?

- The need to adapt to climate change in all sectors is a priority for Uzbekistan. Sectors such as agriculture, water management, land management, tourism, and healthcare will face the greatest impacts. Because of Uzbekistan's the desert terrain and arid climate, the country is highly dependent upon its water resources. No other type of economic activity is affected by the climate more than agriculture. In Uzbekistan the risks of climate change for the agricultural sector are very dangerous because most of the rural population depends either directly or indirectly on agriculture for their livelihoods. Increased frequency and intensity of extreme weather events, particularly flooding and mudflows, may adversely impact multiple components of Uzbekistan's infrastructure, including transportation, communication, water systems, and energy.

Agriculture is one of the few sectors that can both contribute to mitigation and sequestration of carbon emissions, and accounting for agriculture's carbon footprint is necessary, particularly if agriculture is included in greenhouse gas reduction commitments. Considering the high vulnerability of the sector towards climate change and the country's high dependence on the sector mentioned above, the government of Uzbekistan has set goals for enhancing the ability of agriculture to adapt to climate change while also contributing to other environmental goals.

The goals are indicated in the Intended Nationally Determined Contribution (INDC) of Uzbekistan, which was initially submitted on April 19, 2017. It sets forth a framework for action to address both the impacts and drivers of climate change in different sectors. In detail, the NDC sets a mitigation objective of reducing specific emissions of GHG per unit of GDP by 10% by 2030 compared to the 2010 level. The adaptation objective of NDC is to continue its efforts for adaptation capacity building to reduce the risk of adverse climate change impacts on various sectors of the economy, the social sector, and the Aral Sea coastal zone.

In 2021, the country resubmitted its INDC with new commitments. According to it, the country has set out its commitment to reduce GHG emissions per unit of GDP by 35% by 2030 compared to 2010 levels by promoting energy-saving and environmentally friendly technologies, as well as resources to finance climate programs. The largest contribution to emissions is made by the energy (76%) and agricultural (18%) sectors.

Uzbekistan is also committed to the Paris Agreement and has set forth adaptation and mitigation actions through the NDC. The government officially signed the Paris Agreement on April 19, 2017, and ratified it in November 2018. At the 26th Conference of the Parties to the UN Framework Convention on Climate Change in Glasgow (UK), the government once again announced the climate change mitigation goal of reducing GHG emissions per unit of GDP by 35% by 2030.

Another important document is the First Biennial Update Report (FBUR) which provides estimates of GHG emissions for 1990-2017. The Report reflecting the latest climate change response efforts and measures to reduce GHGs was submitted in July 2021. The set of measures being implemented in the country encompass technical measures to reduce GHG emissions, increase energy efficiency in various sectors of the economy, and carbon sequestration in agriculture and forestry, including expansion of forest areas and increasing soil fertility.

On an international level, the Ministry of Ecology, Environmental Protection, and Climate Change of Uzbekistan is effectively developing multilateral cooperation with the UN and its specialized agencies such as FAO, and with other international platforms such as the International Union for Conservation of Nature (IUCN) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). Various initiatives are being implemented to preserve biodiversity, restore ecosystems in the Aral Sea region, and mitigate climate change. There are also policies and programs aimed at ensuring that the population has access to healthy food and clean water.

The country's cooperation with FAO spans a range of areas, primarily focusing on developing sustainable food value chains, introducing innovative climate-smart practices, and sustainable natural resource management, including land restoration and the establishment of a national inventory and monitoring system for forests. In this regard, FAO offered its support to Uzbekistan in the development of a project proposal under the GEF CBIT program and provided technical support through its implementation with the Uzhydromet. The project's main objective is to enhance Uzbekistan's institutional and technical capacities, review progress against NDC climate actions and provide support received for complying with Enhanced Transparency Framework (ETF) of Paris Agreement.

The major challenges in the agricultural sector of the country are the scarcity of water resources and land degradation caused by climate change, anthropogenic desertification, and aridization of the climate, as well as an increase in the number of cattle. In view of the importance of agriculture and its potential for adding to overall economic growth and raising rural incomes in the coming years, the government is keen to develop the sector and has raised its importance on the economic agenda.

2. Which measures to promote food security have shown the most promise?

- Ensuring food security is designated as the number one priority in the Agriculture Development Strategy of Uzbekistan for 2020-2030. Analysis of data for the period 2010-2020 shows that Uzbekistan is improving its food security indicators both in gross food nutrient supply and per capita supply. Over the past two decades, Uzbekistan's national food security policy has been driven by two primary goals. Firstly, it aims to achieve self-sufficiency in wheat grain production. Secondly, it aims to sustain low prices for essential staple agricultural products within the domestic markets.

