

NATURAL AND GEOGRAPHICAL FEATURES OF MIRISHKOR DISTRICT

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**Abstract.** This article comprehensively analyzes the natural and geographical features of the Mirishkor district. During the study, the geographical location, climate, relief, soil cover, water resources, and specific aspects of the flora and fauna of the region were studied. The results show that the region is mainly a desert and semi-desert landscape, characterized by sharply continental climatic conditions, low rainfall, and limited water resources. At the same time, agriculture is developing through irrigation systems. The results of the study are of great importance in the effective use of the territory, reducing environmental problems, and ensuring sustainable development.

**Keywords:** Mirishkor district, natural and geographical features, climate, desert region, soil, water resources, relief, Kashkadarya, ecology, irrigation system.

**Аннотация.** В данной статье проводится всесторонний анализ природных и географических особенностей Миришкорского района. В ходе исследования изучались географическое положение, климат, рельеф, почвенный покров, водные ресурсы, а также специфические аспекты флоры и фауны региона. Результаты показывают, что регион представляет собой преимущественно пустынный и полупустынный ландшафт, характеризующийся резко континентальными климатическими условиями, низким уровнем осадков и ограниченными водными ресурсами. В то же время развивается сельское хозяйство с использованием ирригационных систем. Результаты исследования имеют большое значение для эффективного использования территории, снижения экологических проблем и обеспечения устойчивого развития.

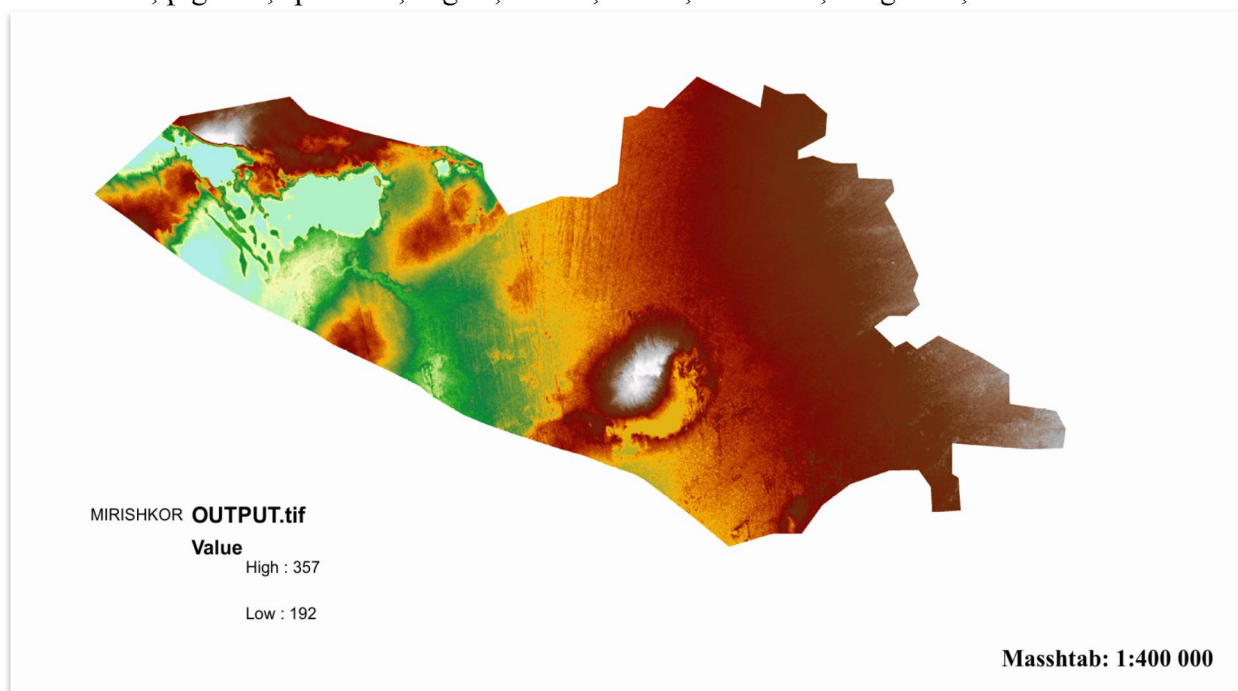
**Ключевые слова:** Миришкорский район, природно-географические особенности, климат, пустынный регион, почва, водные ресурсы, рельеф, Кашкадарья, экология, ирригационная система.

