



Development And Regional Composition Of Chemical Industry Of Uzbekistan

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ABSTRACT

This article presents a scientific analysis of the history of the development of the chemical industry of Uzbekistan, its territorial structure, current problems and future directions of development. The article describes the relationship between the territorial location of the chemical industry and the factors that shape it, including natural resources, infrastructure, and economic regions. The activities of industrial centers such as Chirchik, Fergana, Navoi and Shortan are analyzed in detail, and their importance in the local and international market is shown. Also, the article describes in detail the main problems in the development of the industry, including outdated technologies, shortage of personnel, issues of environmental safety and insufficient processing of resources. Directions such as introduction of modern technologies, provision of environmental safety, training of personnel, promotion of scientific research and expansion of international cooperation are offered as prospects for development.

Keywords:

chemical industry, territorial composition, natural resources, innovative technologies, environmental safety, international cooperation, investments, raw materials processing.

The chemical industry, which is one of the main sectors of the economy of the Republic of Uzbekistan, is important in ensuring economic stability and industrial development in the country. The development of this industry contributes not only to the supply of products necessary for agriculture and industry, but also to the increase of export potential. The chemical industry has launched the production of mineral fertilizers, polymer materials, pharmaceutical products and other high-tech products that increase efficiency in agriculture. Uzbekistan's natural resources, in particular, gas, oil and other raw materials, create ample opportunities for the development of the chemical industry. After gaining independence in the country, the chemical industry was modernized and technological updates were carried out. Today, this field is recognized as one of the priority

directions of the economy. This article analyzes the historical development, current state and territorial composition of the chemical industry of Uzbekistan. In addition, detailed information is given about the problems of the network, development prospects and its role in the national economy. On the basis of these analyses, the strategic importance of the chemical industry, current issues of strengthening the country's position in the domestic and foreign markets will be discussed. The development of the chemical industry of Uzbekistan is closely related to the use of the country's natural resources, the development of technologies and the diversification of the economy. Below are detailed historical development stages of this field:

- The era of the Soviet Union (30-80s of XX century). The foundation of Uzbekistan's

chemical industry was laid during the Soviet Union. During this period, the economy of the republic was directed to meet the needs of the Soviet Union, and many chemical plants were built. In 1932, the Fergana superphosphate plant was launched, which was the first large-scale enterprise in the field of mineral fertilizers production in Uzbekistan. Petrochemical industry was developed on the basis of Shurtan and Mubarak gas fields. In the 1960s and 1970s, chemical plants were established in Tashkent, Chirchik and other cities, including the Chirchik Electrochemical Plant (a large ammonia and urea production enterprise). Nitrogen and phosphorus fertilizer production plants in Navoi were one of the main directions of production of mineral fertilizers and pesticides for agriculture during this period.

- The period after the years of independence (from 1991 to now). After gaining independence, the chemical industry of Uzbekistan underwent deep reforms. Privatization and modernization of state enterprises: During this period, attention was paid to updating outdated technologies and diversifying production. Shurtan gas-chemical complex (2001) The implementation of this large project made it possible to start the production of products with high added value in the country, including polyethylene. The establishment of Uzkiimyosanoat (1994) began work as the main state body for the management and development of the chemical industry.

- Current modern era (since 2016). Under the leadership of President Shavkat Mirziyoyev, a number of reforms were implemented for the strategic development of the industry. Technology updates: Implementation of modern technologies and compliance with environmental standards have become a priority. The products of Uzbekistan's chemical industry are highly valued in the international market. In particular, the export of mineral fertilizers, polyethylene and other products has been launched. The volume of production of polymer products has been increased at the Shurtan gas-chemical complex. "New chemical complex of Navoi" (launched in 2018). Projects such as "Golden Valley Chemical Cluster" are

being implemented. Implementation of environmentally friendly technologies, expansion of production of organic and environmentally friendly products, implementation of projects in cooperation with China, South Korea, Russia and other countries are underway.

The chemical industry of Uzbekistan is one of the important sectors of the country's economy, supplying products necessary for agriculture, petrochemical and industry. In recent years, development processes based on innovation, modernization, and international cooperation have made it possible to further improve the industry.

The territorial composition of the chemical industry of Uzbekistan is formed on the basis of the country's supply of natural resources, transport infrastructure and market demand. The factors forming the regional composition are as follows;

- Natural resources: The chemical industry is mainly developed in areas close to deposits of natural gas, phosphorite, potassium salts and other raw materials.
- Transport and logistics: Factories are located close to sources of raw materials, consumers and routes to export markets.
- Economic regions: Most of the industrial production falls on economically developed regions, including Tashkent, Fergana Valley and Navoi Region.

Chemical industry enterprises are located in the following main regions:

- Tashkent and Chirchik industrial region. The region of Tashkent and Chirchik is the center of Uzbekistan's chemical industry. Ammonia, urea and other nitrogenous fertilizers are produced at the Chirchik Electrochemical Plant. Tashkent chemical plants produce various chemical products for industry and agriculture. The advantages of the region are a developed transport network, proximity to raw materials and markets.