The impact of the COVID-19 pandemic and the conflict outbreak between Russia and Ukraine has resulted in a wide range of food supply chain disruptions. To respond to these disruptions and volatility in food markets, the government continues to adopt many economic policies that target various domains of food security including food availability and food access. These policies were aimed at stabilizing both the food supply and demand of the population. In the latter case, particular attention was paid to measures aimed at protecting the most vulnerable groups of the population.

In order to maintain imports and produce enough important foodstuffs, the government uses a wide range of economic instruments such as duties, taxes, subsidized loans to purchase inputs (e.g., seeds, seedlings, fertilizers, equipment, etc.), subsidized loans to import staple food products, extension of the repayment period on subsidized loans. For example, subsidized loans to business entities helped to import sufficient volumes of staple food products such as vegetable oil, potatoes, and meat. Entrepreneurs importing and selling chicken, frozen fish, poultry, meat (beef, lamb), live animals (cattle and sheep) and products of their slaughter, potatoes were exempted from VAT in 2021-2022. In 2021, Government Resolution adopted preferential tariffs for the transportation of imported wheat (flour) and vegetable oil. An important trade policy measure was the nullification of the import tariffs for fish, milk, and eggs. Originally, this measure was launched in May 2022 and further until January 2024.

These economic policy measures produced a positive impact. Supply-based stabilization measures ensured filling the domestic market with important food products.

No less important, the authorities in Uzbekistan are concurrently implementing a policy aimed at sustaining the needs of the socially vulnerable segments of the population. The main challenges that need to be addressed are the problems of achieving improving stability in the availability of and access to food for vulnerable segments of the population. The challenge requires not only boosting food production and strengthening supply chain systems but also carrying out by government a sound anti-inflationary policy, increasing the purchasing power of low-income households, and preventing sharp fluctuations in prices and outputs.

Social interventions include providing small grants to low-income families, issuring of small plots of land to low-income families, leasing up to 1 hectare of land citizens for farming, and issuing land leases for planting certain vegetables, melons, pulses, and oilseeds. Priority is given to citizens who have achieved positive results in the cultivation of fruits and vegetables, gourds and viticulture on their home plots, and citizens who have technical knowledge in one of these areas.

There is also a need to establish a strong legislative foundation to develop effective mechanisms for regulating food and nutrition security. Presently, preparations are underway for a food safety law, and the Food Security Strategy has been submitted to the Cabinet of Ministers for review and approval.

Other countries can learn from Uzbekistan's experience and take inspiration from its effective strategies and policies. By analyzing Uzbekistan's experience, other countries can identify key areas of intervention and design targeted policies and programs to address their unique food security concerns.

3. What are the main obstacles to eliminating hunger in Uzbekistan?

- In Uzbekistan, remarkable achievements have been made in the battle against hunger, as evidenced by a steady decrease in the prevalence of undernourishment (PoU) measure over the past two decades. At present, the national PoU stands impressively below 2.5%, with only Kazakhstan sharing a similar achievement in Central Asia sub-region. This reduction in PoU has been a driving force behind Uzbekistan's ascent in the Global Food Security Index rankings, climbing from the 85th position to 73rd in 2022.

Given that agriculture is a primary livelihood source in rural Uzbekistan, it evident that investments in the agri-food sector are critical to eliminate hunger in rural areas. Furthermore, enhancing the country's capacities in assessing and monitoring hunger prevalence regularly at sub-national levels is important. This would provide a more comprehensive understanding of the distribution of progress and challenges, guiding more targeted interventions.

Recent uncertainty in the global economy, characterized by food inflation, fluctuating remittances, and the uncertain outlook of economic growth, bear the potential to have disproportionate impact on food access within Uzbekistan's population. To address this vulnerability, inclusive development coupled with a robust social protection becomes vital. This approach must be grounded in a thorough understanding of vulnerability.

Achieving Climate Resilience

Another serious threat to food security is climate change. As an arid, double-landlocked country, Uzbekistan is particularly vulnerable to climate change, with the rise in mean temperatures expected exceed the global average. According to the United Nations' Intergovernmental Panel on Climate Change, by the end of the century, Central Asia is projected to have a temperature increase above the global mean, increased frequency of extreme climatic events, and a decrease in precipitation in already dry areas (Gutiérrez 2021).

The agriculture sector is both one of the main contributors to climate change and the sector that suffers most from its consequences. According to the UN FAO, the agri-food system currently generates one third of greenhouse gas emissions and has wider adverse impacts on the environment. Particularly the livestock sector is responsible for a large share of greenhouse gas emissions. On the other hand, agricultural workers are among those most vulnerable to climate change.

