

# SOME GEOGRAPHICAL ASPECTS AND PROSPECTS OF DEVELOPMENT OF SANATORIUMS IN UZBEKISTAN

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**Abstract:** This article describes the historical process associated with the development of sanatoriums in the nosogeographic region of Fergana. Evaluation of mineral springs as a recreational resource using the example of the sanatorium "Chimyon", theoretical and practical issues of their territorial location, as well as the study on the basis of recreational geography.

**Key words:** health resort, mineral waters, balneological resorts, spa and physiotherapy, hydrogen sulfide mineral waters, therapeutic bath, treats diseases, climatic resorts.

## НЕКОТОРЫЕ ГЕОГРАФИЧЕСКИЕ АСПЕКТЫ И ПЕРСПЕКТИВЫ РАЗВИТИЯ САНАТОРИЕВ УЗБЕКИСТАНА

**Абстракт:** В данной статье описывается исторический процесс, связанный с развитием санаториев в нозогеографический регионе Ферганы. Оценка минеральных источников как рекреационного ресурса на примере санатория "Чимён", теоретические и практические вопросы их территориального расположения, а также исследование на основе рекреационной географии.

**Ключевые слова:** санаторий, минеральные воды, бальнеологические курорты, спа и физиотерапия, сероводородные минеральные воды, лечебные ванны, лечение заболеваний, климатические курорты.

**Introduction.** It is known that water springs of all groups and types known in nature are found in the territory of the republic. There are the following balneological groups of mineral waters in Uzbekistan: sulphur, iodine, bromine, radon and carbonate without specific properties and components. Without specific properties and components - the most valuable mineral waters (nitrogen-hydroxide hot, sulfate-

sodium and chloride-sulfate types of Izhevsk and Novoijevskaya) are widely distributed in the outskirts of Tashkent and in other parts of the country. Based on them, prevention institutions and packaging factories work in South Olamushuk and Polvontash (Andijan region), in Tashkent, Tashkent region, Altiariq village, sanatorium-resort, village (Fergana region).

Springs appear due to the crossing of aquifers by river valleys, ravines, lake sediments, tectonic cracks, the presence of contact zones of igneous and sedimentary rocks, and the non-uniformity of the filtration properties of aquifers. Springs are divided into 2: 1. Hot springs - under the influence of hydrostatic pressure, gas and steam come to the surface. There are many in the Ferghana Valley (Shorsuv, Jalalabad). Hot springs are divided into erosion and gas pressure depending on the conditions of their formation. These springs appear as a result of erosional cutting of artesian aquifers, eruptions from tectonic faults, and the crossing of aquifers by ravines, streams, and river valleys. Such springs are found in the oil and gas regions of Bukhara and Karakum; 2. Still springs - seepage occurs when impermeable rocks are blocked or exposed, and karst springs emerge from the surface of the earth. Large karst springs are called vocluses. Sec from some karst springs. 200-250 l of water comes out. Such springs are located in the Fergana Valley. in Zarafshan and Kashkadarya valleys, they are widely used by the population. Besides these, there are also abundance of springs that give 1000-1100 l of water per second [7].

Numerous areas can have medicinal properties due to the natural features of the climate, mineral springs, therapeutic mud, and special plants that form a microclimate with healing effects. The richer the variety of natural resources in the region, the more opportunities there are to attract tourists [6].

The underground waters of our region are divided into seven balneological categories: 1) Mineral waters without specific components and compounds; 2) Sulfite mineral waters; 3) Iron mineral waters; 4) Silicon mineral waters; 5) Iodine-bromine mineral waters; 6) Iodized mineral waters; 7) Bromine mineral waters. Among them, especially the waters of the first and fourth groups are used for medicinal purposes[4].

Sanatorium-resort and balneological water resources are developed based on the use of underground sources, fresh and salt lakes with certain medicinal properties in the sanatorium-resort and cultural economy. Material-technically, they are represented by underground sources of healing mineral waters or therapeutic mud lakes, salt water complexes and mud baths built on their basis. [5].

In the territory of Uzbekistan, underground mineral waters with a reserve of use of 30 thousand m<sup>3</sup> per day in the industrial category have been identified. On their basis, more than 100 sanatoriums, balneological polyclinics and about 20 mineral drinking water packaging plants are operating. In the state register there are more than 10 deposits and fields of underground mineral waters with radon, sulfur, iodine, bromine, boron, organic substances, silicon, iron and without specific components and properties.

- **Analysis of literature on the topic.** Foreign scientists who studied the theoretical and methodological aspects of the research are N. Leiper, Charles R. Goldner, J.R. Brent Ritchie, D.V. Nikolaenko, V.I. Kushelevskiy V.I., I.I. Piroznik, V.S. Preobrazhensky, A.M. Trafimov, A.V. Rubtsov and A.S. The contribution of the Kuskovs is great. At the same time, A.S.Soliev, Kh.Vakhobov, N.K.Komilova, S.B.Abbasov, A.Abulqosimov, Q.Boymirzayev, B.Safarov, Yu.I. Such researchers as Ahmadaliev, M.R. Usmanov were involved.

