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**NATURAL RESOURCES OF WESTERN KAZAKHSTAN IN THE WORKS OF  
RUSSIAN SCIENTISTS**

**Abstract.** This article examines the natural resources of Western Kazakhstan as described in the works of Russian scientists from the second half of the 18th century to the first half of the 19th century. Based on the writings of Russian researchers and travelers of that time, the study explores the region's natural wealth, including its mineral resources, flora, fauna, and water resources. Special attention is given to the data from the Russian Empire's scientific and geographical expeditions, which analyzed the region's natural features, their potential for economic use, and strategic importance. The article also highlights researchers' views on the ecological situation and nature conservation issues of the period. This study provides a deeper understanding of the historical and geographical characteristics of Western Kazakhstan and the history of its natural resource exploration. One of the strategies of the Russian Empire in the colonization of the Kazakh steppe was to find cheap sources of raw materials and exploit the wealth both on the surface and in the depths of the land. The article examines how Tsarist Russia conducted geological and geographical research in Kazakhstan through various expeditions, scientists, and data collected by military officials, as well as the exploitation of discovered mineral resources. The colonial authorities created favorable conditions for Russian merchants in the development of mineral deposits, providing them with opportunities to expand private industry. They purchased discovered deposits from the Kazakhs at low prices and exploited deposits of non-ferrous metals, coal, minerals, and other natural resources, serving the interests of the empire while also making significant profits.

**Key words.** Climate, exploration, expedition, Russian scientists, natural, mineral resources, water resources.

**Introduction.** Western Kazakhstan is a region rich in natural resources, distinguished by its geographical location and natural features. The second half of the 18th century and the first half of the 19th century were significant periods for the scientific research expeditions of the Russian Empire. During this time, great importance was given to studying the natural conditions and resources of Western Kazakhstan. Russian scientists and travelers collected valuable data on the region's geological structure, flora and fauna, as well as its water resources.

During this period, natural resources were considered not only a subject of scientific interest but also a tool for determining the economic and strategic significance of the region. Throughout the research, Russian scientists sought to identify the economic potential of the

area, including the industrial importance of its mineral resources and natural wealth. In addition to data on the hydrological characteristics of rivers and lakes, as well as the region's flora and fauna, information was also collected on areas suitable for agriculture and livestock farming.

During the expeditions, researchers also gathered information about the traditional economy of the local population and their methods of utilizing natural resources. The lifestyle of the kazakhs, their nomadic culture, and their experience in managing natural resources served as a valuable source of information for the imperial authorities. Moreover, these studies played a significant role in shaping the empire's governance policies in the region.

The colonial interests of the Russian Empire were also pursued through scientific expeditions. The data collected during the research laid the foundation for the systematic exploitation of Kazakhstan's mineral wealth and increased the interest of Russian entrepreneurs and merchants in the region. This situation contributed to the implementation of a policy aimed at establishing economic dominance by efficiently utilizing the area's natural resources.

This research examines the role of the Russian Empire's scientific expeditions in studying the natural resources of Western Kazakhstan and analyzes their impact on determining the region's economic and strategic significance. Additionally, it provides a comprehensive analysis of the connection between the research conducted during that period and the political-economic strategy of the colonial administration.

**Research materials and methods.** During the research, an analysis was conducted on the works and writings of Russian researchers, along with a review of historiographical literature from the Soviet period. A comparative analysis was carried out on the studies of scientists, and monographs and articles published within the scope of the topic were examined. The monographs of domestic historians were also analyzed. In addition, a comparative study was conducted on the diaries and articles written by scientists during the expeditions.

Archival documents and materials were extensively utilized in the research. To reveal the economic and political objectives of Tsarist Russia in the Kazakh steppe, official documents, protocols, and reports from officials were examined. Statistical data and cartographic materials collected during the expeditions provided an opportunity to determine the wealth of natural resources in the Kazakh steppe and the level of their exploitation.

In the course of working on the topic, a comparative assessment was made by analyzing the works, diaries, and articles of Russian scientists. One of the fundamental studies of the Soviet era, S. Asfendiyarov's work "The Past of Kazakhstan in Sources and Materials," is particularly noteworthy. In this study, the historian compared and analytically evaluated the works of scientists and travelers who studied the entire Kazakh region. The accuracy of the scholars' research was determined, and its significance for modern society was characterized.

