

**A GROUNDBREAKING INFRASTRUCTURE FOR COTTON-TEXTILE  
CLUSTERS THAT INTRODUCES NEW AND CREATIVE ELEMENTS**

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**Abstract:** This article explores the establishment of a scientific-innovative infrastructure for cotton-textile clusters in Uzbekistan. The author has put forward suggestions to enhance the scientific-innovative infrastructure, which will facilitate integration among cluster participants, boost production efficiency, commercialize innovative projects, and create and execute programs for the progress of cotton-textile clusters.

**Key words:** scientific-innovative infrastructure, cotton-textile clusters, suggestions, enhance, integration, boost production efficiency, commercialize innovative projects, create and execute programs.

The cluster system involves a technological chain that includes the entire process from primary processing of raw materials to production of finished products. This will help reduce costs and increase production of high-quality finished products. The textile industry has huge potential for exports and employment, and at the initiative of the President, the cluster system has been fully implemented in the industry. To increase the number of jobs in the cotton industry to 1 million, it is important to organize the entire system based on a scientific approach and modern technologies. This includes increasing cotton yield through scientifically based seed production and agricultural techniques, as well as expanding exports through the deep processing of raw materials. To support this, scientific centers such as seed, soil, and biological laboratories, as well as seed preparation workshops, should be established in each cluster. In order to promote intersectoral relations within the cotton industry complex, it is crucial to create

scientific and innovative centers as part of clusters. The implementation of these measures will not only benefit market participants by enhancing economic relations and efficiency but also lead to an increase in production capacity and volume. However, achieving these objectives is dependent on the development of a suitable scientific and innovative infrastructure. The creation of scientific and innovative centers within the cotton industry clusters is crucial for the development of economic entities. While clustering in industries, including cotton, is relatively new in our country, developed countries have ample experience in the evolution of industrial clusters. Scientific and production integration plays a key role in the growth of economic entities, such as cotton and textile clusters, in a market economy. Industrial clusters have been established in various sectors of the economy in numerous countries, regardless of their level of economic development. In developed nations such as the EU and USA, industrial clusters have naturally evolved as a means of enhancing production methods. On the other hand, developing countries like China, India, and Argentina view clusters as the primary approach to achieve world-class standards in different sectors and gain access to international markets [1].

According to the European Cluster Observatory's data for 2021, despite the challenges posed by the post-pandemic period, there were 2301 clusters operating across 28 countries in Western and Eastern Europe. These clusters spanned various sectors and employed a total of 42 million individuals. Notably, approximately 11.5% of these employees were engaged in the agro-industrial complex, with a workforce of around 4.5 million people [2].

If we look at details, Germany has the highest number of clusters operating in its national economy, followed by Great Britain. These countries can be considered the largest economic and industrial nations. In addition to these countries, Belgium, Ireland, and Hungary also have an advantage compared to other countries in terms of the number of individuals employed within these clusters. At the same time, in terms of the share of agro-industrial clusters among other clusters, Bulgaria and Greece lead in significant differences from other

European countries, as well as in the total number of people working in agricultural clusters. At the same time, Lithuania, Ireland, Romania and Denmark also have powerful agro-industrial groups with a large number of workers, but perhaps with insufficient equipment. As for research centers and universities that promote agriculture, Germany also occupies a leading position. According to calculations, today the number of research centers and universities promoting agriculture in this country is about 82 [3]. There are about 1,000 state-funded research institutions operating in Germany. The backbone of the research landscape is formed by universities and four non-university research organizations. Currently, research centers are collaborating with universities and scientific institutions to address pressing issues in cotton cultivation. They aim to develop cotton that meets global standards, implement innovative technologies for resource utilization, and increase production. The Resolution has also identified clusters in different regions where scientific centers will be established by 2023 [4].

