

MODERN APPROACHES TO THE DEVELOPMENT OF THE FOOD INDUSTRY (A CASE STUDY OF SAMARKAND REGION)

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ABSTRACT. In the further development of our country's economy, it is important to improve the cluster management mechanism in food industry enterprises, study the influencing factors, modernize the relevant sectors, and support food-producing enterprises. This article reveals the relevance of applying the cluster system in managing the activities of food industry enterprises. The article analyzes the significance of innovative and cluster approaches in the development of the food industry in Samarkand region. It highlights the opportunities for diversifying food production through the effective use of existing production resources, raw material base, and labor potential. Moreover, the issues of improving product quality and ensuring competitiveness in domestic and foreign markets are examined through establishing cooperation between enterprises, farms, educational and research institutions on the basis of clustering principles. The introduction of innovative technologies, the improvement of logistics systems, and the expansion of export potential are identified as the main prospects for the development of the food industry in Samarkand region.

KEYWORDS: *Food industry, modern approaches, Samarkand region, modern management methods, development strategies, investment potential.*

INTRODUCTION. Currently, scientific research is being carried out in the food industry enterprises on the creation of an organizational and economic mechanism based on cluster management systems, digital technologies, and flexible innovative approaches that meet market demands, as well as on the formation of clusters in managing enterprise activities. In the further development of food industry enterprises, the New Uzbekistan Development Strategy outlines specific tasks: "to increase supply in the food and non-food product markets and eliminate seasonal shortages, ensure the domestic market is supplied with food products and maintain price stability, by 2026 increase the volume of food products to 7.4 million tons, raise the processing rate to 32 percent for dairy, 25 percent for meat, and 28 percent for fruits and vegetables; create food reserves and determine the volume of market interventions, clearly define the responsibilities of regional authorities in ensuring price stability in the domestic market, as well as develop rules for forming and using reserves of essential food products to stabilize prices.

The objectives of the study include examining the theoretical foundations of innovative and cluster-based development of the regional economy, analyzing the state and development trends of the food industry in Uzbekistan and the Samarkand region, identifying the role of innovation in the modernization of processing

enterprises, assessing the opportunities and prospects for the formation of food clusters, as well as developing practical recommendations for the use of cluster and innovative approaches to improve the efficiency and competitiveness of the regional economy.

LITERATURE REVIEW. The study of innovative and cluster-based approaches in regional economics has a broad theoretical and practical foundation. The concept of clusters as a basis for regional competitiveness was first systematized by M. Porter, who demonstrated that the integration of enterprises, suppliers, and research institutions into a single network generates a synergistic effect and enhances innovation activity [1]. In Russian research (A.G. Granberg and others), emphasis is placed on the fact that clustering contributes to more efficient use of regional potential, stimulates investment inflows, and accelerates industrial modernization [2]. The Uzbek scientific tradition has also accumulated certain experience in analyzing factors of regional development. For example, B. Karimov emphasizes that the transition to a cluster model in Uzbekistan's agro-food sector increases the efficiency of agricultural production through the integration of farming and processing [3]. Sh. Sultanov points out that the introduction of innovative technologies and the formation of sectoral clusters are considered priority directions for the sustainable development of the country's food industry [4].

According to the World Bank, Uzbekistan is characterized by a low ratio of processing to total production: only about 15–16% of fruits and vegetables are processed, which is significantly below international standards [5]. Data from the United Nations Development Programme show that underdeveloped logistics and cold chain infrastructure lead to post-harvest losses of up to 25–30%, thereby limiting added value and export potential [6]. From the perspective of innovative development, recent studies highlight the role of digitalization, automation, and the adoption of modern management technologies. Reports by the Ministry of Agriculture of the Republic of Uzbekistan and the Center for Economic Research and Reforms indicate the need to transition to "smart agro-technologies," ERP systems, and digital platforms for quality control and logistics (direct publications of these documents were not found in open sources). At the same time, a study published on ResearchGate demonstrates that adapting international experiences of food industry clustering (EU, China, South Korea) could significantly enhance the competitiveness of the sector in Uzbekistan [7].

Thus, the literature review—both international and national—shows that the combination of innovative solutions and the cluster approach is regarded in global and regional economics as a key factor for sustainable development. For the Samarkand region, these findings are of particular importance, as the region possesses significant agricultural potential but faces institutional and technological constraints that hinder the effective integration of production, processing, and export.