- **Research methodology.** The tasks of sanatorium-resort institutions include: research and study of sanatorium-resort resources; experimental clinical study of the mechanisms of action of sanatorium-resort factors, forms and methods of organizing active rest and healthy lifestyle. The change in the recreational needs of the population and its requirements for the quality of rest led to the transformation of the sanatorium-resort business into a sanatorium-resort-rest system, the main goal of which is to improve health. The quality and duration of society and its life is to organize good recreation.

The sanatorium and recreation facility is one of the three zones of the resort, where natural medicines, tools and means for their use, sanatorium-resort and cultural institutions, as well as entertainment facilities are located, according to the

regulation on regions. Catering, trade and domestic services, designed to serve people who come to the resort for treatment and recreation.

**- Analysis and results.** An important direction of the research is to study the territorial laws of the formation and development of regional reaction systems on the example of the regions of the Fergana Valley, which are distinguished by their unique recreational and touristic potential. Mineral waters include waters with a total mineralization of more than 1 g/dm<sup>3</sup> or low mineralization but containing pharmacologically active components. Balneotherapy includes internal and external use of mineral waters. Indications for internal therapeutic use are diseases of the gastrointestinal tract, liver and biliary tract, pancreas, metabolic diseases, urinary tract, iron deficiency anemia. Natural mineral waters are divided into therapeutic and treatment-drinking waters. Mineral drinking healing and kitchen waters include mineralized or less mineralized waters containing biologically active microcomponents from 1 to 10 g/dm<sup>3</sup>, the mass concentration of which is not lower than balneological standards. Medicinal-kitchen mineral waters are not regularly used as a medicinal drink, but as a medicine for course purposes. Mineral drinking healing waters include mineralization from 10 to 15 g/dm<sup>3</sup> or waters with a high content of arsenic, boron, and slow mineralization. Therapeutic drinking water has a clear therapeutic effect on the human body, and it is recommended to use it only under the instructions of a doctor and in a certain dose. Mineral waters used for external procedures have a mineralization of 15 g/dm<sup>3</sup> and above, up to saline waters with a mineralization of 100-200 g/dm<sup>3</sup>, and are mainly low mineralized waters in terms of the amount of sodium chloride or biologically active components. Composition - bromine, iodine, hydrogen sulfide, carbonated mineral water for external use, we use it for several purposes, in particular: baths, showers, pools, rinsing, irrigation, hygiene and other procedures. Indications for external use: used in the treatment of cardiovascular and nervous system, musculoskeletal system, gynecological, skin, otorhinolaryngological and a number of other diseases [7].

In many mountain and sub-mountain regions with significant recreational resources, lack of infrastructure and poor economic connectivity are significant

factors affecting recreational development; therefore, in the evaluation of the recreational potential, attention is paid to the natural conditions and not to the socio-economic conditions for the development of the recreational zone [11].

### **The use of mineral waters in the treatment of certain diseases**

Table.

<b>№</b>	<b>Waters with mineral content</b>	<b>Diseases recommended for treatment</b>
1.	Chloride-sulfate potassium-sodium-magnesium	<i>liver diseases, intestinal diseases and their functional disorders, biliary tract and gall bladder diseases</i>
2.	Hydrocarbonate-calcium	<i>Stomach diseases and functional disorders, esophageal diseases, stomach ulcers, duodenal ulcers, metabolic diseases</i>
3.	Hydrocarbonate	<i>diabetes mellitus, diathesis</i>
4.	Sulfate-hydrocarbonate calcium-sodium	<i>kidney and liver diseases, increased and decreased acidity of the stomach, anemia</i>
5.	Sulfide mineral for external use	<i>diseases of the nervous system, various skin diseases, skin burns, post-burn conditions, diseases of the nervous system</i>
6.	Chloride-sodium waters for internal use	<i>diseases of the cardiovascular system, diseases of the musculoskeletal system, diseases of the digestive system, various diseases of male and female genital organs</i>

*The table was compiled based on Nazarenko V.S.*

It is known that the history of the development of sanatorium-resorts in Fergana region began directly in the first quarter of the 20th century. The development of work in this regard began in 1932, when the construction of the first resort with a mountain climate began in Shahimardan. At this point, it should be noted that at the beginning of the 20th century, several climatic resorts were established in Chirchik-Ahangaron and Fergana valleys (Shahimardon, Arashon, Chimyon). However, these settlements were not fully explored before they were built. Later, after the Second World War, these areas were fully explored, and as a result of the discovery of mineral waters, the activities of treatment and sanatoriums were expanded. The discovery of healing waters (Tashkent and Chortoq mineral waters) led to the establishment of balneological resorts in our country. Scientific Research Institute of Spa Treatment and Physiotherapy named after N.A. Semashko started its activity in 1936 in order to develop methods of increasing the efficiency of treatment in sanatoriums and to study the protection of recreation resources on a scientific basis.