The cluster system is being fully implemented in the textile industry to reduce costs and increase production of high-quality finished products. To increase employment in the cotton industry, a scientific and modern approach is needed, including increasing cotton yield through seed production and agricultural techniques, as well as expanding exports through raw material processing. Each cluster should establish scientific centers such as seed, soil, and biological laboratories to support these efforts. Intersectoral relations within the industry complex should also be promoted through scientific and innovative centers. The development of a suitable scientific infrastructure is crucial for achieving these objectives. Developed countries have experience with industrial clusters, while developing countries see clusters as a means to achieve international standards and access global markets. Research centers play a key role in enhancing agricultural practices within the cotton industry. They aim to improve soil fertility, implement water-saving techniques, and provide consultation services on environmentally friendly pest control methods. They also ensure that raw cotton meets international organic farming standards. Digital technologies are used to reduce manual labor

and increase mechanization in cotton cultivation. Collaboration with educational institutions and participation in grant projects are established to further advance the industry. Research centers focus on developing new high-yielding varieties of cotton, expanding seed production, and organizing training seminars for agricultural specialists. They also collaborate with higher educational institutions to address pressing issues in cotton development.

To ensure the success of these initiatives, it is important to involve various organizations and departments. The state should take the lead in establishing the scientific and innovative infrastructure for the cotton-textile cluster. The formation of advanced clusters benefits not only specific industries or regions but also contributes to the overall competitiveness of the country's economy. Each cluster should be centered around innovation and foster deeper integration between production and science. In this regard, cooperation between the Association of Cotton and Textile Clusters of Uzbekistan, Tashkent State University of Economics, and the Scientific Research Center "Scientific Foundations and Problems of Economic Development of Uzbekistan" is being established. This collaboration will focus on academic activities, research activities, international cooperation, innovation activities, and digital technologies. For example, a joint faculty will be opened to train highly qualified personnel for the industry, special programs will be developed to integrate production with education systems at both bachelor's and master's levels [7]. Efforts will also be made to create educational materials such as a textbook on cluster economics. These collaborations aim to bring positive results in the development of the cluster system in Uzbekistan by fostering innovation and enhancing skills in various aspects such as logistics, branding, marketing, advertising, and export.

In conclusion, the establishment of a cluster system in the cotton-textile industry in Uzbekistan is crucial for the development and competitiveness of the country's economy. With the involvement of various organizations and

departments, including the state as the initiator, this integration process can lead to significant advancements in the social and economic sphere. The formation of advanced clusters not only benefits a specific industry or region but also contributes to the overall growth of the country's economy. By focusing on innovation and deepening the integration between production, science, and higher education, these clusters can drive progress and enhance competitiveness. The cooperation between the Association of Cotton and Textile Clusters of Uzbekistan, Tashkent State University of Economics, and the Scientific Research Center demonstrates a promising collaboration towards cluster development. Through their joint efforts in academic activities, research, international cooperation, innovation, and digital technologies, highly qualified personnel will be trained for the industry. Special programs will be developed to address issues related to production integration with education systems. Furthermore, efforts will be made to create educational materials such as textbooks on cluster economics and organize training courses to enhance skills related to value chain logistics, branding, marketing, advertising, and export. These initiatives mark significant steps towards realizing the potential of Uzbekistan's cluster system [8]. By fostering collaboration and investing in innovation within the cotton-textile cluster system, Uzbekistan is poised to achieve positive results that will benefit both its economy and society as a whole.

In conclusion, the establishment of a cluster system in the cotton-textile industry in Uzbekistan is essential for the country's economic development and competitiveness. Through collaboration between various organizations and departments, led by the state, this integration can lead to significant advancements in the social and economic spheres. The formation of advanced clusters not only benefits specific industries or regions but also contributes to overall economic growth. By focusing on innovation and deepening integration between production, science, and higher education, these clusters can drive progress and enhance competitiveness. The cooperation between the Association of Cotton and Textile Clusters of Uzbekistan, Tashkent State University of Economics, and the Scientific

Research Center shows promising collaboration towards cluster development. Through joint efforts in academic activities, research, international cooperation, innovation, and digital technologies, highly skilled personnel will be trained for the industry. Special programs will be developed to address issues related to integrating production with education systems. Furthermore, efforts will be made to create educational materials such as textbooks on cluster economics and organize training courses to enhance skills related to value chain logistics, branding, marketing, advertising, and export. These initiatives mark significant steps towards realizing the potential of Uzbekistan's cluster system. By fostering collaboration and investing in innovation within the cotton-textile cluster system, Uzbekistan is well-positioned to achieve positive results that will benefit both its economy and society as a whole.

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