Western European Journal of Historical Events and Social Science
Volume 4, Issue 6, June 2026
https://westerneuropeanstudies.com/index.php/4
ISSN (E): 2942-1926 Open Access| Peer Reviewed

ANALYSIS OF SCIENTIFIC ACHIEVEMENTS IN THE FIELD OF GEOLOGY IN UZBEKISTAN DURING THE SECOND WORLD WAR

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Abstract
This article is devoted to the analysis of the main directions and practical results of scientific research conducted in the natural sciences, particularly in geology, hydrogeology, the fuel and energy sector, and the mining industry, on the territory of Uzbekistan during the Second World War. The paper also provides information indicating that, under conditions where the wartime situation confronted the country with the critical tasks of eliminating shortages of raw materials and energy, as well as strengthening its defense potential, primary attention was focused on geological exploration and the development of local raw material resources. Specifically, it is substantiated that the discovery of deposits of tungsten, iron, tin, and other valuable metals, made possible through the theoretical and applied geological research of scientists in this field, contributed to the expansion of the republic's heavy industry and fuel base.
Keywords: geology, raw material, geological exploration, scientific research, heavy industry, resource, energy.

The Second World War created numerous difficulties for the USSR and, within it, for Uzbekistan. First of all, it should be emphasised that the economy and science came under enormous pressure. As in all spheres, representatives of the scientific field were tasked with engaging in research topics necessary for the front. The significant achievements made in the natural and agricultural sciences during the war enabled high results to be attained in local heavy industry and agriculture. The study of pressing problems for the front and finding solutions to them were set as primary tasks for scientists. They were tasked with maximally studying local natural resources, improving technologies for extracting rare minerals, and replacing any imported raw materials by making extensive use of local resources. Initially, to solve the shortage of raw materials and energy – a pressing problem during the war – the main focus was on geological exploration. From this perspective, it is worth noting that considerable work was carried out in the field of natural sciences.

In geology, scientists from the Uzbek branch of the USSR Academy of Sciences carried out work to identify tungsten ores in the upper reaches of the Angren River and on the Kurama and Chatkal ranges[1] . The discovery of large iron ore deposits in the Turangli area, tin ore deposits in the Angren basin and other regions of Uzbekistan, as well as deposits of other valuable metals, was of great importance for Uzbek heavy industry.

Important scientific achievements were also made in the fuel industry, which was necessary for defence purposes. As a result of active research by S.L. Gusinskaya under the leadership of Professor I.P. Sukervanik, the production of diesel fuel was established at an oil

[1] Правда Востока, 1942 г., 28 февраля.

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refinery. For this work, I. Sukervanik and S. Gusinskaya were awarded a cash prize of 2,500 rubles[2].

Furthermore, thanks to the work of geologists D.M. Bogdanov and G.S. Chikrizov, the Angren deposit was discovered in Uzbekistan, containing coal seams at shallow depths over an area of more than 300 km². As a result, a large fuel deposit supplying coal to the most populous part of Uzbekistan – the Tashkent district – was put into industrial operation.

During this period, notable works include the theoretical research of Professor A.S. Uklonsky on the genesis of sulphur deposits in paragenesis with oil; the work of Professor A.V. Korolev on methods for studying the structure of ore deposits, and on the geochemistry and metallogeny of the largest Almalyk copper ore deposit; the research of Professor O.K. Lange on issues of Uzbekistan's hydrogeology; and the scientific investigations of Professor V.I. Popova on the continuity of tectonic movements and on the depressions and slopes of the southwestern Tien Shan. Many research results obtained by the Geological Institute of the Uzbek branch of the USSR Academy of Sciences were applied in production, and on their basis, methods were developed for studying gravel deposits and determining the depth of wells in new oil fields[3]. These methods were of great importance for oil exploration, helping to create an accurate picture of gravel deposits, identify individual shifts and horizons, determine their thickness and thereby the depth of oil-bearing layers, and were widely used in practice.

By July 1944, the Hydrogeological Administration of Uzbekistan had carried out extensive work on compiling a composite hydrogeological map of Uzbekistan. As a result of the studies, 31 plan sheets of geological-mineralogical maps of existing deposits in Uzbekistan were prepared, on the basis of which a general composite hydrogeological map was formed. Work on compiling a composite hydrogeological map for Karakalpakstan was also completed by July 1944. The work on compiling the hydrogeological map was led by T. Beder, assisted by Doctor of Geological Sciences Professor Semikhatov, and Candidates of Biological and Mineralogical Sciences – Vasilkovsky, Seversov, Schmidt, and Dmitriev. The compilation of the hydrogeological map was completed in 1945[4].

As a result of large-scale geological exploration and drilling carried out by the Uzbek Academy of Sciences, the Uzbek Geological Administration, Sredaznefterazvedka, the Central Asian State University, and the All-Union Petroleum Research Institute, oil production increased in the Fergana region, while research on oil reserves was intensified in the territory of southern Uzbekistan, western Bukhara and the Tashkent district[5].

In 1945, the Department of Technical Sciences was established under the Uzbek Academy of Sciences, separating from the Department of Natural and Mathematical Sciences and incorporating the institutes of Chemistry, Geology, Energetics, and Physics and Technology. The head of the department was appointed the distinguished energy scientist and academician of the Uzbek Academy of Sciences, A.N. Askochensky. In the final stage of the war, new tasks were set for scientists: alongside work of defence importance, to further expand research related to the development of the national economy, to study the country's existing

[2] Salomov I. O'zbekistonda Ikkinchi jahon urushi davrida oliy ta'lim va fan (1941-1945). -Qarshi, 2026. -B. 103.
[3]Алимова Д.А., Абдурасулов У.А. Академия наук в интеллектуальной истории Узбекистана. Монография. –Ташкент., 2012 г. – С. 74.
[4] Правда Востока, 1944 г., 25 июля.
[5] O'zMA. 1-jamg'arma, 17-ro'yxat, 49-ish, 49-varaq

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resources even more extensively, and to organise complex expeditions to various regions of the republic in order to mobilise them for the needs of restoring the national economy[6].

Through the joint efforts of specialists from the Geological Institute of the Uzbek Academy of Sciences, the Uzbek Geological Administration, the Central Asian Industrial Institute, and the Central Asian branch of the All-Union Aluminium-Magnesium Institute, comprehensive work was carried out to study aluminium deposits in the Tashkent district, southern Uzbekistan, the Fergana Valley and the Boysun Mountains, which laid the foundation for the aluminium plants under construction[7].

During the war years, the main tasks facing Uzbek science – satisfying defense needs, discovering local raw material bases, solving the fuel and energy problem, and increasing and developing agricultural productivity – were successfully fulfilled. In this regard, the research conducted by scientists, researchers and staff of the Uzbek Academy of Sciences and its constituent research institutes made a substantial practical contribution to the development of the republic's industrial sectors, especially heavy industry. Thanks to the joint activities of local scientific institutions and evacuated research centers, significant results were achieved in many directions relevant to Uzbekistan and the former Soviet Union.

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[7] O'zMA. 1-jamg'arma, 17-ro'yxat, 49-ish, 50-varaq