

# The Role of Natural and Climatic Factors in the Formation of the Architectural and Planning Solution of the Old Town

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**ABSTRACT:** In this article, geographical location of the city of Tashkent, the structure of the surrounding land surface, relief, geological structure, climate, geographical location of the city and the structure of the land surface, and hydrography of Tashkent is formed from a number of artificial canals and ditches.

**KEYWORD:** Tashkent city, geographical location, relief, geological structure, climate, hydrography, artificial canals, canals.

**Introduction.** The climate of Tashkent is continental, very hot in summer and very cold in winters. The average annual temperature is 13.5 ° C. In summer, the temperature reaches 35 ° C, and in winter the opposite can be observed. The air temperature ranges from -25...to -30 ° C. The most rainy days are in November and March.

The climate of Tashkent is continental, with an average annual temperature of 13.3 °, an average January temperature of 1.1 °, and a minimum temperature of 29 °. The average July temperature is 27.5 °, with a maximum of 42 °. Annual precipitation is 360-390 mm. The Bozsuv, Salor, Anhor, Karasuv, Akkurgan, Borijar, Oktepa, Karakamysh and other canals, which are extracted from the Chirchik River and run throughout the city, have a positive impact on its microclimate.

**The main part.** The nature of Tashkent is largely due to its geographical location and the structure of the surrounding land. The city is located in the middle of the Chirchik River valley, which flows between the Qorjantov, Ugom, Piskom, Koksuv and Chatkal ridges of Western Tianshan, on the low-altitude foothills on the right bank of the river. This region is part of the natural geographical province of Turan in the subtropical desert zone of the northern hemisphere.

**Relief.** The Tashkent relief is formed primarily on the surface of the Middle Pleistocene (Tashkent cycle), which consists of a low-altitude wavy alluvial-proluviallyoss plane. This surface slopes from northeast to southwest. The relief of the city is characterized by terraces formed in the valley and above the Pleistocene (Mirzachol cycle) and Holocene (Syrdarya cycle) formed by the Chirchik River of this original surface.

In the greater northwestern part of the city, the original surface, the surface of the Chirchik River formed in the Tashkent cycle, is well preserved. In its relief there are such monuments as Karakamysh, Bozsuv, Salor. The valleys formed by the canals and their steep cliffs.

The southeastern part of the city, from Shota Rustaveli Street to the southeast, to the Chirchik River, is located mainly on the terraces of the second slope of the river and partly on the terraces of the third slope. The surface of these terraces is relatively flat and consists of loess and loessimon deposits. The terrace on the third slope also formed a 15-20 m steep cliff near the Chirchik riverbed. Chirchik's second terrace is flat and spacious, stretching from the Salor Canal to the Chirchik River. Jan of Sergeli district. Part is also located on the same terrace. The highest point of the city (515 m) is on its north-eastern edge, near the bus station "TTZ" in MirzoUlugbek district, and the lowest point (380 m) is in Sergeli district, on the banks of the river Chirchik. Urban area average absolute score. 447.5 m gateng [2-3].

Geological structure. Tashkent is located in the Chatkal-Qurama geological zone of the Middle Tianshan, which is mainly characterized by Hercynian magmatism.

In the geological section of the city, two large strata can be clearly distinguished. The lower layer or foundation is composed of effusive rocks of the Upper Paleozoic, the surface of which lies at a depth of 1.5–2.5 km.

As a result of special drilling in the northern and southern parts of the city, the foundation surface was found at a depth of 2300 m (near the Chief's District) and 1390 m (near the Schroeder Research Institute of Horticulture). The twisted foundation lies on the slopes of the Northeast geological faults and on the slopes of the Qurama Range. The upper layers of the Paleozoic foundation are composed of strongly twisted metamorphic limestones, tuffs, tuff-breccias and various porphyries.

