HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

BRANCHES OF THE CHEMICAL INDUSTRY IN UZBEKISTAN AFTER THE SECOND WORLD WAR

Kholikulova Shakhnoza
Republic of Uzbekistan
Associate Professor (PhD), Navoi State University
Email: kholikulova_sh@mail.ru
Phone number: +998 973218319
Doi: https://doi.org/10.5281/zenodo.21252704

Abstract: The article analyzes the history of development, structural transformation of the chemical industry in the Uzbek SSR in the second half of the 20th century (1950s–1980s), and its correlation with the cotton-growing complex. Based on archival funds and statistical data, the study reveals the implementation of the "big chemistry" policy, the formation of large industrial complexes, and the dynamics of extensive growth and systemic imbalances in the production of mineral fertilizers and agrochemicals (pesticides) under regional specialization.

Keywords: chemical industry, Uzbek SSR, heavy industry, mineral fertilizers, khimizatsiya, pesticides, cotton monopoly, archival funds.

Introduction. The second half of the twentieth century was a period of rapid industrialization and modernization of productive forces globally, as well as in the economic history of the Soviet Union, and specifically the Uzbek SSR. During this period, the chemical industry emerged as a leading driver of the republic's heavy industry, reflecting the specific regional characteristics of the Soviet planned economy through its structural formation and functional objectives. The genesis and evolution of the chemical industry in Uzbekistan developed in close connection with the needs of the republic's agricultural resource base namely, the cotton monopoly. Therefore, analyzing the structural formation of this branch, alongside its transformation during the fifth five-year plan (1951–1955) and subsequent periods from a scientific perspective, is of paramount importance for understanding the internal mechanisms and asymmetric development patterns of Soviet-era industrial policy.

Literature Review and Historical Context. By the late 1950s, specifically following the May 1958 Plenum of the CPSU Central Committee, a strategic shift toward "chemicalization" and "big chemistry" was initiated across the Soviet Union. This macroeconomic trajectory aimed to enhance industrial efficiency amidst economic competition with capitalist nations, particularly the United States and Western Europe. The establishment of large-scale chemical complexes in close proximity to raw material sources within the Central Asian economic region specifically in Uzbekistan (including Chirchiq, Fergana, Navoiy, Almalyk, Samarkand, etc.) positioned the republic as the absolute chemical leader in the region, accounting for 80 percent of regional output. However, this growth was extensive in nature. It necessitated not only a sharp increase in the production of mineral fertilizers but also the massive application of highly toxic, new-generation pesticides (such as DDT, hexachlorane, and granozan) and defoliants to combat pests and invasive species in agriculture.

Main Body. The chemical industry is considered one of the leading branches of heavy industry in Uzbekistan. From its very inception, it developed primarily to meet the first and foremost needs of the expanding cotton cultivation and other sectors of agriculture. Consequently, the production of mineral fertilizers and basic chemical products constituted the bulk of its output. During the years of the fifth five-year plan, the chemical industry continued to grow at a rapid pace. The directives

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adopted at the 19th Congress of the CPSU regarding the fifth five-year plan for the development of the national economy of the USSR for 1951–1955 stated the following: “In the chemical industry, the highest growth rates must be ensured in the production of mineral fertilizers, soda, and synthetic rubber; special attention should be paid to the comprehensive development of rubber production based on the utilization of petroleum gases... It is necessary to expand the assortment and increase the production volume of plastics, dyes, raw materials for artificial silk, and other types of chemical products. The production of synthetic materials to substitute non-ferrous metals should be developed. Provision must be made to increase the production capacities of ammonia, sulfuric acid, and other substances.” [1.426].