The work of the prominent Russian scientist I.G. Georgi, "Description of All Peoples Inhabiting the Russian State," was widely used in the research. This work provides a comprehensive scientific description of the Western Kazakhstan region. From a historiographical perspective, the significance of this study is immense.

In the process of writing the article, methods such as analysis, comparison, and systematic classification from a comprehensive perspective were applied, with special emphasis on thoroughly examining the research topic. These approaches allowed for the evaluation of data, the identification of their interconnections, and the substantiation of scientific conclusions.

Historiographical works from the Soviet period were analyzed in terms of their ideological assessment of Tsarist Russia's colonial policy, its shortcomings and advantages, as well as the perspectives of Soviet researchers.

**Results and Discussion.** The socio-economic reforms initiated by the Tsarist government in the 18th century demonstrate a steady progression. Various measures and methods were implemented to ensure the future development of the country. The empire successfully

employed all possible means of colonization to fully integrate the western regions of Kazakhstan into its domain. The exploration of the region, which began in the 1730s and 1740s, continued into the second half of the century. The Tsarist government systematically organized scientific expeditions to exploit the natural resources of the Volga-Ural region for its own interests.

In the 1760s and 1770s, renowned Russian scientists and adjuncts began arriving in the region one after another. One of the first Russian researchers to study Western Kazakhstan was P.I. Rychkov. In 1734, at the suggestion of I.K. Kirilov, he participated in the Orenburg Expedition as an accountant. Under the influence of the expedition leader, P.I. Rychkov began to develop as a natural scientist and became one of the leading researchers of the Orenburg region, including the Western Kazakhstan territories.

One of P.I. Rychkov's most significant works is "Topography of the Orenburg Province," published in Saint Petersburg in 1762. This work consists of two parts and provides extensive information ranging from the region's natural and climatic conditions to the economic life of the population.

In his work, Rychkov describes that the land extending westward from Orenburg to the Ural Mountains is predominantly fertile and suitable for agriculture, with vast forested areas. In contrast, the eastern side of the mountains and the Kyrgyz-Kaisak steppes contain numerous flowing waters and a rich variety of grasses. He notes that marshy, clayey, and muddy areas are scarce in these lands. The air in the settlements of the Orenburg region is naturally clean and beneficial for health. Additionally, Rychkov highlights that spring floods of the Ural River occur frequently, leading to the formation of swampy meadows in the area [1, p. 106].

In this work, P.I. Rychkov also discusses the mineral resources found in the Ural region. He notes the abundant deposits of asbestos, mica, and limestone concentrated in the area. Additionally, the researcher provides a detailed description of the Naryn Desert, one of the largest deserts in the Caspian Lowland between the Volga and Ural rivers.

He writes: "The Ryn Sands (Naryn), stretching from the Yaik River towards the Volga, are approximately a two-day journey away. Although they mostly belong to the Astrakhan, rather than the Orenburg province, and are inhabited by Kalmyk nomads, since this Kalmyk migration is closely linked to the Orenburg province and the Kyrgyz-Kaisaks, it is useful to consider them in relation to both peoples. This sandy area is surrounded by significant salt flats and is so vast that when the Volga overflows, up to ten thousand Kalmyk yurts can be accommodated there during migrations, making it one of the best and most famous nomadic sites. Near the salt flats, the water in the wells is bitter and salty, but within the sands, the water is fresh and so close to the surface that even small children can reach it with their hands. Around this area, there are worms that the Kalmyks call 'bikhorkhoy,' which are so dangerous that if they bite a person, the victim swells up and dies within two weeks." [1, pp. 124-130].