The upper layer is composed mainly of Mesozoic and Cenozoic porous rocks. Mesozoic deposits, mainly Cretaceous marine deposits of clay, sand, sandstone, and conglomerates, are inconsistently located on the partially irradiated surface of the Paleozoic foundation. Their total thickness is about 600-800 m. strongly pressurized thermal waters occurring between these deposits. In particular, the Tashkent Mineral Water Basin is located in the Cretaceous clay and siltstone sand-gravel senoman layers at a depth of 800–2100 m above the ground.

Paleozoic deposits of the Cenozoic era consisted of sandstones, limestones, clays and conglomerates with a total thickness of about 120-130 m. They are covered by red continental deposits of the Neogene period, such as marl, siltstone, sandstone and conglomerates.

The youngest geological deposits in the city belong to the Quaternary period, which was formed during four erosion-accumulation cycles. Their lower layers, with a total thickness of more than 300 m, are composed of siltstone, gravelite, conglomerate, hard rocky loess ("horn") and loess, deposited in the nanay erosion-accumulation cycle (Q1). They are covered with gravel, conglomerate and loess rocks with a total thickness of more than 100 m, deposited in the Tashkent erosion-accumulation cycle (Q2). Loess deposits are 60-70 m thick, Yangiyul. And near 90 m. The strata formed during the Mirzachol erosion-accumulation cycle (Q3) are also characterized by bottom gravel and topsoil. Their total thickness is about 45-50 m. The deposits formed in the Syrdarya erosion-accumulation cycle (Q4) formed mainly the lower part of the Chirchik River and the first and second upper terraces [4]. They are made of natural sand and gravel and are used as building materials. Loess and loess deposits of the Tashkent cycle are good raw materials for brick production.

Climate. The city's climate is continental, with cold winters and hot and dry summers. Descriptions of climatic elements can be obtained from the analysis of meteorological data.

Tashkent is one of the sunny cities. The average solar exposure time is 2870 hours per year. During the year, it varies from 110 hours (December) to 390 hours (July). Sunless days average 36 days a

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year. The average annual temperature is 13.8 degrees. The weather in Tashkent is hot and stable in summer. The hottest month of the year is July, with an average temperature of 27 degrees. The highest summer temperature was 44.6 degrees Celsius in 1997. Winter weather is relatively unstable and changeable. The coldest month is January, when the average temperature is -0.6 degrees Celsius and the lowest temperature is -29.5 degrees Celsius (1930–1931).

The average annual relative humidity in Tashkent is 58%, ranging from 73-74% in winter to 40-44% in summer. The lowest relative humidity was 5%, observed in November 1938 and February 1961. During the summer months, relative humidity rarely exceeds 80% during the day, and the air is humid. For example, on July 21, 1970, when the temperature was 19.6 °, relative humidity reached 90%.

The average annual precipitation in Tashkent is 423.4 mm. But it can be more or less. For example, 802.5 mm of rain fell in 1969 and 206.2 mm in 1916. Atmospheric precipitation is unevenly distributed throughout the year. Most of the annual precipitation (305 mm) falls on the cold part of the year (October-March) and a small part (119.4 mm) on the warm part of the year (April-September). More than 41% of annual precipitation falls in spring, and the rest in winter (36%), autumn (18%) and summer (5%). In Tashkent, most of the precipitation (66%) falls in the form of rain, 11% in the form of snow and 23% in the form of a mixture of snow and rain. In winter, the average height of snow cover is 14 cm, but sometimes it can reach 20-50 cm. Maximum score of snow cover. (54 cm) observed on 31 January 1969. The average annual temperature in Tashkent increased by 0.018 degrees in 1900-2006, and the average temperature in winter increased by 0.024 degrees, and the annual precipitation increased by 60 mm.

Depending on the geographical location of the city and the structure of the land surface, most of the summer (July) winds blow from the north (20%), northwest (19%) and northeast. In winter (January), mainly northeastern (30%) and eastern (20%) winds blow.