In 2022, research by the Ministry of Agriculture and the EU-funded Agriculture Support and Knowledge (ASK) Facility studied the impact of climate change on the agriculture sector in Uzbekistan. For the study, their experts chose three regions of the country with different climates: Republic of Karakalpakstan, Kashkadarya and Fergana. Using the AquaCrop, SPHY and WEAP models, they developed forecasts of the impact of four scenarios—medium, hot-dry, warm-humid, and dry climate change—on the main crops, horticulture, livestock, and agricultural irrigation water in these regions until 2059.

Their results showed that by 2050 temperature will increase by 1 to 2.5 degrees, precipitation will change by around 20%, and the water available for irrigation will decrease by up to 35%. The yield of cotton, wheat, apple, potato, and tomato is expected to decrease by between 12% and 50%, depending on the scenario. The effects of the warm-wet scenario are milder, but still showed a 10% reduction in yield. Pasture and alfalfa yields are expected to be high in most cases, especially as the alfalfa crop has proven to be climate resilient. Nevertheless, the productivity of dry pastures in Kashkadarya Region could also decrease by 50% in the hot-dry scenario. Recent analysis shows that more than 50% of those areas in Uzbekistan currently under agricultural production would see significant reductions in yields over the next 20-30 years if no actions were taken to mitigate or to adapt.

This is why one of the nine priority areas of the Strategy (2020-2030) is "ensuring rational use of natural resources and environmental protection." An important way to reach this goal is to make farming more biodiversity- and climate-friendly. With the right implementation of climate-smart practices, farming can not only reduce greenhouse gas emissions, but it can also sequester carbon, enhance biodiversity, and help regenerate ecosystems. As a response to the alarming forecasts, the Ministry of Agriculture and the ASK Facility launched the "Agriculture Climate Risk and Adaptation Assessment" program. This analytical and advisory program aims to enhance the productivity and resilience of the Uzbek Agriculture sector by analyzing potential impacts of climate change and developing adaptation and mitigation responses for the agriculture sector.

Adopting Climate-Smart Practices

The adoption of the Agriculture Development Strategy for 2020-2030 has already led to an increase in the number of hectares where farmers have implemented climate-smart technologies: from zero in 2017 to over 200,000 hectares today. The recommended measures include diversifying to fruit trees, increasing energy efficiency of agricultural processes and more rational use of fertilizers. An additional priority area for ensuring a sustainable agriculture sector in Uzbekistan is the livestock sector since it is a major contributor to climate change. According to research by the UN FAO, 14.5% of all anthropogenic greenhouse gas emissions are derived from livestock production (FAO 2013). In 2020, the Government of Uzbekistan prepared a new livestock strategy and roadmap. The strategy will pave the path for a more resilient, inclusive, and sustainable livestock sector. This will not only help mitigate climate change, but also contribute to food security in Uzbekistan.

Climate change is a huge issue, which no institution and no individual can hope to solve alone. The Ministry of Agriculture is cooperating with different partners, such as the Ministry of Water Resources, the State Committee of Veterinary and Livestock Development, and international partners, to advance sustainable water use. In the era of climate change, droughts and water shortages will likely become more frequent. Many small-holder farmers already face challenges regarding water scarcity. Thus, water management is a key aspect of improving livelihoods and food security of the rural population. The Government of Uzbekistan has therefore identified sustainable water management as a strategic priority.

Success Story: Gold Dry Fruits Export LLC in Surkhandarya Region

Gold Dry Fruits Export LLC is a full-cycle agri-food enterprise established in 2012. The agricultural holding is divided into enterprises responsible for the cultivation of fruits and vegetables, enterprises that process, sort and export these fruits and vegetables, and enterprises to produce dried and frozen fruits and vegetables. Among its activities and assets is frozen food production, dried products manufacturing, processing of fresh products, growing agricultural and greenhouse products and orchards.

Notably, the company is a pioneer in exporting fresh produce to other countries. In 2019, Gold Dry Fruits Export LLC was the first to export fresh cherries to London and to United Arab Emirates in 2020. In the same year, they were the first ones in Uzbekistan to export fresh tomatoes to Germany. And during the pandemic, they established a supply of their products to local supermarket chains such as Makro and Korzinka, therefore helping to strengthen food security in Uzbekistan.