Among the works that provide extensive information on the geology of Western Kazakhstan, the research of A.I. Levshin holds a significant place. His studies contain valuable data on the sandy soil composition of the Ural steppe, its geological structure, natural climatic conditions, as well as the region's socio-political history and ethnography. When describing Kazakh lands, Levshin first focuses on border issues, providing the following precise description: "Its northern border (going from east to west) consists of, first, a part of the Altai Mountains, then the Irtysh River; from the Irtysh to the Tobol River, or to the Zverinogolovskaya Fortress, is the so-called Bitter Siberian Line; from the Zverinogolovskaya Fortress to the mouth of the Uy River is the Tobol River; then the Uy River and later the Ural River, starting from the Spassky Outpost (near Verkhneural'sk) almost to Orenburg, or, more precisely, to the Nezhinsky Outpost, from which the line goes upstream along the Berdyanka River; further along the Burala River and the Ilek River to its very mouth, and finally, back

along the Ural River..." [2, pp. 20-21]. Levshin's work provides a more precise characterization of the continental climate of the Little Horde compared to other climatologists' studies. He records that in winter, the average temperature in the region reaches  $-30^{\circ}\text{C}$ , while in summer, daytime temperatures rise to  $+50^{\circ}\text{C}$ , and at night, they drop to  $+34^{\circ}\text{C}$ . Based on his research, it is evident that winters in the western steppe were particularly severe in those centuries. February, in particular, posed great hardships for nomads. According to Levshin, despite the considerable distance of Western Kazakhstan's river regions from the sea, numerous fossil remains of marine mollusk shells, belemnites, ammonites, turtles, and even shark teeth have been found. The scientist also reported the presence of coal deposits in the present-day Taipak and Zhanakala regions. Levshin based his conclusions on the works of Gaverdovsky, P.S. Pallas, and Meyendorff. The high concentration of salt lakes in the region contributed to the economic significance of the Orenburg area. His research also documents that in 1793, the Kazakhs of the Little Horde brought copper ore, quartz, and lead to Orenburg. Levshin provides detailed insights into the traditional uses of plants by the Kazakhs. They cooked and consumed the roots of blackcurrant (zhauzhemir), horsetail ("kryaka"), goat's thorn (tausagyz), ilgen (keureksasyr), and emetic herb ("zhirenshe"). Kazakh women used the red-rooted qyna plant to dye their nails. Additionally, reeds (kamys) had an exceptionally wide range of applications: "The benefits extracted by the Kyrgyz from reeds are highly diverse: young reeds are mowed and used as hay, the tops of old reeds serve as winter feed for livestock, and the lower part of the stalk is used as firewood. Finally, areas covered with reeds provide shelter from winter storms and extreme cold." [2, pp. 122-126].

The lands of the Little Horde did not escape the attention of Russian cartographers. By the late 18th century, the task of preparing a new imperial map became a priority for geographers. In this regard, the geographical surveys conducted in the Ural steppe were reflected in cartographic materials.

The use of cartographic data allowed for an in-depth study of the toponymy of the governorates that emerged in the territory of present-day Western Kazakhstan during the 18th and 19th centuries (Figure 1).



Figure 1 - The 1793 Historical Map of the Russian Empire. Stored at the I. E. Saltykov-Shchedrin Public Library in Leningrad, this map provides valuable geographical insights into the Russian Empire's territorial structure. (Scale: 1 inch = 1500 kilometers).

In the 1816 map of Central Asian peoples, published in St. Petersburg, the names of certain salt lakes and rivers in the Western Kazakhstan region were documented (Figure 2). These maps play a crucial role in modern geological exploration of the region [3, p. 54].



Figure 2 - "Map of a Part of Central Asia, Including the Lands of the Kyrgyz-Kaisaks, Karakalpaks, Turkmens, and Bukharians / Compiled at the Map Depot, 1816 – [St. Petersburg]."

The research of Swedish naturalist I.P. Falk, who contributed to the development of Russian science, provides detailed descriptions of the natural features of rivers and lakes in the region. He examined seasonal changes in rivers and highlighted their economic significance. Compared to P.I. Rychkov's studies, Falk's writings systematically documented the climatic conditions of the area. During his expedition, I.P. Falk described the economy of the Kazakhs, Bashkirs, Ural Cossacks, and Tatars, as well as their natural environment. In 1825, his "Reports on the Kyrgyz and Dzungarian Steppe" was published in Russian as a separate collection, while most of his works appeared in German publications. Upon examining the original text, it is evident that Falk supported many of Pallas's conclusions in his research. He noted that the relief of the Ural steppe resembled that of an oceanic coastline. Additionally, he identified over 20 types of mineral resources in the sandy regions and analyzed the formation of the Caspian Depression [4, pp. 74–76].

