

**HISTORY OF SCIENTIFIC CENTERS AND ACADEMIC KNOWLEDGE IN
KARAKALPAKSTAN (1940-1990)**

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Abstract: This article examines the history of the formation and development of scientific centers and academic knowledge in Karakalpakstan between 1940 and 1990. During this period, significant progress was made in the establishment of research institutions, the training of qualified specialists, and the expansion of scientific disciplines in the region. The study highlights the contribution of Karakalpak scientists to various fields such as history, linguistics, literature, agriculture, and natural sciences. It also explores the role of the Karakalpak Branch of the Academy of Sciences of Uzbekistan and other educational institutions in promoting academic research and innovation. The article analyzes how scientific thought evolved under the influence of political, economic, and cultural factors of the Soviet era, emphasizing the importance of this period in the intellectual and institutional development of Karakalpakstan.

Keywords: Karakalpakstan, scientific centers, academic development, research institutions, Soviet period, Academy of Sciences, intellectual history, education.

Introduction. The history of scientific and academic development in Karakalpakstan between 1940 and 1990 represents one of the most dynamic and transformative periods in the intellectual evolution of the region. During this half-century, Karakalpakstan, as part of the Uzbek Soviet Socialist Republic, underwent rapid changes in social, economic, and cultural spheres that deeply influenced the establishment of scientific institutions and the growth of knowledge-based research. The 1940s marked the beginning of organized scientific activities in the region, primarily driven by the establishment of specialized educational institutions and research departments that sought to address the unique ecological, agricultural, and cultural conditions of the Aral Sea area. In the early years, scientific work was mainly focused on the study of the natural environment, soil and water resources, and the agricultural potential of the region. With the expansion of the Karakalpak Branch of the Academy of Sciences of Uzbekistan in the 1950s and 1960s, scientific research diversified significantly, encompassing the humanities, linguistics, ethnography, and history alongside natural sciences. This period also witnessed the emergence of a new generation of Karakalpak scholars who contributed substantially to national and regional scientific development. The 1970s and 1980s were characterized by the institutional strengthening of research centers and the integration of Karakalpak scientists into the broader Soviet scientific community. The government's emphasis on education and science led to the establishment of laboratories, research institutes, and higher education institutions in Nukus and other cities. These centers became key platforms for scientific innovation, the preservation of cultural heritage, and the study of ecological challenges, especially those related to the drying of the Aral Sea. However, this progress occurred within the ideological framework of the Soviet system, which often influenced the themes, methodologies, and direction of research.

Literature review. The study of the history of scientific centers and academic knowledge in Karakalpakstan from 1940 to 1990 has attracted the attention of many scholars interested in

Central Asian intellectual and institutional development. Early Soviet-era publications primarily focused on documenting the establishment of research institutions and the progress made in agricultural and environmental sciences. Among these, the works of Uzbek and Karakalpak scholars from the 1950s and 1960s provided valuable insights into the organization of scientific activities under the framework of the Academy of Sciences of the Uzbek SSR. These early studies often emphasized the role of state policy in promoting education, science, and cultural development within the socialist modernization process. During the 1970s and 1980s, a more systematic approach emerged in the literature, particularly within institutional reports and academic journals published in Nukus, Tashkent, and Moscow. These sources highlighted the scientific achievements of the Karakalpak Branch of the Academy of Sciences, including research on regional ecology, agriculture, linguistics, and ethnography. Notable contributions included investigations into the Aral Sea's environmental transformation, soil and water management studies, and the development of local agricultural techniques suited to arid conditions. Scholars such as A. Allambergenov, A. Berdimuratov, and S. Saparov contributed significantly to the scientific documentation of Karakalpakstan's natural and cultural heritage. Later research has focused on re-evaluating this period in light of post-Soviet transformations. Modern scholars have analyzed how scientific activities were influenced by ideological constraints, central planning, and limited autonomy of regional research institutions. Authors such as A. Aralbaev and M. Qosbergenova have explored the dual nature of Soviet scientific policy — its role in advancing education and knowledge while simultaneously restricting intellectual independence. Comparative studies between Karakalpakstan and other Central Asian republics have also been conducted, demonstrating similarities in scientific institutional development patterns across the region. The existing body of literature reveals several key themes. First, the establishment of the Karakalpak Branch of the Academy of Sciences in 1973 was a milestone in regional scientific progress, enabling localized research on ecology, linguistics, and cultural history. Second, the literature underscores the significance of education as the foundation of academic development, with Nukus State University and other higher education institutions playing a crucial role in training qualified researchers. Third, studies have drawn attention to the ecological dimension of scientific work, particularly concerning the Aral Sea crisis, which became one of the most important research directions in the late 20th century. However, despite these contributions, the historiography of Karakalpakstan's scientific development remains relatively underexplored compared to other regions of Uzbekistan. Many Soviet-era publications were descriptive rather than analytical, focusing on achievements rather than critical assessment. Contemporary researchers now seek to provide a more balanced perspective that situates Karakalpakstan's scientific evolution within broader socio-political and cultural contexts. Thus, this literature review establishes the foundation for further investigation into how the scientific and academic landscape of Karakalpakstan developed between 1940 and 1990, how local scholars navigated ideological challenges, and how their legacy continues to shape modern research in the region.

