

Physical and geographical features of the Fergana Valley

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Abstract This article highlights the physical and geographical features of the Fergana Valley: the physical, geographical and political border, water resources, climate, seasons. The concept of the Fergana term: the history of its research, about memorable places in the valley, mountains and deserts, about soils and the development of virgin lands, environmental protection.

Keywords. Central Asia, Fergana Valley, mountains, plains, physical border, political border, water resources, soils, climate, seasons, Fergana term, history of exploration, hanging revenge, valley development, nature protection.

Introduction

Modern Chinese literature includes the last Ching (1895-1911), the Republican period (1911-1949), Mao (1949-1976), and the *Post-Mao* (1976 to the present) periods. During the last Ching period, the literature witnessed a mixture of Chinese and Western traditions: topics such as social problems, historical evolution, and changes in ethnic values were covered.

Main Part

It is known that 70 % of the territory of Central Asia is occupied by plains, mainly deserts and semi-deserts. Mountain and foothill massifs occupy 30 % of the territory and they have a number of mountain valleys. For example: Ili, Chuu, Chirchik-Akhangaran, Fergana, Zarafshan, Surkhan-Sherabad, Vakhsh. From a political point of view, most of these valleys are located on the territory of the

Republic of Uzbekistan. Among the mountain valleys of Central Asia, the Fergana Valley is the leader in terms of area, number and population density, soil fertility, richness of inland water resources, the development of ancient agriculture, and the development of all types of transport (except water). Sufficient inland water resources made it possible to transform the foothill plains of the Fergana Valley into conical expanses, steep and gentle terraces, hilly and cross-country plains, the Central Fergana Desert and even hills into irrigated oasis landscapes.

The main source of water in the Fergana Valley is the Syrdarya, its main and permanent tributaries are the Narin and Karadarya. All other rivers, streams and brooks in the valley flow into the Syrdarya in winter and spring. This is due to the fact that the population, density and development of agriculture on the banks and in the valleys of these rivers. Closer to the center of the Fergana Valley, there are about 30 rivers and a stream flowing from the southern slopes of the Kurama and Chatkal mountain ranges, the most important of which are: Chadaksay, Gavasay, Pochchaotasay, Kosonsay, Chartaksay, Sumsarsay, Karasuv. Rivers and streams flowing to the center of the Fergana Valley from the southern mountains (from the northern slopes of the Turkestan and Alay mountains): Shakhimardansay, Sokh, Khojabakirgan, Isfara, Isfayramsay, Akbura, Arovonsay, Kurshab, Dahanasay.

Rivers and streams flowing into the Fergana Valley from the mountains in the east, from the

Central Tiyan Shan and the western slopes of the Fergana ridge: Narin, Karadarya, Yassi, Kugart, Karaungur, Mailisuv. On the slopes and hills around the Fergana Valley, the amount of precipitation is much higher than on the plains of the valley. In addition to surface water, these areas generate a lot of groundwater. Groundwater is constantly moving towards the slope of the relief, that is, towards the central part of the Fergana Valley. As a result, the water table rises from the perimeter of the valley towards the center. For example, groundwater occurs on hills at a depth of 80-100 m, in the central part of the valley at a depth of 2-3 m, on the banks of the Syrdarya at a depth of 0.5-1 m. In some places, groundwater seeps gradually to the surface and forms springs. As a result, the surface became saline, forming saline and sometimes wetlands on the river banks. In dry, hot climates, evaporation is high, salts in the water settle to the surface, and soil salinity increases. For the development of agriculture on the saline lands of Central Fergana, channels 5-6 meters deep were dug around the fields. Canals are known to lower the water table, resulting in reduced salinity. The climate of the Fergana Valley is dry, with hot and long summers and mild winters. Average January temperatures in the central part of the valley drop to -3°C . With the arrival of cold arctic air masses from the north and northeast, the temperature drops to -30°C . Only 50-62 days a year will the air temperature be below 0°C . Some years winter comes warm and fresh water does not even freeze. Spring is short and the weather changes very quickly. In April, the air temperature sometimes warms up to $+36^{\circ}\text{C}$, sometimes drops to $-3-5^{\circ}\text{C}$ (in mountainous areas) and often strong winds blow, heavy precipitation falls in the air, heavy rains and floods are observed. From the second half of May, the weather becomes very hot, the amount of

precipitation decreases sharply, and a real hot dry summer begins. The average July temperature is $+26-27^{\circ}\text{C}$, the maximum rises to $+40-42^{\circ}\text{C}$. The growing season is up to 240 days, the total effective temperature reaches 4000-4800°. Summer is the longest season, from May to October. During this period, the Turanian tropical air mass prevails throughout the territory of Central Asia.

Autumn is short, the first frost occurs in the second half of October (October 15-17).

Concept word about "Fergana Valley". It is believed that the origin of the word "Fergana" comes from the name of the Scythian tribes that lived in the valley "Parokon". From an ethnological point of view, in the Iranian dialect "Pargana" means "valley between mountains". The word "Pargana" is always and still used in the local language. Indeed, since the Fergana Valley is surrounded by mountains, the above can be considered close to the truth. The concept of "Fergana Valley" is also used in scientific literature in the form of "Fergana sediment", "Fergana depression", "Fergana depression". Among the scientists who were engaged in scientific research of the Fergana Valley in the scientific literature, such as A. F. Fon-Middendorf, V. N. Weber, N. L. Korzhenevsky, A. Abdulkosimov, Yu. U. Sultanov, their works are excellent.

In addition to a variety of unique and attractive natural landscapes and agricultural landscapes of the Fergana Valley, there are famous religious, cultural and historical centers, the number of visitors to which is growing from year to year. Such places are called "holy places" or "sacred places" in Central Asia, especially in the Fergana Valley. According to the Russian traveler V.P. Nalivkin (1886), the number of such places in the Fergana Valley has increased since the XVI century.