Hydrography. The hydrography of Tashkent consists of a number of artificial canals and ditches. They make up the city's irrigation system. Large canals such as Bozsuv, KuyiBozsuv, Kaykovus, Karakamysh, Salor, Borijar, Anhor, Karasuv are much taller. is Most of them carved lyoss layers, forming deep canyon valleys and up to 2 small terraces in them. The general direction of the canals is from northeast to southwest, corresponding to the general slope of the area and using the natural flow of water. Most of the canals and large canals that run through the city serve both for irrigation and for the return of runoff, torrential rain or melted snow. The largest of these is the Bozsuv Canal. Most of the remaining canals receive water from the Bozsuv canal. In total, 37 of the canals used to irrigate 23,000 hectares of land are primary. Their total length is 126.3 km. The remaining 56 are second-order channels. Artificial lakes have also been built in the city. These include the lakes in the National Park of Uzbekistan (9 hectares), the FafurFulom Park of Culture and Recreation (4 hectares), and the Uzexpocenter recreation area. The area around the canals and lakes has a unique microclimate on hot summer days and is a good place for people to relax.

Landscaping is also an issue in the old urban neighborhoods. It is known that due to the narrow streets of the neighborhood, they did not have the opportunity to build a network of canals and plant trees. If there is a canal or canal flowing through the neighborhood, the canal or canal area is planted with greenery. In addition, the area of the neighborhood teahouse, the area in front of the mosque has been landscaped to some extent, and the area has been turned into a small recreation area. This is especially true in our historic cities. There are similar areas in Tashkent. For example, we can still see such devices in the neighborhoods of the old city around Kamalon, Samarkand Darvoza, Chigatay and Hazrati Imam Complex. Unfortunately, water is no longer available for drinking. We can see that

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many canals or ponds are drying up or completely submerged. This, of course, is the result of the growing shortage of water in Uzbekistan.

We can see that the old urban neighborhoods are being replaced by modern fountains with drinking water, as there is no need for such pools due to the availability of clean drinking water supply system.

Unfortunately, the coastal area of the canals flowing through the Old Town area has been illegally occupied by the residents of the area and the industrial enterprises located there. In addition, waste from homes and industrial facilities are polluting the water. Creating recreational corridors for the population by freeing coastal areas from illegal devices could be a positive solution.

Issues such as coastal areas, pools, drinking water are reflected in the Old Town area, while in the Old Town residential courtyards, we see an unconventional landscape solution. The landscape of traditional courtyards, unfortunately, is poorly preserved today. We can see that the main role in shaping the landscape of traditional courtyards is played by couches, fruit trees and basil and roses. Under the bench, terraces were built, and the owners enjoyed the grapes grown on the couch, and were able to relax in its cool shade. For the territory of Uzbekistan, where it is warm or hot for almost nine months of the year, the presence of benches in the courtyards was the right solution. These chairs also protect residential buildings from the sun's glare. In addition, the large number of fruit trees planted in the yard allows the family, especially children, to eat whatever fruit they want at any time. It is, firstly, a home-grown product and, secondly, an environmentally friendly product.

Unfortunately, in recent years, the influx of elements of European landscape architecture has often taken a negative turn. For example, instead of fruit trees that provide shade, we now have conifers in our backyards or greenery with topiary art. Also, lawns and various flowers now adorn the courtyards of our homes. Although they attract attention with their beautiful appearance, in some cases the disappearance of the benches and the fact that the fruit trees are not located on the level of the yard cannot be considered a positive thing. Soils. Tashkent is geographically located in a zone of gray soils. Much of the city, on the terraces of the fourth and third slopes of the Chirchik River, is characterized by typical gray soils. This soil has changed dramatically as a result of human activities. The thickness of anthropogenic deposits varies everywhere. Depending on the terrain, it can range from 4–6 m to 10–12 m, and in some places up to 20 m. The first and second terraces of the Chirchik River are covered with meadows and irrigated meadows.

**Conclusion.** Old Township - housing construction. In the old town houses, wooden frame walls were used as a constructive solution. This, in turn, ensured the seismic resistance of the building. In those days, clay and straw were used for plastering. These materials are cheap because they are local and the straw not only increases the rain resistance of the plaster, but also prevents it from cracking. The roofs were often flat. They are also plastered with straw plaster. These roofs were also used to dry wet fruits during the summer.

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