Success Story: Fergana Valley Water Resource Management Project

The Fergana Valley Water Resource Management project is a collaboration between Uzbekistan's Ministry of Water Resources, the European Union, and the World Bank. The aim of the Project is to improve the quality of irrigation and drainage systems for farmers in the valley. Most prominently, this includes the advancement of drip-irrigation systems, which can replace outdated irrigation techniques that waste a lot of water. Drip irrigation systems are installed beneath the surface of fields and so they are not affected by the heat of the day. This way farmers also have more control over the flow, saving a great amount of precious water.

Asila Khusainova, a beneficiary of the Fergana Valley Water Resources Management Project, says, "I have already completed several trainings organized by the Project. One training focused on innovative water-saving technology and that is where I learned about drip irrigation technology. Now, I have trained all the workers on my farm, and I actively use the methods to conserve water resources on my 61 hectares of land."

An added benefit of better water management is that it can allow farmers to improve the efficiency of their farms as well as achieve higher yields with less input. This also promotes environmental protection of Uzbek waterways, crucial for every aspect of life.

CHAPTER 5: INVESTMENT AND INTERNATIONAL COOPERATION

Rising Investment

The agri-food sector of Uzbekistan offers significant opportunities for domestic and foreign investors alike. Fixed capital investment in the agri-food sector in Uzbekistan has been increasing steadily in the past years. The increase in the agri-food sector's share of total volume of fixed capital investment indicates that the sector is becoming more attractive for investors. The main share of investments in fixed assets concerned agriculture, forestry, and fishing as well as the manufacture of textiles and wearing apparel. The manufacture of food and beverages is in third place in terms of investment in fixed assets (Delegation of the European Union to Uzbekistan 2021).

Today, foreign investors in Uzbekistan enjoy a stronger legal framework, a more favorable tax regime, easier business set-up procedures, and new mechanisms and arrangements such as free economic zones and public-private partnerships. Special economic zones have been established across the country to incentivize different types of economic activity. These zones include free economic zones, special scientific and technological zones, tourism and recreational zones, free trade zones, and special industrial zones. The Uzbek government has also established preferential schemes to enable foreign individuals and entities to rent or purchase land for their economic activities.

An improved law on public-private partnerships (PPPs) came into force in February 2021. The PPP Development Agency, part of the Ministry of Finance, is overseeing expanded use of PPP frameworks to support projects across sectors, with a particular focus on infrastructure development. Uzbekistan has also revamped and simplified its tax regime in consultation with international financial institutions. Corporate income tax is 15% while personal income tax is 12%. Dividend and income interest earned by non-residents is taxed at 10%.

Foreign investors even have "a seat at the table" when it comes to Uzbekistan's reforms. The Foreign Investors Council, a body established by President Mirziyoyev and convened by the Ministry of Investments and Foreign Trade, brings together major investors in Uzbekistan, including international financial institutions, for regular consultations on the pace and prospects and economic reforms. There is no longer any doubt that Uzbekistan's door is open to foreign investors from around the world. But more importantly, what lies through that door is clearer and more compelling than ever before. The council serves to attract investment through an open and constructive dialogue between government bodies of the Republic of Uzbekistan and representatives of international financial institutions, foreign companies and banks operating in the Republic of Uzbekistan (Ministry of Investment 2023).

For its part, the Investment Department of the Ministry of Agriculture prepared and published an Agri-Food Investment Guide aimed at potential international investors (Ministry of Agriculture of the Republic of Uzbekistan 2020). The guide is intended to provide relevant information and data on Uzbekistan's agri-food sector for potential investors and other stakeholders with an interest in the sector.

Growing Trade

The Uzbek agri-food sector has major growth and export potential, with demand increasing in both traditional and new emerging markets. Agri-Food sector exports have been diversifying and increasing steadily in recent years. Exports of vegetables and fruits alone totaled $1.15 billion in 2022, having risen nearly 20% year-on-year, according to Uzbekistan's official statistics body. The main export products in Uzbekistan are raisins, grapes, beans, green mung beans, peanuts, and capers. Exports of cotton, horticulture products, and processed products show clear growth trends.

The top six destinations for Uzbek agri-food exports are Russia, Kazakhstan, China, Pakistan, Kyrgyzstan, and the EU. Since 2021, exports to the EU have been rising, thanks to new cooperation between Uzbekistan and the EU. In 2021, Uzbekistan joined the GSP+ system of preferences, which lets 6,200 types of goods be exported duty-free to the European Union. Several hundred agri-food enterprises have already submitted documents to the Uzbek Export Promotion Agency, applying for Global Good Agricultural Practices (GAP) Certification. Every product that is exported from Uzbekistan thus meets high international quality standards. In 2022, total exports to the EU equaled $31.7 million (EU Delegation to Uzbekistan 2023). Given that Uzbekistan's horticultural sector is rapidly developing, and that Uzbekistan can produce two to three harvests a year thanks to its favorable agricultural conditions, the country holds an important export potential. However, for Uzbek producers to be able to diversify their export markets, testing and certifications are necessary so that the highest international food safety standards can be met. Newly equipped, modern laboratories and research capacities are contributing to this goal.