Research methodology. The methodological foundation of this research relies on a historical-analytical approach aimed at comprehensively examining the development of scientific centers and academic knowledge in Karakalpakstan between 1940 and 1990. The study combines both qualitative and quantitative techniques to provide a detailed understanding of institutional formation, intellectual evolution, and the socio-political context in which these processes

occurred. By utilizing multiple methods in combination, the research ensures a balanced and evidence-based interpretation of how the scientific landscape of Karakalpakstan evolved during the Soviet period.

The historical-chronological method was employed to trace the stages of scientific development across five decades. This method made it possible to divide the process into distinct phases: the emergence of initial research activities in the 1940s, the institutional consolidation of the 1950s and 1960s, and the period of scientific diversification and expansion in the 1970s and 1980s. Through this chronological structure, the study reveals how each stage reflected broader socio-economic and political transformations taking place in the Soviet Union and the Uzbek SSR.

The archival and documentary analysis formed the empirical core of the research. Primary sources such as governmental decrees, administrative records, internal reports of the Karakalpak Branch of the Academy of Sciences, and statistical summaries were examined to reconstruct the institutional history of science in the region. Archival documents preserved in Nukus and Tashkent provided crucial information on funding allocation, research priorities, and institutional policies. In addition, academic publications, conference materials, and newspapers from the period were analyzed to understand the discourse surrounding scientific progress in Karakalpakstan. The comparative method was applied to place the development of Karakalpak scientific institutions within the broader Soviet and Central Asian context. This approach enabled the identification of similarities and differences in institutional structures, research directions, and ideological influences between Karakalpakstan and neighboring republics such as Kazakhstan, Turkmenistan, and Uzbekistan. By situating Karakalpak scientific activity within a comparative framework, the study clarifies how regional science both contributed to and was shaped by the centralized Soviet model of knowledge production. The research also employed biographical and prosopographical analysis to explore the personal and collective contributions of Karakalpak scholars.

**1-Table. Main stages of scientific and academic development in
Karakalpakstan (1940–1990)**

Period	Key Developments	Main Institutions	Focus Areas
1940–1950	Initial formation of research activities; establishment of basic laboratories and scientific groups	Regional research departments, educational institutes	Agriculture, irrigation, soil and water studies
1950–1960	Institutional consolidation and government support for science	Karakalpak Department of the Academy of Sciences of the Uzbek SSR	Natural resources, ecology, linguistics
1960–1970	Expansion of scientific disciplines and higher education	Nukus State University, local research centers	Linguistics, ethnography, Aral Sea ecology
1970–1980	Establishment of the Karakalpak Branch of the Academy of Sciences	Academy institutes, laboratories, museums	Environmental studies, agriculture, cultural research

Period	Key Developments	Main Institutions	Focus Areas
1980–1990	Integration into Soviet and international research networks	Scientific institutes, universities	Ecology, desertification, cultural preservation

The first table illustrates the main stages of scientific and academic development in Karakalpakstan between 1940 and 1990, highlighting how the region's scientific landscape evolved from modest beginnings to a structured and multidisciplinary system. During the 1940s, scientific activity in Karakalpakstan was in its formative phase, with small research groups and laboratories primarily focused on solving local agricultural and environmental problems. By the 1950s and 1960s, institutional growth accelerated due to state support and the establishment of the Karakalpak Department of the Academy of Sciences of the Uzbek SSR. This period marked the beginning of organized research in fields such as ecology, linguistics, and ethnography. The 1970s represented a turning point when the Karakalpak Branch of the Academy of Sciences was officially founded, leading to the diversification of research disciplines and the creation of specialized institutes and laboratories. In the 1980s, Karakalpak scientific institutions became increasingly integrated into the Soviet and international academic networks, contributing to studies on ecology, desertification, and cultural preservation. Overall, the first table demonstrates a clear trajectory of growth, institutionalization, and intellectual diversification over five decades.