**INTRODUCTION.** The southern regions of Uzbekistan are distinguished by their natural and geographical diversity. In particular, the territory of Mirishkor district is of significant scientific and practical importance with its desert and semi-desert landscapes, climatic conditions and natural resources. The study of this area is important for the development of agriculture, the effective use of land and water resources, and the identification of environmental problems. Mirishkor district was formed on January 6, 2003 as a result of the merger of Usmon Yusupov and Bahoristan districts. Mirishkor district is located in the southwest of Kashkadarya region. The district borders Mubarak district in the north, Kasbi, Karshi, Nishon districts in the east, Alot and Karakul districts of Bukhara region in the west, and the lands of the neighboring Republic of Turkmenistan in the south. There are 12 civil assemblies in Mirishkor district (Avazchul, Vori, Gulistan, Gulshanbog, Jeynov, Mirishkor, Navbahor, Obod, Pamuk, Chamanzor, Chandir, Yangiobod). The area is 3.1 thousand km<sup>2</sup>. Mirishkor district ranks 3rd in the Kashkadarya region in terms of area. The population is 119,150 people (January 1, 2020). The largest population center is the town of Jeynov (26.4 thousand people). The population is mainly Uzbeks, but also representatives of Arabs, Turkmens, Tajiks, Russians and other nationalities.



The population density per 1 km. is an average of 28.1 people (2005). The district center is the village of Yangi Mirishkor.

The district is located in the Karshi desert zone. The relief is mainly plains, slightly decreasing from east to southwest (the Karabulag depression decreases to 280 meters). The hills in the Mirishkor district are used as pastures for livestock. The western and southern regions of the district are occupied by semi-fortified sandy areas. There are mobile sand dunes, eroded-accumulative, that is, wind-deposited sand dune-grooved relief forms, flat plains with clay deposits. Under the sedimentary deposits of the Quaternary period, there are claystone, sandstone, limestone, and hyssangydrate marine deposits of the Neogene and Paleogene periods, and marine deposits of the Cretaceous and Jurassic periods with hot and humid conditions. There are several closed depressions in the Mirishkor district: Karabulak Dengizgul, Kirqchashma, and others. They have formed healing muds and salt deposits. There are oil, gas and condensate deposits in the district, such as Alang, Pamuk, Kultog, Kokdumalaq, Ortabulaq, Zevarda, Dengizkul. The farms of Mirishkor district specialize in cotton growing, grain growing, vegetable growing, melon growing and livestock breeding. Farms and other land users operate. Cotton growing, grain growing, gardening, livestock breeding, sericulture are used in irrigated land. Vegetables, melons, potatoes, alfalfa and fodder crops are also grown. Cattle, sheep and goats, and poultry are raised in the district. The soils are clay, saline, meadow, and ordinary gray soils. Wild plants include silybum, devil's-foot, carrion, sedge, saxaul, wormwood, saltwort, tuyakorin, yantoq, kung'irbosh, reed, mint, isiriq, chitir, chuch-moma, zira, and others. Wild animals include mice, rats, hedgehogs, and yumronkaziq; reptiles include goats, lizards, and various snakes; birds include thrushes, pigeons, sparrows, eagles, cranes, storks, swallows, songbirds, and others.



**Figure 1. Geomorphological-lithological and hydrogeological conditions**

The area where the soils of Mirishkor district are distributed has a foothill, hilly and wide-wave structure according to its geomorphological and lithological structure, consisting of proluvial-deluvial gravel mixed with soil, fine-grained (melkozem) deposits, and is located in the foothill geomorphological zone. The hilly and wide-wave low plains in the area are composed of various complex deposits of the ancient Quaternary period. They decrease to the southwest. The lands of the area are located at an altitude of 200-400 meters above sea level. Gray-meadow soils



are partially distributed in the bed of the Kashkadarya and on the coastal terraces. The complex geological, geomorphological-lithological, soil-climatic conditions of the district have created an extremely complex hydrogeological situation in the region, which is reflected in the regime and balance indicators of surface and groundwater. Since this area is a foothill and foothill slope, signs of erosion (water erosion) occur. In the foothill areas, there is a medium and partially strong erosion level, and in the wide undulating slopes, there is a low erosion rate. In this area, it is necessary to establish irrigation norms for irrigation of agricultural crops depending on the slope of the soil surface, and it is necessary to carry out irrigation work and fertilizer application in these areas in a stratified manner.

**RESEARCH METHODOLOGY AND LITERATURE ANALYSIS.** The following methods were used in the research process:

- geographical comparison method;
- analysis of statistical data;
- study of cartographic materials;
- observational and descriptive methods.

Scientific literature on the geography of Uzbekistan, meteorological data and territorial descriptions were used as sources.