The Export Promotion Agency is the state institute for the support of non-commodity exports. It provides Uzbek exporters with a wide range of financial and non-financial support measures to increase the competitiveness of domestic products on the world market and address existing export barriers in foreign trade. The Agency also implements the project "Made in Uzbekistan", which is meant to promote the Uzbek brand. It organizes educational activities and consultations for exporters, as well as the annual national exhibition "Made in Uzbekistan".

COMMODITIES EXPORT DATA (2022)

		MT (thousand)	Average Price (USD/per ton)
1	Raisins	60	1200
2	Grape	259	800
3	Beans (except mung beans)	102	800-1600
4	Green mung beans	122	800
5	Peanuts	20	1400
6	Capers	4,2	2900

MAIN MARKETS (2022)

	Country	MT (thousand)	Average Price (USD/per ton)
1	Russia	582	533
2	Kazakhstan	666	232
3	China	127	105
4	Pakistan	65	101
5	Kyrgyzstan	172	53
6	EU	22	31,7

Successful Agri-Food Sector Lenders and Investors

Organizations like the World Bank, Asian Development Bank (ADB), and European Bank for Reconstruction and Development (EBRD) have been involved in supporting agricultural development projects in Uzbekistan. These multilateral institutions provide funding, technical assistance, and expertise to improve infrastructure, technology, and practices in the agri-food sector. Major foreign investors operating in the Free Economic Zone of Uzbekistan are Nestle (Switzerland), Pepsi (United States), Coca-Cola (United States), Carlsberg (Germany), British American Tobacco (the United Kingdom – the United States). Other investors in the agri-food sector in Uzbekistan include private equity firms, agricultural technology companies and public-private partnerships. Previous successful investment projects include fruit and vegetable processing farms and facilities, logistics centers, dry bean and lentil processing factories, livestock complexes for cattle farming, diary and meat processing facilities, modern poultry factories, soybean crushing plants, agricultural machinery, and irrigation technology factories, as well as digitalization, precision farming and financing solutions projects.

International Cooperation

Since the early 1990s, Uzbekistan has pursued international cooperation, beginning with becoming a member of the World Bank and the United Nations. Strategic partnerships have also been formed with various national development organizations, as well as with the European Union, UNESCO and the UN's Food and Agriculture Organization. Today, Uzbekistan has established flourishing cooperation with a wide range of international partners, especially in the agri-food sector and rural development

European Union

In recent years, the European Union has been collaborating with the Government of Uzbekistan on a diversity of agricultural development projects. The EU is also an implementing partner of the Ministry of Agriculture for the Agriculture Development Strategy (2020-2030). The EU supports the Uzbek agri-food sector through technical assistance, grants, and knowledge exchange. In addition, the European Union in cooperation with other contributors like "Team Europe" provides grant funds to various projects in the agriculture sector of Uzbekistan. These projects contribute to the development of irrigation and drainage systems, horticulture, livestock, apiculture, rice crops, land management and ecosystems, biodiversity, etc. By working together and pooling resources and expertise, "Team Europe" delivers more effectiveness and greater impact. "Team Europe" consists of the European Union, EU member states—including their implementing agencies and public development banks.

World Bank

Uzbekistan has been collaborating with the World Bank ever since it joined the bank in 1992. Milestones of the cooperation include the elimination of forced labor from the cotton harvest through reforming the agriculture sector and the launch of first large-scale, privately developed and operated renewable energy facility—the solar photovoltaic power plant in the country's Navoi Region. Recent projects co-financed by the World Bank include the Livestock Sector Development Project, the Rural Infrastructure Development Project, and the Horticulture Development Project.

UNESCO

In recent years, bilateral cooperation between UNESCO and Uzbekistan has been increasing, with efforts mainly focused on technical support in education. One of the latest projects in Uzbekistan is the "Skills development for employability in rural areas of Uzbekistan" project. It is implemented by UNESCO within the period of 2020-2024 in the regions of Karakalpakstan, Khorezm, Bukhara, and Surkhandarya. The project is aligned with the Uzbekistan Agriculture Modernization Project launched by the Ministry of Agriculture in 2019. It aims to enhance the living standards in rural areas through better employability. The project is helping equip women and men in Uzbekistan with relevant skills for a sustainable, diversified, and modernized agriculture through vocational training and education.