One of the leading sanatoriums in the Fergana Valley, as well as in our republic, is the "Chimyon" sanatorium, which is located in the foothills of Katrontog, which is part of the Pamir-Alay mountains, 700 meters above sea level, in the hills of the beautiful Chimyon corner. There are more than 20 natural mineral springs around the place, on the banks of Oltiariksoy. Historical records show that as early as 1900, the population witnessed many miracles. A thick black liquid was leaking from the corners and burning when it was lit. People used them as black lights. The formation of sulphurous mineral waters in place of oil wells from which oil reserves have been extracted is not new to this science. For this reason, the Chimyon region is rich in mineral waters with hydrogen peroxide. The sulphurous mineral water in Chimyon did not spring out naturally from ancient times, but was discovered by oil prospectors on the way and suddenly opened up. It is a closed hot spring that seeps from the oil- and sulfur-rich Katrontog basin, part of the Pamir-Alay mountain range[1].

In mineral waters, the pH value depends mainly on the water. Changes in them -  $\text{CO}_2$ ,  $\text{NSO}^3$ -and  $\text{CO}^3_2$ . The pH value of mineral water changes as a result of the solubility of carbon dioxide, pressure and temperature. In some cases, a significant change in thermodynamic conditions can occur along with the pH change of mineral waters from the aquifer and in the process of transportation. The active reaction of the environment (pH) is a pharmacological factor. The acidic environment has a "soothing" effect on the skin. Anions can be injected into the skin in therapeutic bath treatments in an acidic environment. Alkaline waters, on the contrary, are useful for skin diseases [7].

The importance of balneotherapy is shown in patients with heart failure, rheumatoid arthritis, bronchial asthma, dermatological diseases, and diabetes. In addition, basic studies have shown that the immune and antioxidant defense systems are improved or strengthened by balneotherapy treatments. The importance of modern balneotherapy is emphasized more and more nowadays, especially for prevention and health promotion.

In 1947, near these springs, the first small seasonal hospital was established in the village of Chimyon, which treats diseases such as rheumatism, eczema, radiculitis, joint diseases, cardiovascular diseases, poor blood circulation with the help of sulphurous mineral waters. This hospital consisted of only two baths, an open-top, solar-heated bath surrounded by simple bushes. This miraculous healing center operates only in the summer months, but every year 110-120 people were treated here.

By the 1960s, the idea of establishing a huge health facility equipped with modern medical equipment, which would operate on the basis of sulphurous mineral water treatments, could receive a large number of patients and vacationers visiting from different countries of the CIS, and provide medical services at once. For this purpose, the surroundings of Chimyon village will be studied in depth. Thus, the destination for the future multi-branch health resort was chosen on the shore of Oltiarqsoy, where the waters flow from the east, and one end of the village of Langar, which is located among the hills with a mild climate.

In 1963, in the executive committee of the Cabinet of Ministers of the Republic of Uzbekistan, the Trade Unions' proposal of the Central Administration to establish a 1000-bed sanatorium in the territory of the village of Langar, Fergana region, was decided upon. In accordance with this decision No. 270, 30 hectares of land will be allocated for the construction of the sanatorium-resort "Chimyon" and 10 hectares for the construction of treatment facilities, and Semashko N.A. In 1964, the project of the future sanatorium-resort was prepared on the recommendation of the Tashkent Scientific-Research University of Spa Treatment and Physiotherapy.

The multi-branch health resort "Chimyon" was built for the prestige and status of the population of the CIS countries, and was built on the basis of healing mineral water sources. The water has a high concentration of sulphide (sulphurous - contains up to 260 g/l of hydrogen sulphide -  $H_2S$ ), moderately mineralized, with sodium chloride - NaCl, and in terms of the preservation of hydrogen sulphide, it is exactly similar to the waters of the "Matsesta" sanatorium in Sochi [1]. Another value of the water in this area is the presence of iron-Fe, copper-Cu and lithium-Li trace elements

in it. The well is located in the sanatorium itself, from which water flows directly to the treatment department through special pipes under its own pressure.

**Conclusions and recommendations.** Systematic and correct organization of the number of sanatorium-resort institutions can restore the health of society and have a significant impact on the average life expectancy, which ultimately has a significant impact on the average life expectancy and can significantly reduce the need for an increase in the number of institutions where patients with severe conditions are treated. Naturally, the increase in the number of institutions that restore such health, improvement of the existing sanatoriums will not only restore the health of society, but also benefit economically.

"Uzbekhydrogeology" specialists systematized and collected 1448 springs from mountain and sub-mountain regions in the territory of Uzbekistan. According to him, the use of 44 out of 106 high flow springs is promising. Most of the springs are located in the middle and low mountain zones. Each spring is associated with a certain history of Uzbekistan. Some spring waters have healing properties and are used by local people for this purpose.

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