The academician of the Imperial Academy of Sciences and Arts of Saint Petersburg, traveler, lexicographer, and the first scientist to study medicinal herbs in imperial Russia, I.I. Lepyokhin (1740-1802), made a significant contribution to the exploration of the Western Kazakhstan steppe. He actively participated in scientific academic expeditions that studied the Ural River, the Ural Mountains, and Western Siberia from a natural and ethnographic perspective. The expedition led by Lepyokhin included N. Ozeretskovsky, T. Malgin, and A. Lebedev. Additionally, a painter, a taxidermist, and a marksman were part of the team. Lepyokhin highlighted the main characteristic of the North Caspian region's nature in his notes: "The greatest wonder of this steppe is the abundance of salt, which, so to speak, is scattered throughout the entire steppe" [5, p. 403]. During his journey, he documented all the salt lakes he encountered and noted the presence of fresh water lenses. Furthermore, Lepyokhin proposed hypotheses regarding the formation of fresh and saline groundwater. According to him, the fresh groundwater found in the southern part of the Caspian lowland originates from the floodplains of large and small rivers that begin in the northern steppe regions. Lepyokhin's

research on the formation of saline and underground waters in Western Kazakhstan has sparked debates among modern scientists. His travel notes from these expeditions formed the basis of his book "Daily Notes on a Journey through Various Provinces of the Russian State." In this work, he described the mammals (such as saiga antelope, beaver, and tarpan) and plants of the Western Kazakhstan steppe, compiling a collection of specimens. Additionally, he documented and described approximately 16 species of medicinal herbs found along the Ural River. The scientist dedicated 20 pages of his work to the "Ural Steppe," where he not only studied the vegetation cover of the region but also provided descriptions of the insects, snakes, and lizards inhabiting the arid areas. He left valuable information about the saiga antelope, which was then unknown to European science. In his scientific works, Lepyokhin provided a comparative analysis of the natural regions of imperial Russia, demonstrating the dependence of plant distribution on different climatic conditions. He described plant landscapes characteristic of various geographical zones (deserts, tropics, temperate, and northern latitudes) and highlighted the specific features of plant groups in different topographical conditions [5, pp. 402-514].

**Conclusion.** In conclusion, the data collected on the natural resources of Western Kazakhstan in the works of Russian scientists during the second half of the 18th century and the first half of the 19th century made a significant contribution to the study of the region's ecological, economic, and historical development. This period coincided with the intensification of the Russian Empire's colonial policy and the scientific description of Kazakhstan's natural wealth. Although the primary goal of studying the Kazakh lands was to strengthen colonial control, the research and findings of these scientists remain valuable to this day.

The studies conducted in the 18th and 19th centuries play a crucial role in modern research on the region's natural resources. Biologists, geographers, and ecologists frequently reference the works of Russian scientists in their academic studies. For example, in the summer of 2010, the first joint Russian-Kazakh complex scientific expedition, titled "Following the Route of Academician P.S. Pallas", was organized by the West Kazakhstan State University named after M. Utemisov, the public foundation "Eurasian Scientists' Union," and the Saint Petersburg Scientists' Union. This expedition included botanists, zoologists, soil scientists, geographers, and historians from various scientific institutions in Kazakhstan (Oral) and Russia (Saint Petersburg). The participants conducted research along the Ural River, following the route of Academician P.S. Pallas, and studied ecologically and practically significant natural complexes. The expedition traveled across the eastern and western parts of the West Kazakhstan region and reached Atyrau province.

The research findings indicate that Russian scientists paid special attention to studying Western Kazakhstan from geographical, geological, botanical, and zoological perspectives. During their expeditions, they described the region's flora and fauna, landform features, and mineral resources, incorporating the obtained data into scientific circulation. The scientific study of Western Kazakhstan's natural resources increased the Russian Empire's interest in this region. The abundance of natural wealth, particularly oil, salt, and extensive pastures, contributed to the region's development within the framework of colonial policy. Based on the research findings, the initial steps for extracting mineral resources were taken, influencing the region's future economic development [7, pp. 133-136].