The economic growth of the republic's national economy was heavily driven by heavy industry. Heavy chemical industrial enterprises were established across various regions, including Chardzhou, Almalyk, Chirchiq, Jizzakh, Tashkent, Navoiy, and Samarkand. While more than 30 heavy chemical industrial enterprises operated throughout the entire Soviet Union, 22 of these heavy industrial complexes were located in Uzbekistan. [2.20]. The country was supplied with chemical products and mineral fertilizers by the Chirchiq Electro-Chemical Combinat, alongside the superfosfat factories of Fergana, Navoiy, Kokand, and Samarkand. The year-on-year increase in the number of heavy industrial enterprises exerted a significant impact on production mechanisms. Within the Soviet Union's regional output, Uzbekistan manufactured 80 percent of the heavy industrial products of the region, while Turkmenistan accounted for 12 percent, Tajikistan for 4 percent, and the remainder was produced by the Kyrgyz republic. Production was further expanded at the Kokand superfosfat factory alone through the construction of specialized workshops adapted for the manufacture of ammonium superfosfat and sulfuric acid. [3.17-18]. In 1963, a chemical nitrogen fertilizer plant was commissioned in the city of Fergana, supplying Uzbekistan with ammonia, ammonium nitrate, defoliants, sulfuric acid, and various chemical fertilizers. [4.5]. Between 1962 and 1963, the production of mineral fertilizers in the republic increased from 1,229 to 1,419 thousand tons. [5.144.] and by 1970, the republic was tasked with the obligation to deliver 4,811 thousand tons of mineral fertilizers and 36.9 thousand tons of defoliants. [6.127]. This, in turn, necessitated the further expansion of the chemical fertilizer production sector within the republic. By 1985, within the chemical and forestry complexes, the production of mineral fertilizers had increased by 25.5 percent, acids by 48.4 percent, chemical fibers by 52.1 percent, and synthetic materials and plastics by 3.4 percent. Consequently, the share of heavy industry in terms of fixed productive assets reached 73.0 percent in 1985. [7.41].

At the beginning of the 1950s, the Soviet government faced a number of critical challenges in combating harmful insects, particularly in controlling invasive species such as the notorious Colorado potato beetle (*Leptinotarsa decemlineata*), alongside the issue of import substitution for raw materials essential to pesticide production within the country. Starting from a very low baseline, the utilization of pesticides in the Soviet Union experienced an exponential increase. According to official data, between 1949 and 1956, the annual volume of pesticide consumption grew from 30 thousand tons to 300 thousand tons, representing approximately a tenfold increase. This growth sustained its momentum in the subsequent decades, with the annual figure exceeding 500 thousand tons by the early 1980s. Concurrently, a new generation of pesticides namely organochlorine and organophosphorus compounds emerged on the global market during the 1940s. In the Soviet Union, their manufacturing was established within a short period after the conclusion of the war. In 1947, the chemical industry launched the production of DDT and hexachlorane insecticides, as well as the highly toxic agent granozan (an organomercury seed disinfectant). In the late 1940s and early 1950s, the Soviet Council of Ministers adopted a series of resolutions aimed at expanding the production of

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core pesticides across chemical industrial enterprises. On March 24, 1952, a group of scientists addressed a letter to Georgy Malenkov, a highly influential figure within the Communist Party, emphasizing the urgent need to accelerate pesticide production and intensify scientific research in this domain. This appeal was directly linked to the decree signed by I. Stalin in July 1952, which mandated a drastic expansion in pesticide manufacturing. [8.204.].

In 1955, a pivotal shift toward the field of "big chemistry" occurred, a trajectory that was firmly consolidated by the resolutions of the Plenum of the CPSU Central Committee held in May 1958. This Plenum was entirely dedicated to the issues of the chemical industry. Concurrently, it was during these very years that qualitatively new directions began to emerge within the fields of chemistry, metallurgy, aviation technology, and rocket engineering. [9.296].

Examining international experience, it is evident that the chemical industry in capitalist countries expanded rapidly during the post-World War II years. A distinctive feature of this sector was that the chemical industry became one of the most economically lucrative domains in those nations. For instance, in the United States, chemical companies generated 40 to 50 percent higher profits compared to other manufacturing sectors. Between 1957 and 1962, 22 billion dollars were invested in the US chemical industry alone, accounting for approximately 13 percent of total industrial investment. Massive capital investments were also directed into the chemical industries of Germany, France, and Italy. In the USSR, substantial attention began to be dedicated to the chemical sector following the resolution of the May 1958 Plenum of the CPSU Central Committee. Annual investment in the chemical field grew at a rate of 27 percent, a figure five times higher than the general industrial average. During the Seven-Year Plan (1958–1965), the chemical industry developed so rapidly that such growth could not be observed in any other sector. Modern plants were constructed in Siberia, Azerbaijan, Kazakhstan, and Central Asia, establishing major chemical hubs in close proximity to raw material sources. [10.3].

In conclusion, the development of the chemical industry in the Uzbek SSR during the 1950s and 1960s established a powerful industrial base by mobilizing the republic’s vast material, natural, and human resource potential. However, the centralized management system and the imperial raw-material policy did not allow this potential to be developed in a proper balance with the republic's internal interests and the requirements of ecological sustainability. The outcomes obtained and the historical lessons learned serve today as a crucial empirical foundation for developing strategies aimed at diversifying the chemical and agrochemical industries of the Republic of Uzbekistan, ensuring ecological safety, and achieving economic efficiency.

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ISSN: 2058-5519|Impact factor-15.9
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