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NATURAL-GEOGRAPHICAL DESCRIPTION OF THE CENTRAL KAZAKHSTAN PROVINCE

Abstract

This article is devoted to the natural-geographical features of the Central Kazakhstan province. According to Babushkin's classification, the province includes the Kazakh lowlands, the Torgay plateau-like region, the deserts of the Aral and Aral Sea coast, as well as the Betpak-Dala and Ustyurt areas. The region is characterized by a diverse landscape, including steppes, semi-deserts, sandy deserts, and low mountain ranges. Its climate, soil types, and water resources play a significant role in shaping the local flora, fauna, and human activities.

Keywords: Central Kazakhstan, province, Turan, Mangyshlak, Torgay, Aral Sea region, Karakum, low mountains, plateaus, steppe.

ПРИРОДНО-ГЕОГРАФИЧЕСКОЕ ОПИСАНИЕ ЦЕНТРАЛЬНО-КАЗАХСТАНСКОЙ ОБЛАСТИ

Аннотация

Данная статья посвящена природно-географическим особенностям Центрально-Казахстанской области. По классификации Бабушкина, область включает в себя Казахстанскую низменность, платообразный регион Торгай, пустыни Аральского моря и побережья Аральского моря, а также Бетпак-Дала и Устюртскую области. Для региона характерен разнообразный ландшафт, включающий степи, полупустыни, песчаные пустыни и невысокие горные хребты. Климат, типы почв и водные ресурсы играют важную роль в формировании местной флоры, фауны и человеческой деятельности.

Ключевые слова: Центральный Казахстан, область, Туран, Мангышлак, Торгай, Аральский регион, Каракум, низкие горы, плато, степь

INTRODUCTION

Central Kazakhstan is one of the largest natural-geographical regions in the Republic, distinguished by rich mineral resources, extensive steppe areas, major industrial centers, and complex ecological processes. The region's natural conditions play a crucial role in economic development, population distribution, the formation of transport networks, and agricultural activities. In recent years, the rapid expansion of industry, the growth of mining complexes, and the increasing ecological load have made a thorough study of Central Kazakhstan's natural geography particularly important.

Factors such as the region's sensitivity to climate change, limited water resources, and the intensification of desertification processes represent particularly urgent issues in terms of maintaining the natural balance. In addition, a scientific study of the interactions among natural components, the formation characteristics of natural landscapes, and their changes related to human activities provides an important scientific and practical foundation for the sustainable development of Central Kazakhstan.

L.N. Babushkin and N.A. Kogay, after carefully studying and analyzing previous regionalization research, developed a new scheme for the natural-geographical regionalization of the area based on a thorough investigation of Central Asia's natural environment. They regarded Central Asia as a unique and distinct natural-geographical region within the Eurasian continent. At the same time, the authors divided the territory into the Turan, Central Kazakhstan, and Dzungaria-Tian Shan provinces.

The Central Kazakhstan province encompasses a variety of regions with different ages and origins, including the Mangistau low mountains and plateau, the alluvial plains of the Syr Darya, the dried areas of the Aral Sea, the Aral Sea Karakum, the Irgiz-Chelkar and Torgay plateau-like residual plains, as well as the low mountains of Central Kazakhstan.

The Central Kazakhstan province differs from the Turan and Tian Shan provinces. The region is primarily composed of Paleozoic sedimentary and clastic rocks, which were folded during the Caledonian and Hercynian orogenetic processes and uplifted onto the land, later subsiding onto the platform as a result of denudation (except for the Mugalzhar Mountains).The climate of the Central Kazakhstan province is highly continental, with long, cold winters and summers that are not as hot compared to the Turan plain. The Siberian anticyclone predominantly governs the region. During the winter months, the northern part of the province remains exposed, allowing Arctic cold air masses to enter and combine with the Siberian anticyclone, occasionally lowering temperatures to as low as -50 °C. This climatic characteristic also affects other components of the natural environment.

The strong continentality and aridity of the province's climate influence the formation of surface waters. The largest rivers in Central Kazakhstan include the Syr Darya, Torgay, Irgiz, Sarysu, Tobol, and Nura. At the same time, the province is relatively rich in groundwater resources.

The province also exhibits distinct latitudinal zones and prominent elevation regions. These include temperate dry and arid steppes, as well as semi-desert and desert zones within the temperate region.