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## БАТЫС ҚАЗАҚСТАННЫҢ ТАБИҒИ РЕСУРСТАРЫ РЕСЕЙ ҒАЛЫМДАРЫНЫҢ ЕҢБЕКТЕРІНДЕ

**Аңдатпа.** Бұл мақалада XVIII ғасырдың екінші жартысы мен XIX ғасырдың бірінші жартысындағы ресейлік ғалымдардың еңбектерінде сипатталған Батыс Қазақстанның табиғи ресурстары зерттеледі. Еңбекте сол дәуірдегі орыс зерттеушілері мен саяхатшыларының жазбалары арқылы аймақтың жер қойнауы, өсімдік және жануарлар әлемі, су ресурстары сияқты табиғи байлықтары талданады. Ресей империясының ғылыми-географиялық экспедицияларының деректері негізінде аймақтың табиғи ерекшеліктері, олардың шаруашылықта қолданылу мүмкіндіктері және

стратегиялық маңызы қарастырылады. Сонымен қатар, мақалада зерттеушілердің еңбектері арқылы сол кезеңдегі экологиялық ахуал мен табиғатты қорғау мәселелеріне қатысты көзқарастар да сараланады. Бұл зерттеу Батыс Қазақстанның тарихи-географиялық ерекшеліктерін түсінуге және өңірдің табиғи ресурстарын зерттеу тарихын тереңірек меңгеруге мүмкіндік береді. Ресей империясының қазақ даласын отарлаудағы стратегиясының бірі арзан шикізат көздерін табу, жерінің асты мен үстіндегі байлықтарын игеру еді. Мақалада патшалық Ресейдің Қазақстанды түрлі экспедициялар мен ғалымдар жіберу арқылы, әскери чиновниктердің жинаған мәліметтері бойынша геологиялық-географиялық тұрғыдан зерттеуі және табылған қазба байлықтарын игеруі қарастырылады. Отарлық билік қазақ даласындағы кен орындарын игеруде орыс көпестеріне жағдай жасап, жеке өнеркәсібін дамытуға мүмкіндіктер берген еді. Олар ашылған кен орындарын қазақтардан арзан бағаға сатып алып, ол жерлердегі түсті металдар, көмір кендері мен минералдарын, т.б. байлықтарын игеруде империяның мүддесіне де қызмет жасады, өздері де көп пайда тауып отырды

**Кілт сөздер.** Климат, барлау, экспедиция, орыс ғалымдары, табиғи, минералды байлық, су қоры.

### ПРИРОДНЫЕ РЕСУРСЫ ЗАПАДНОГО КАЗАХСТАНА В ТРУДАХ РОССИЙСКИХ УЧЁНЫХ

**Аннотация.** В данной статье исследуются природные ресурсы Западного Казахстана, описанные в трудах российских учёных второй половины XVIII века и первой половины XIX века. На основе записок российских исследователей и путешественников того времени рассматриваются природные богатства региона, включая недра, растительный и животный мир, а также водные ресурсы. Особое внимание уделяется данным научно-географических экспедиций Российской империи, в которых анализируются природные особенности региона, их потенциальное хозяйственное использование и стратегическое значение. Также в статье рассматриваются взгляды исследователей на экологическую ситуацию и вопросы охраны природы в тот период. Данное исследование способствует углублённому пониманию историко-географических особенностей Западного Казахстана и истории изучения природных ресурсов региона. Одна из стратегий Российской империи в колонизации казахской степи заключалась в поиске дешёвых источников сырья, а также в освоении богатств, находящихся как на поверхности, так и в недрах земли. В статье рассматривается геолого-географическое исследование Казахстана царской Россией с помощью различных экспедиций, ученых и собранных данных военными чиновниками, а также освоение обнаруженных полезных ископаемых. Колониальная власть создавала благоприятные условия для русских купцов в разработке месторождений, предоставляя им возможности для развития частной промышленности. Они скупали открытые месторождения у казахов по низким ценам и разрабатывали месторождения цветных металлов, угля, минералов и других природных богатств, обслуживая интересы империи и одновременно получая значительную прибыль.

**Ключевые слова.** Климат, разведка, экспедиция, русские ученые, природный, минеральные богатства, водные ресурсы.