The studies presented in the table suggest that international science and practice primarily focus on cluster theory and innovative technologies as universal drivers of regional development, while national authors emphasize the need to adapt these approaches to the specific context of Uzbekistan. Whereas foreign models prioritize a high degree of integration of production, processing, logistics, and exports, Uzbek research highlights the elimination of institutional and infrastructural barriers that limit the efficiency of the agro-food sector. Therefore, both theoretical and practical experience confirm that innovative and cluster-based approaches should be regarded as complementary mechanisms capable of ensuring the sustainable development of the food industry in the Samarkand region.

RESEARCH METHODOLOGY. The methodological framework of the study is based on a combination of systemic, institutional, statistical, and comparative-analytical approaches. This comprehensive toolkit, in turn, makes it possible to consider the food industry of the Samarkand region as an integral part of the regional economy and to identify the factors of its innovative and cluster-based development.

First, the systemic approach was applied, which, as rightly noted by A. Granberg [1], makes it possible to study the regional economy as an interconnected system of industries, institutions, and resources. In this context, system analysis was used to identify the interrelations between agricultural production, processing, infrastructure, and export activities.

Second, the institutional approach was employed, focusing on the assessment of the impact of the regulatory framework, government programs, and public-private partnership mechanisms. It should be emphasized that, as demonstrated by the studies of B. Karimov and Sh. Sultanov [2;3], the institutional environment largely determines the effectiveness of clustering and innovative activity.

Third, statistical methods of analysis were widely applied. Based on data from the State Committee on Statistics of the Republic of Uzbekistan [4], the World Bank [5], and the United Nations Development Programme [6], dynamic series for 2017–2023 were examined. This, in turn, made it possible to identify trends in production, investment, employment, the share of processing, and the development of logistics infrastructure.

Fourth, a comparative-analytical approach was used, involving the comparison of national and international experience. Consequently, comparing the conditions of Uzbekistan with the practices of the EU, China, and the Republic of Korea [7] made it possible to adapt the best models of cluster development to the conditions of the Samarkand region.

Finally, the expert assessment method was applied, based on consultations with specialists from the Ministry of Agriculture of the Republic of Uzbekistan, the Center for Economic Research and Reforms, as well as representatives of regional processing enterprises. As practice shows, the inclusion of expert opinion makes it possible to

complement statistical data with qualitative assessments and to identify institutional barriers that are not reflected in formal indicators.

Thus, the research methodology has a comprehensive and interdisciplinary character. Therefore, the combination of systemic, institutional, statistical, and analytical approaches, together with expert assessments, ensures the scientific validity of the findings and their practical applicability for developing strategies to modernize the food industry of the Samarkand region.

ANALYSIS AND RESULTS. First of all, it should be emphasized that innovation is one of the key factors in enhancing the competitiveness of the food industry. As statistical analysis shows, Uzbekistan has witnessed a steady increase in investment in the processing sector. At the same time, the level of technological equipment of enterprises remains insufficient, which reduces the efficiency of processing and storage of products [4;5]. In this regard, the digitalization of production processes, the introduction of automated quality control systems, and the use of ERP platforms are considered priority areas of modernization [6]. Consequently, the transition to innovative technologies makes it possible to increase productivity, minimize losses, and enhance the added value of products. Figure 1 presents the dynamics of investment in Uzbekistan's food industry in 2017–2023. During this period, the volume of investments increased more than 2.5 times (index from 100 to 250). This reflects the strategic orientation of the state and business towards the development of processing and the modernization of the sector.