Food and Agriculture Organization

The Food and Agriculture Organization (FAO) is a United Nations agency dedicated to promoting food security. The goal of the Organization is to ensure food security for all and to promote the constant access of the global population to high quality food. Uzbekistan has been a member of FAO since 2001. In 2014, FAO opened its Uzbek country office. In line with the national sustainable development priorities, FAO is committed to supporting the government of Uzbekistan in implementing the 2030 Agenda for Sustainable Development and helping the country achieve sustainable food systems across the entire agri-food value chain. In cooperation with the Ministry of Agriculture of Uzbekistan, FAO has so far implemented 33 projects worth $15.03 million. Those include projects "Promotion of water saving technologies in the Uzbek water scarce area of the transboundary Podshaota river basin", "Institutional capacity building to develop organic agriculture and to promote Good Agriculture Practices (GAP) in Uzbekistan," "Integrated forest land and tree resources assessment," "Demonstration of diversification and sustainable crop production intensification" and "Support to improvement of the national seed, plant variety protection and phytosanitary legislation." The 31 ongoing projects are worth $51.91 million. Some of these projects are "Integrated natural resources management in drought-prone and salt-affected agricultural production landscapes in Central Asia and Turkey (CACILM2)" and "Smart Farming for Future Generation," "Food systems, land use and restoration impact program in Uzbekistan," "Sustainable management of forests in mountain and valley areas in Uzbekistan," and "Sustainable forest and rangelands management in the dryland ecosystems of Uzbekistan." Four more projects are currently being prepared, worth a total of $41.3 million. These projects will include biodiversity conservation, sound management of chemicals and waste in the context of the Sustainable Development Goals, and pandemic preparedness through the One Health initiative in Central Asia.

Cooperation Case Studies (by country)

France

Uzbekistan has been collaborating with France through its Agency for Development (AFD). The Agency has been giving technical assistance and financial support to various projects. Notably, through its ongoing Green Economy Support Program, France is supporting Uzbekistan in facing major environmental challenges related to climate change and water scarcity. Uzbek authorities have asked the support of AFD to prepare, finance and implement a new strategical framework for the transition to a green economy.

Germany

The Ministry of Agriculture of Uzbekistan and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) have been collaborating in several areas of the agri-food sector. In recent years, they have jointly been promoting agricultural cooperatives in Uzbekistan, as part of the project "Sustainable Development in Rural Areas of Uzbekistan" with the support of the Ministry of Economy and Finance of Uzbekistan. An ongoing project is the "Ecologically oriented regional development in the Aral Sea region". This project aims to improve water management in the Aral Sea region, to support sustainable economic development and resilient rural livelihoods for the two million inhabitants of the area.

Italy

The reforms underway in Uzbekistan's agri-food sector have also increased Italy's interest in collaborating with Uzbekistan. Cooperation is already underway around education, since a memorandum was signed in 2022 between the National Center for Knowledge and Innovation in Agriculture, the University of Milan, and the Italian Center for Agriculture CREA. Uzbek and Italian scientists already began the implementation of scientific projects in the field of viticulture, plant protection, and horticulture. Potential opportunities also lie in exporting agricultural commodities. While Uzbekistan is already successfully exporting saffron to Italy, negotiations have started to discuss opportunities for further expansion of cooperation. Finally, future plans include the development of agro-tourism through viticulture and winemaking, where Uzbekistan hopes to learn from Italy's experience.

United States of America

The U.S. Agency for International Development (USAID) and the Ministry of Agriculture of the Republic of Uzbekistan have been collaborating for over a decade on agri-food sector development projects. In 2021, they agreed to expand their collaboration to support agricultural development in Uzbekistan with special attention to the development of agribusinesses. Additional funds are used to improve rural women's information technology and entrepreneurship skills, empower them to launch business enterprises, and gain formal employment with local businesses.

Turkey

Recently, Uzbekistan also started studying the experience of Turkish businesses working in the agri-food sector and establishing close cooperation with them. The aim is to learn from their experience, since they have outstanding agricultural production in arid areas, using "smart" drip-irrigation technologies.

CHAPTER 6: INTERNATIONAL CONFERENCE ON FOOD SECURITY 2023

International Conference on Food Security

The International Conference on Food Security (ICFS) is taking place in Samarkand, Uzbekistan, from 7-8 September, 2023. The conference was initiated by President Shavkat Mirziyoyev at the Shanghai Cooperation Organization summit in Samarkand in 2022. The aim of the conference is to review the current state of food security in the world and Central Asia, and to find solutions to these challenges. It will analyze measures to achieve the Sustainable Development Goal 2 "Zero Hunger," including specific tasks to eliminate hunger, improve food security, safety, quality and nutrition, and develop sustainable agriculture until 2030.