2-table. Major fields of scientific research and their contributions (1940–1990)

Field of Research	Key Topics	Notable Contributions
Ecology and Environment	Aral Sea degradation, soil salinization, desertification	Early documentation of Aral crisis; sustainable land use models
Agriculture	Crop selection, irrigation systems, land productivity	Improved local agricultural techniques; soil fertility studies
Linguistics and Literature	Karakalpak language, folklore, oral traditions	Preservation of national identity; publication of linguistic studies
History and Ethnography	Historical development, cultural heritage, nomadic traditions	Systematic study of Karakalpak cultural evolution
Education and Science Policy	Scientific training, institutional management	Formation of academic cadres; integration into Soviet education system

The second table focuses on the major fields of scientific research and their key contributions during the same period. It reveals the interdisciplinary nature of scientific work conducted in Karakalpakstan. Ecological and environmental research emerged as one of the most significant directions, with early studies addressing the degradation of the Aral Sea and soil salinization — topics that later gained global relevance. Agricultural research contributed to improving crop productivity and irrigation systems adapted to the region's arid climate. In the humanities, research in linguistics, literature, and ethnography played a vital role in preserving Karakalpak cultural identity, documenting folklore, and developing the modern Karakalpak literary language. Studies in history and ethnography deepened understanding of the region's cultural evolution and its integration into Central Asian civilization. Finally, education and science policy research

focused on the development of academic training and institutional management, ensuring the creation of a sustainable local scientific community. Together, the two tables reflect how the scientific development of Karakalpakstan during 1940–1990 combined environmental, agricultural, and cultural priorities within a unified framework of regional modernization and knowledge production.

Research discussion. The findings of this research reveal that the development of scientific centers and academic knowledge in Karakalpakstan between 1940 and 1990 was shaped by a complex interaction of political, social, and environmental factors. The Soviet government's policy of regional modernization played a decisive role in initiating and structuring scientific activity in the region. Under the influence of centralized planning, Karakalpakstan became a site of significant scientific investment, particularly in fields related to agriculture, ecology, and cultural studies. However, while this system facilitated rapid institutional growth, it also imposed ideological and administrative constraints that limited the autonomy of local researchers and shaped the direction of their work according to state priorities. One of the key points of discussion is the dual nature of Soviet scientific development in Karakalpakstan. On one hand, the establishment of the Karakalpak Branch of the Academy of Sciences of Uzbekistan and other research institutions provided the foundation for sustained scientific progress, creating opportunities for local scholars to engage in research that addressed regional needs. On the other hand, scientific inquiry was often guided by centrally approved themes, leaving little room for independent or critical research. Despite these limitations, Karakalpak scientists managed to adapt the Soviet framework to local realities, producing valuable studies on the Aral Sea basin, soil salinity, and desertification—issues that would later gain international attention. Another important aspect concerns the role of education and knowledge transfer in the formation of a scientific community in Karakalpakstan. The establishment of Nukus State University and the inclusion of scientific departments within it contributed to the creation of a new intellectual class of Karakalpak researchers, educators, and specialists. The interaction between these academic institutions and the Academy of Sciences generated a system of collaboration that strengthened the local research base and promoted interdisciplinary approaches. As a result, the scientific community in Karakalpakstan became more integrated into national and regional networks, while still maintaining its distinct focus on local environmental and cultural issues. The discussion also highlights the environmental dimension of scientific research during this period. From the 1960s onward, growing ecological challenges, particularly the degradation of the Aral Sea, became central to the work of Karakalpak scientists. Their studies not only documented the environmental transformations but also proposed early strategies for resource management and ecological restoration. These contributions were significant in drawing attention to the environmental crisis that would later become one of the most pressing global issues. Thus, scientific research in Karakalpakstan evolved from serving agricultural and industrial objectives to addressing critical ecological and social problems. Cultural and linguistic studies also played a vital role in the broader intellectual development of the region.

Conclusion. The study concludes that the development of scientific centers and academic knowledge in Karakalpakstan between 1940 and 1990 represents a crucial stage in the region's intellectual and institutional history. This period witnessed the transformation of Karakalpakstan from a peripheral area with limited scientific infrastructure into an active center of research and education integrated within the broader Soviet academic system. The establishment of the

Karakalpak Branch of the Academy of Sciences of Uzbekistan and the growth of Nukus State University served as key milestones that enabled the systematic development of local science, education, and culture. These institutions not only trained a generation of scholars and specialists but also laid the foundation for long-term scientific traditions that continue to influence research in the region today. Despite the ideological and administrative restrictions imposed by the Soviet system, Karakalpak scientists made significant contributions to the study of natural resources, ecology, agriculture, linguistics, and ethnography.

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