The issues of the reclamation of irrigated lands and increasing soil fertility occupy an important place in the agricultural and geographical sciences of Uzbekistan. In this regard, the work “The reclamation of irrigated lands of Uzbekistan and their improvement” by Abdullaev A.Kh. and Rozmetov M.I. is of particular importance. This study comprehensively analyzed the current state of irrigated lands in the republic, and in-depth studied soil salinity, groundwater levels and reclamation problems. The authors substantiated the possibility of increasing land fertility through rational use of irrigation systems, improvement of drainage systems and strengthening reclamation measures. This work is distinguished by its practical recommendations and is an important scientific source for districts located in desert areas, including Mirishkor [2].

Also, the research conducted by Bobobekov I.N. is aimed at studying the ecological impact of fertilizers on typical irrigated gray soils. The author's work, published in the materials of a scientific and practical conference, analyzed the impact of mineral and organic fertilizers on the content of mobile heavy metals in the soil. The results of the study show that excessive use of fertilizers can negatively affect the ecological state of the soil, especially lead to an increase in the content of heavy metals. Therefore, the need to adhere to scientifically based standards in the fertilization process is emphasized [3].

The above scientific works, in harmony with each other, serve as an important theoretical and practical basis for improving the reclamation condition of irrigated lands and ensuring ecological stability. In particular, they determine the directions for increasing soil fertility, preventing salinization, and sustainable development of agriculture in desert and semi-desert regions.

**RESULTS AND DISCUSSION.** The foothill undulating plains reflect a well-defined slope to the southwest and are divided into two parts: the right bank (Jom desert) and the left bank (Nishon and Karshi deserts). They are composed of loess and loess-like sands, the left bank consists of mixed beds of fine stones, gravel and sand, as well as easily soluble salts and gypsum in water, which indicates the primary salinization of these soils. The foothill ridges consist of lowered and leveled loess-like hills. The sloping plains of the foothills are very diverse in terms of the nature of the beds. Depending on the relief conditions, various types of plants are found: wormwood, kungirbas, rang, betaga, chalov, isiriq, tulips and wheat grow. The undulating meso- and macrorelief determines the state of groundwater and its mineralization level in the area. The



groundwater level is found in the upper reaches of the Kashkadarya River, depending on the relief structures.

The territory of Mirishkor district of Kashkadarya region, according to its geographical location, belongs to the Central Asian climatic zone of the subtropical semi-desert climate zone, and its climate is distinguished by its uniqueness. The climatic conditions of this region, its remoteness from the oceans and seas, the location of wide undulating and sloping plains adjacent to the Hissar Mountains between mountain passes, create unique climatic conditions. The general climatic conditions of the region are formed under the influence of the subtropical climate. The general characteristics of the climate are its sharply continental dryness in the subtropical and foothill areas, a decrease in air temperature to the south, an increase in the amount of precipitation, wind, solar radiation, daily, monthly, annual, and seasonal temperatures over a large area, and a non-uniform distribution of atmospheric precipitation throughout the year. Soil formation in the district Data from the meteorological station for weather observation are presented to describe the intensity and direction of the processes and the main climatic indicators that determine the level of plant growth and development. The average annual air temperature is (14.8C), the maximum air temperature is in July (+28.8 C), the coldest month is January (-0.2). The vegetation period of plants is observed around 200-210 days, the first autumn frost falls on the 2nd decade of October and mid-November, and the last spring frost falls on the 1st and 2nd decade of March. The average annual precipitation varies widely and is 180-200mm, the maximum amount of moisture is replenished through irrigation. In general, the climatic conditions of the Mirishkor district allow for the cultivation of early and mid-ripening varieties of cotton and grain, as well as vegetable and potato crops, and the production of high-quality seed products from them [4].

**CONCLUSION.** Mirishkor district in terms of natural and geographical characteristics combines all the main features characteristic of the desert and semi-desert regions of Uzbekistan. The geographical location of the region, the sharply continental nature of the climatic conditions, low rainfall and high temperature indicators are decisive factors in the formation of the natural environment. This, in turn, is directly related to the limited natural vegetation cover, soil types and water resources in the region.

The soil cover in the district consists mainly of sandy and saline types, and their natural fertility is low. Therefore, agriculture is developing mainly based on artificial irrigation systems. The Kashkadarya River basin and various irrigation facilities play an important role in this. However, improper organization of the irrigation process can lead to soil salinization, an increase in the level of surface water and a deterioration in the land reclamation.

The ecological condition of the region also requires special attention. The intensification of desertification processes, thinning of vegetation cover and increasing anthropogenic impact negatively affect the natural balance. These processes can lead to the degradation of land resources in the long term. In this regard, ensuring ecological stability in the region is a priority task.

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