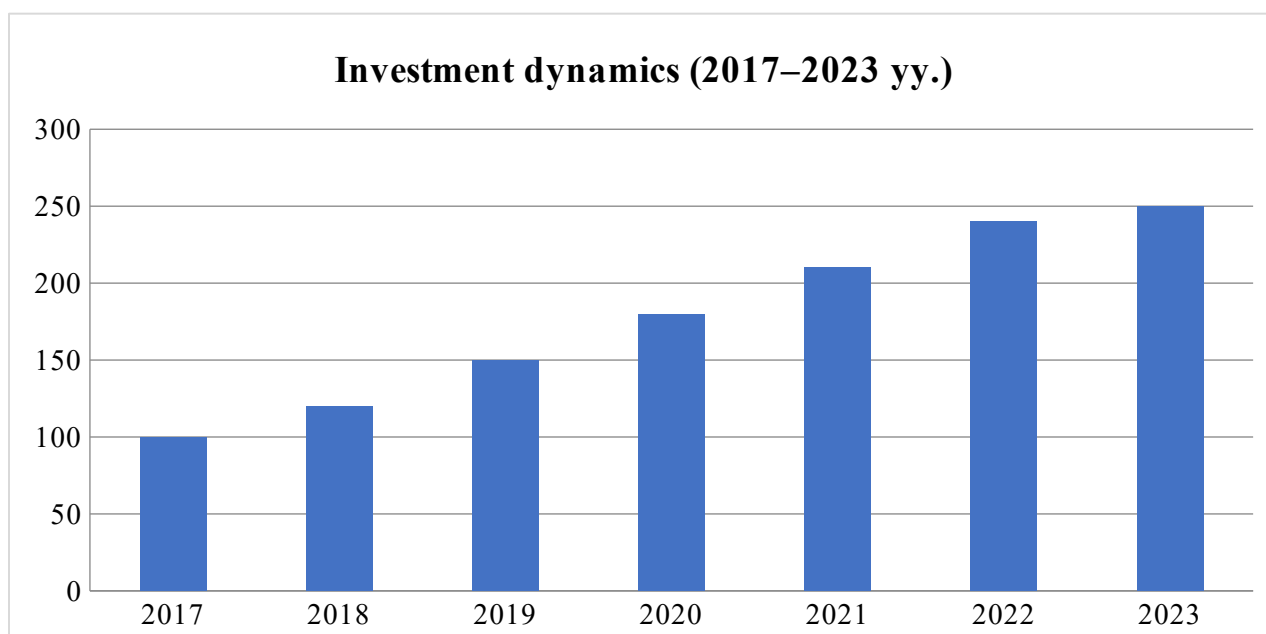


Diagram 1. Dynamics of investments in the food industry of Uzbekistan, 2017–2023.

At the same time, the indicators of processing and storage remain at a low level. As shown in Figure 2, the processing of fruits and vegetables increased only from 12% to 16% over six years, while cold storage capacity grew from 4% to 7%. With a harvest exceeding 20 million tons, such indicators are extremely insufficient and lead to losses of up to 25–30% of products [5;6]. For a more comprehensive assessment of the situation, let us consider a comparative analysis (Table 2). It shows that Uzbekistan lags significantly behind international standards in terms of the level of processing and storage infrastructure.

**Table 2. Comparison of processing and storage indicators
(international and national levels)**

Indicator	Uzbekistan (2023)	International standards (EU, Korea, China)
The share of fruit and vegetable processing	16 %	50–60 %
Cooling capacity (depending on harvest)	7 %	25–30 %
The share of food industry in agricultural employment	2,5 %	8–12 %
Export orientation of processed products	Limited	High (up to 40–50% of processing is exported)

As the analysis shows, the rapid growth of investment and production is accompanied by extremely slow development of processing and storage infrastructure. In this regard, a contradiction emerges: despite the availability of resource potential and investment interest, the industry faces institutional and technological barriers. Therefore, for the Samarkand region it is strategically important to establish regional food clusters that integrate agriculture, processing, logistics, and export. This will help eliminate the imbalance and ensure the innovative transformation of the sector, which is particularly important under conditions of global competition [7;8].

CONCLUSION AND RECOMMENDATIONS. The results of the study make it possible to identify a number of priority areas for modernizing the food industry of the Samarkand region. As key measures, it is advisable to consider the formation of regional clusters that integrate agricultural producers, processing enterprises, logistics centers, and research institutes, which will generate a synergistic effect and enhance the competitiveness of the sector. An important condition for sustainable development is the expansion of public-private partnership mechanisms aimed at attracting long-term investments and supporting innovative projects.

In addition, it is necessary to train a new generation of specialists with competencies in digital technologies, innovation management, and international food

safety standards. Thus, the implementation of these recommendations will contribute to improving the efficiency of processing, strengthening export potential, and ensuring sustainable socio-economic development of the region in the long term.

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