The soil composition in the Central Kazakhstan province varies depending on the region's climate, relief, and landscape. In the northern areas, soils are relatively moist, while approaching the south, dry and saline soils become more common. In the steppe and semi-desert zones, southern chernozems and dark chestnut soils are widespread, with an organic matter content of 3–7%, making them suitable for agriculture. The southern carbonate chernozems are composed of calcareous clays, with an organic matter content reaching 5–7%, showing low signs of salinization, and supporting well-developed plant communities such as *festuca sulcata, stipa, red stipa* and others

Along river valleys and around lakes, meadow-chernozem soils are present, with an organic matter content of 8–10%. In saline areas, low-lying and swampy

sites are occupied by saline soils, while in the semi-desert zones, light chestnut soils are common. On residual mountains and slopes, stony soils are found, and in desert zones, gray-brown soils occur, with a humus content of 1–1.5%.

In the Torgay region, southern chernozems and light chestnut soils are widespread, while meadow-alluvial soils are found in river valleys and saline-marsh soils around lakes. In the Mangyshlak desert region, saline desert-brown and gray-brown soils predominate. Most of the Ustyurt relief is flat, with gray-brown soils that have low organic matter content (0.5–0.8%) but a high gypsum content.

In the Aral Sea region, brown soils are predominant, while soils in saline areas are dry and saline. In the Aral Sea Karakum, desert-sandy soils and sand formations occupy large areas. The pastures can be used throughout the year, with an average productivity of 2.2 centners per hectare.

The fauna of the region is well adapted to local natural conditions. In the northern and central steppe areas, species such as marmots, jerboas, field mice, saiga antelope, wolves, foxes, and brown hares are commonly found. In the desert zones, goitered gazelle, kulan, corsac fox, badger, striped hyena, and spotted wild cat occur.

Among birds, larks, rooks, ducks, geese, and fishing birds are widespread. Reptiles include lizards, agamas, tortoises, geckos, and whip snakes. Venomous invertebrates such as scorpions, solifuges (camel spiders), and black widow spiders are also present. In high mountain areas, argali sheep and the Mongolian pika can be found.

The most important natural resources of the Kazakh low mountains include mineral resources, climatic resources, fertile soils, and meadow–pasture lands. The region contains major coal deposits (Karaganda, Ekibastuz, Maytuben), oil fields (in the Emba basin, including Makat, Dossor, Karaton, Koschagyl, and Prorva), as well as metallic mineral resources such as iron, manganese, nickel, copper, gold, lead–zinc, phosphorite, potassium salts, and rock salt.

In the Torgay region, deposits of iron and bauxite, brown coal, and various salts are found. In Mangyshlak, oil and gas represent the most important natural resources, with major fields such as Uzen, Zhetybai, Shohpakhta, and Prorva.

The region's climatic resources are also considered rich. In the northern areas, the average temperature is around +10 °C, while toward the south the accumulated heat reaches up to 3200 °C. These conditions are favorable for the cultivation of wheat, maize, sugar beet, and other crops. Annual sunshine duration amounts to 2600–2700 hours, which provides significant potential for energy use.

Fertile chernozem and chestnut soils are widely distributed in the central and northern parts of the region. Although their full utilization is limited by water scarcity, water supply has been improved through the construction of the Irtysh–Karaganda Canal. Pasture lands in the region also represent an important resource for livestock farming.

Protected natural areas are also present in the region. The Naurzum Nature Reserve in the Torgay Depression covers an area of about 100,000 hectares and provides protection for approximately 150 bird species. In the Ustyurt region, several endangered animals occur, including the Ustyurt leopard, Ustyurt sheep, saiga antelope, honey badger, caracal, and goitered gazelle, making their conservation essential. The area also contains oil and gas fields, as well as fodder plants for livestock such as Atriplex, Salsola, wormwood, and saxaul.

CONCLUSIONS

According to Babushkin's classification of natural-geographical regions, the Central Kazakhstan province is one of the large and structurally complex areas of the Kazakh natural-geographical region. This province includes the Kazakh low mountains, the Mangyshlak Peninsula, the Ustyurt Plateau, the Torgay Depression, and the Aral Sea region. These areas are interconnected due to the similarity of their natural conditions, arid climate, and belonging to internal drainage basins.

In conclusion, the Central Kazakhstan province is characterized by diverse relief, climate, and landscapes, the predominance of arid natural conditions, and the extensive development of steppe and desert zones. This province holds

significant scientific and practical importance for understanding the natural-geographical structure of Kazakhstan.

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