SDG2 states "By 2030, end hunger and ensure access by all people, in particular, the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round." As part of efforts to achieve the SDGs, UN Secretary-General António Guterres convened the Food Systems Summit in New York in September 2021. The summit marked the beginning of a new effort to make progress on all 17 SDG indicators, all of which depend to varying degrees on sustainable and equitable food systems. According to FAO estimates, about 2.3 billion people in the world are currently moderately or highly food insecure, of which 25 per cent or 566 million people are from Asia (FAO's 2021 "World Food Security and Nutrition" report).

Conference participants will be informed about the implementation of the decisions of the UN Summit on Food Systems held in New York in September 2021. A special emphasis will be put on food insecurity in Asian countries. Additionally, a special session will be dedicated to landlocked developing countries of the region to discuss common challenges and find sustainable solutions for the development of agri-food systems and agricultural trade.

An expected outcome will be the adoption of common principles to ensure food safety and security, which will serve to create a common framework, joint research and innovation, specific measures for harmonization of standards and certification, and the growth of regional food trade. Participants will also explore the development of programs for the cultivation and processing of agricultural products, the formation of agreed schemes for cross-supply, the establishment of effective logistics, and "green" and fast routes for the supply of high-quality and affordable food products. With threats of climate change and other environmental challenges, an emphasis will also be put on environmental food security issues.

Key Areas for Innovation

As part of the science and innovation strategy of FAO for 2023-2031, the possibility of the following new approaches will be discussed during ICFS:

- A permanent platform for the interaction of scientists in the field of agricultural sciences
- A unified food safety monitoring system
- E-commerce low current account balance
- An evidence-based agricultural production monitoring systems for production planning, policy, and development programs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CHAPTER 7: GOVERNMENT IN ACTION

President Decrees and Resolutions

Since 2016, the Government of Uzbekistan has renewed its efforts to develop and modernize the agri-food sector. President Shavkat Mirziyoyev has issued a wide range of decrees obligating Uzbek legislators and policymakers to create and implement new legal frameworks and policies. These decrees reflect the prioritization of the agri-food sector by the Presidential administration.

President Mirziyoyev makes frequent visits to agri-food producers. These visits provide an opportunity to hear directly from farmers and livestock producers about their needs. During one such visit in March 2023, President Mirziyoyev met with farmers in the Jarkurgan District and discussed why the government "keeps saying that agriculture needs science and innovation." The President explained that innovation is intended to improve "quality and productivity." Innovation is also expected to improve the economic welfare of agri-food producers. "Farmers seeking to earn more should increase labor productivity through the introduction of scientific achievements," Mirziyoyev explained.

Presidential decrees also form the basis of the implementation of the Agriculture Development Strategy for 2020-2030 and ensure that the government can mobilize budgetary and bureaucratic resources to address the priorities set forth in the strategy.

Officials at the Ministry of Agriculture have been working diligently to implement the varied decrees, ensuring that decisions taken in Tashkent lead to tangible improvements for agri-food producers across the country. Minister Aziz Voitov, his deputy ministers, and the hardworking civil servants of the ministry are conducting programs and projects at the international, national, regional, and local levels, frequently in cooperation with international partners.

Decrees and Resolutions of the President of the Republic of Uzbekistan in 2022-2023:

No.	Title of the normative legal act	Number & Date of adoption
1.	On additional measures for the further development of the fishing industry.	No. PP-83, January 13, 2022
2.	On approval of the Development program of the sphere of livestock production and its industries in the Republic of Uzbekistan for 2022 – 2026	No. PP-120, February 8, 2022
3.	On measures to further develop livestock breeding and strengthen the forage base	No. PP-121, February 8, 2022
4.	On measures to improve the efficiency of state control over the use of land	No. PP-138, February 21, 2022
5.	On measures for further enhancement of implementation of water saving technologies in agricultural industry (as amended on 20.06.2023)	No. PP-144, March 1, 2022
6.	On measures for simplification of the procedure for provision in lease of the parcels of land of agricultural purpose	No. UP-91, March 24, 2022
7.	On measures to increase soil fertility and yield, support the introduction of new irrigation technologies in cotton areas	No. PP-179, March 25, 2022
8.	On the additional measures directed to increase in livestock of small cattle of the meat, wool and milk directions and strengthening of food supply of industry in the republic (as amended on 30.12.2022)	No. PP-224, April 26, 2022
9.	On measures to improve the system of financing of expenditures on agricultural production and purchases thereof	No. PP-225, April 27, 2022
10.	On measures to establish an international agricultural university	No. PP-237, May 7, 2022
11.	On measures to create a value chain through the efficient use of the raw material base and support for the processing of medicinal plants	No. PP-251, May 20, 2022
12.	On additional measures to introduce the market principle in the cultivation and sale of grain	No. PP-262, May 28, 2022
13.	On additional measures for development of entrepreneurship in northern areas of the Republic of Karakalpakstan	No. PP-264, May 30, 2022
14.	On additional measures for the effective organization of execution of the tasks determined in the Strategy of development of agricultural industry of the Republic of Uzbekistan for 2020-2030» (as amended on 07.07.2023)	No. PP-273, June 7, 2022
15.	On measures to create an effective system to combat land degradation	No. PP-277, June 10, 2022
16.	On measures for further acceleration of creation of cluster of agricultural mechanical engineering in the city of Chirchiq (as amended on 30.12.2022)	No. PP-335, July 28, 2022
17.	On additional measures for financial support of production of agricultural products (as amended on 15.03.2023)	No. PP-387, October 6, 2022
18.	On measures for employment and increase in the income of the population, and also effective use of lands of agricultural purpose in the Syr Darya region	No. PP-431, November 28, 2022
19.	On additional measures for further development of agricultural industry of the Tashkent region	No. PP-435, December 1, 2022
20.	On measures to Establish International Institute of Food Technologies and Engineering	No. PP-22, January 26, 2023
21.	On measures for population employment increase in agricultural industry and to effective use of the parcels of land	No. PP-69, February 23, 2023
22.	On measures for the further development of silk industry	No. PP-73, February 24, 2023
23.	On additional measures to stimulate the provision of the agricultural sector with modern agricultural machinery	No. PP-103, March 29, 2023
24.	On additional measures for the effective organization of the tasks defined in the strategy for the development of agriculture of the Republic of Uzbekistan for 2020-2030	No. PP-113, April 5, 2023
25.	On measures to improve the system of growing products on land areas along the edges of the fields of agricultural enterprises	No. PP-121, April 12, 2023
26.	On measures for the Effective Organization of Public Administration in the Agricultural and Food Sphere within Administrative Reforms (Extraction)	No. UP-90, June 10, 2023
27.	On providing continuity of financing of expenses on the state support of agricultural industry	No. UP-98, June 19, 2023
28.	On measures to introduce advanced digital technologies in the field of agriculture	No. PP-257, August 2, 2023
29.	On measures aimed at the further development of viticulture and winemaking in 2023-2026	No. PP-260, August 3, 2023

Conclusion

Uzbekistan's economy has been steadily growing in recent years. This growth has been driven by a series of policy reforms, with the monetary and fiscal policy reform at its heart. As a former Soviet country, privatization of its state-owned enterprises has been another key feature of its economic reform. Against this backdrop of economic reform, the further development of the agriculture sector is also boosting Uzbekistan's economy. The agri-food sector has experienced many changes in the past years. Its shift from being mainly a cotton and wheat producer, to covering a broad range of agri-food commodities, is impacting both its domestic market, as well as its export potential.

In line with the economic reform process, the country has introduced a series of fundamental agricultural policy reforms through its Agriculture Development Strategy (2020-2030). Among the identified priorities are food security, rural development, and environmental protection, as well as reducing the role of the state in sector management, privatization, and the development of research, education, and information systems.

While food security is still a worrying issue, increasing emphasis is put on ensuring food safety and climate change mitigation and adaptation as inter-connected issues. Some measures have already been undertaken to face these issues, such as the introduction of water-saving technologies and climate-smart farming, but much still needs to be done to prepare the country for the risks of climate change. While the livestock sector has traditionally been an important factor in food security and regional value chains, horticulture is establishing itself as a promising sector with potential for both the domestic market as well as international markets.

In recent years, Uzbekistan has been positioning itself as an important agricultural producer in the region, and actively seeking cooperation with a wide range of countries and organizations. Uzbek policymakers are thinking long-term and are planting the seeds for a more productive and sustainable agriculture sector. International cooperation has been instrumental in creating a thriving agri-business climate, fostering investment opportunities, and realizing potential for growth in this crucial economic sector. One such platform for international discussion and cooperation is the Samarkand edition of the International Conference on Food Security.

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Principle Author: Naomi Bosch
Editor: Esfandyar Batmanghelidj
Project Managers: Ekaterina Ustinenko and Samira Mukhamedova
Designer: Rustam Fedorov
Photos by: Javokhir Mirsalikhov, Farshedsho Saidov, and Feruz Rustamov