The flat part of the Fergana Valley is called the Fergana Depression or turndown, and its surroundings are divided into two orographic zones, which differ from each other in geological features and relief, namely hills and mountains. Although sacred sites serve as shrines, they have also played an important role in the protection and wise use of nature. By sanctifying the unique creations of nature, people have managed to preserve the ecological balance in a unique way. If we pay attention to the territorial location of settlements in the Fergana Valley, then most of them fall on the river basins in the mountainous and hilly regions of the valley. There are more than 40 "sacred places" in the river basins that surround the valley. For example: Shakhimardon, Yordon, Chungara, Khojabilolota, Abshirota, Satkok, Arsif, Vadil, Chadak, Parda Tursun, Aksikent, Gova, Nanay. 78,7 % of the territory of Uzbekistan is flat, 70 % of them are deserts and semi-deserts. Among the regions of Uzbekistan, Navoi region occupies the largest desert area, and Andijan region is the smallest. The area of the Fergana Valley is 78 000 km², of which the mountainous part is 56 000 km², and the flat part is 22 000 km². The physical and geographical boundaries of the Fergana Valley are surrounded by mountains in the west Mugultogom, in the north-west Kurama and Karamazor, in the north Chatkal, in the east of Fergana and Otuynak, in the south-west of Turkestan and in the south and south-east of the Alay mountains Only a narrow corridor (8-10 km wide) from the west connects the Fergana Valley with the Dalvarzin and Mirzachul Plains through the Fergana (Khojand) Gate. This "corridor" is crossed by a highway, a railway, a pipeline and the Syrdarya River, connecting the Fergana Valley with the plains of Uzbekistan. The form of the Fergana Valley is almond-shaped, the length from west to east is

370-375 km, from north to south 80-100 km, and sometimes 150-200 km. From a political and administrative point of view, the main part of the valley in the north, east and south is occupied by Jalalabad, Osh, Batken and partly Narin regions of the Kyrgyz Republic. In the west is the territory of the Sughd region of the Republic of Tajikistan. The bulk of the plains in the central part of the valley, that is, 77 % (17 000 km²) of the territory belongs to Uzbekistan. The first historical handwritten sources on the study of the Fergana Valley belong to the Chinese traveler Zhang-Qiang, who lived in the II century BC, and described the Fergana Valley as "Passage Valley". The development centers of the Fergana Valley have changed over time. Initially, the center of the valley was Kasan, then Akhsikent, Andijan, Kokand.

The relief of the Fergana Valley rises from west to east and from the center to the north, east and south. The lowest point of the valley above sea level is in the west around the Kairokkum reservoir. The height of the city of Khojand, located to the west of the reservoir, is 320 m above sea level, and in the east of the Fergana Valley this figure exceeds 4500 m. Depending on the relief, natural complexes also change.

The area of desert landscapes in the Fergana Valley until 1936 was 168 000 hectares, and their area was decreasing every year due to the economic activities of the population. Especially in the 60-80 s of the twentieth century, the deserts and semi-deserts of Western and Central Fergana were massively developed. Currently, there are sand dunes and ridges, mainly in the form of islands, crescents and ridges.

The Karakalpak Desert is located in the west of the Fergana Valley, and in the center is the Central Fergana Desert (Yazyavan). In the map of our ancestor, the great scientist and Shah Z.M. Bobur, the Karakalpak Desert was called "Ho

Dervish Dashti", and the Syrdarya River was called "Khojend Suyi". The Karakalpak Desert is located mainly on the left bank of the Syrdarya, around the Kokand-Namangan and Kakand-Khojand railways. On the right bank of the Syrdarya, deserts are rare. From a political point of view, the Karakalpak desert is located in the Besharik, Furkat, Dangara, Uchkupryuk, Buvaida districts of the Fergana region, as well as on the plains along the Syrdarya river in the Pap and Mingbulak districts of the Namangan region.

The Central Fergana Desert (Yazyavan) is located in the center of the plain part of the valley and from a political point of view belongs mainly to the Yazyavan, partially Baghdad, Altirik districts of the Fergana region and the Ulugnor district of the Andijan region. In the western and central parts of the Fergana Valley, the average annual precipitation is 100-150 mm. In the city of Kokand, this figure is 98 mm. The main reason for this is a local natural phenomenon called "Kokand wind". Soils in the Karakalpak desert are light gray (humus 1-1.5 %), meadows and along rivers are alluvial, swampy and saline. There are sand dunes and dunes up to 5-8 m high, sometimes up to 15 m. In Central Fergana, gray soils prevail, as well as sandy and loamy soils, there are practically no sand dunes and dunes.

The Karakalpas and Yazyavan deserts were rapidly conquered in the 1960s-1980s and practically lost their natural appearance. Due to the high population density in the Fergana Valley, this process continues to this day. As a result, artificial reservoirs and artificial irrigation systems, artificial forests against wind erosion, as well as arable land are created.

Conclusion

Due to anthropogenic impact, some endemic species of plants and animals characteristic of the desert zone and jungle have completely

disappeared in these territories. For instance; wild pig (boar), monitor lizard, saxaul, etc. In order to preserve and protect the nature of the jungle and desert in 1978, on the banks of the Syrdarya in the Fergana region, the Abdusamad reserve was created. Currently, this reserve is part of the Kokand forestry. Natural monuments are planned to be created in the deserts of Central Fergana.

The Sarychelak biosphere reserve has been established in the mountainous part of the Fergana Valley in the Kyrgyz Republic. Mountain landscapes, flora and fauna are protected here. The creation of such a nature reserve in the desert part of the valley is advisable for the future.

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