- Fergana Valley. Fergana Valley, as an agriculturally developed region of the country, is characterized by a high demand for mineral fertilizers. Phosphorous fertilizers are produced at the Fergana superphosphate plant. Fergana

Valley is also the main consumer region for the chemical industry.

- Navoi and Kyzylkum region. The Navoiyazot plant is a leading enterprise in the production of nitrogen fertilizers and other chemical products, the region is rich in phosphorite and other mineral raw materials. Major energy and infrastructure projects have been implemented in the Navoi region, which has turned the region into an industrial center.

- Shortan and Mubarak gas-chemical cluster. Polyethylene and other products with high added value are produced at Shurtan gas-chemical complex. At the Mubarak gas processing plant, chemical products are produced from gas condensate. This area is distinguished by its wealth of gas reserves.

- Samarkand and Bukhara regions. In Samarkand, there are enterprises that produce chemicals necessary for agriculture. There is a developing petrochemical industry around the Bukhara Oil Refinery.

- Republic of Karakalpakstan. The Ustyurt gas-chemical complex is located in Karakalpakstan, which specializes in the production of petrochemical products. Natural gas and mineral reserves are sufficient in the region.

Although the chemical industry of Uzbekistan is one of the strategic branches of the country's economy, it faces a number of problems and obstacles in the process of development. At the same time, the prospects of this field are great and there are huge opportunities for development. The problems in the development of the chemical industry include:

- Technological problems. Outdated equipment and technology: Many enterprises were built during the Soviet era and are in need of a technological upgrade. High energy consumption: The cost of production increases due to the lack of implementation of modern energy efficient technologies. Inadequate use of innovative technologies: Low level of production of high value-added products.

- Problems with raw materials and resources. Lack of deep processing of resources: Natural gas and other raw materials are often exported with low added value. Low extraction of phosphorus and potassium salts: Local deposits of raw materials are underexploited.

- Personnel issue. Lack of skilled professionals: There is a lack of skilled personnel who can work with modern technologies. Research and development works are developing slowly: the activities of research and development centers in the development and introduction of new technologies are limited.

- Environmental problems. Environmental safety issues: Some enterprises do not sufficiently comply with environmental protection requirements. Weakness of the chemical waste treatment system: The limited scope of waste disposal or recycling creates environmental risks.

- Economic and financial problems. Lack of investment: Insufficient foreign and domestic investment to implement new projects. Product competitiveness: The volume of production of high-value-added products competitive in the world market is low.

To solve such problems, it is appropriate to develop a number of measures and develop a strategy for independent development. In particular,

- Technological development. Introduction of innovative technologies: Use of advanced technologies to improve product quality and competitiveness. Automation and Digitization: Widespread adoption of digital technologies to improve the efficiency of enterprises. "Green chemistry" technologies: Ensuring the sustainability of production by switching to environmentally safe and energy efficient technologies.

- Deep processing of raw materials. Increasing added value: Production of high-quality products through deep processing of natural gas, phosphorus and potassium salts. Meeting the high demand in the domestic market: Expanding the range of chemical products for domestic agriculture and industry.

- Personnel training and research. Training of specialists: strengthening cooperation with higher educational institutions and scientific centers in order to train qualified specialists for the chemical industry. Stimulation of scientific research: Support of research and development for the development of innovative technologies and new types of products.

- Increasing the export potential. Access to international markets: Expanding exports by adapting products to international requirements and standards. Cooperation with neighboring countries: strengthening trade relations with CIS countries, China, India and other regions.

- Improving environmental management. Environmental protection programs: Implementation of waste reduction and recycling technologies to ensure environmental safety. Adherence to the principles of sustainable development: Development of industry on the path of environmental and economic sustainability.

- Investment attraction. Promotion of foreign and domestic investments: Creating favorable conditions for investors for new projects in the chemical industry. Public and private sector cooperation: Wide use of public-private partnership mechanisms for the implementation of large projects.

The success of the development of the chemical industry of Uzbekistan depends on the comprehensive elimination of existing problems, and this process requires the implementation of several strategic directions. In particular, the wide implementation of modern technologies and the implementation of modernization processes, increasing the energy efficiency of production processes and ensuring environmental safety are of priority. Training programs for highly qualified specialists and personnel, development of scientific research activities and introduction of innovative developments into production play an important role in the field of chemical industry. In particular, the expansion of international cooperation, the development of production of products with high added value by attracting foreign and local investments will serve to increase the global competitiveness of the industry.

Also, by introducing "green technologies" based on the principles of environmental safety, minimizing the impact on the environment and improving waste processing will ensure the sustainable development of the chemical industry in the future. At the national level, it is possible to fully supply the domestic market and

expand the export potential through the policy of deep processing of resources and strengthening of regional economic ties.

In short, strategic planning based on a scientific approach is necessary to ensure the stability of the development of the chemical industry. This not only increases the volume of product production in the strategic sector of the economy, but also serves to strengthen the position of the republic as a reliable partner in the global market and international cooperation. In this regard, the chemical industry of Uzbekistan can become a globally competitive, technologically advanced and environmentally safe industry.

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