

Problems and ways of Solving the Architectural and Landscape Reconstruction of the Cities of Uzbekistan

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Annotation:

The article discusses the importance of urban greening and the degree of its impact on the health of the population. The problems of greening the cities of Uzbekistan and some aspects of solving the architectural and landscape reconstruction of cities, aimed at establishing a balance and harmonious combination of the artificial environment and nature, are shown.

Keywords: green spaces, architectural and landscape reconstruction, urbanization, sustainable development, ecology, climate.

I. INTRODUCTION. Life on earth is unthinkable without plants. Their role in shaping the human environment is very large and varied. In modern conditions, the problem of preserving and improving the environment surrounding a person in a city is very important, the formation in the city of conditions that have a beneficial effect on the psychophysical state of a person, which is especially important during a period of intensive growth of cities, the development of all types of transport, an increase in the tone of city life every year.

The implementation of the visual-spatial harmonization of the urban landscape as one of the directions of architectural and landscape reconstruction should contribute to the formation of a varied degree of intensity of visual impressions and figurative expressiveness of the urban environment, the gradual elimination of unorganized and poorly organized open spaces with a transition to a semantic interpretation of each fragment of the city's landscape based on the use of modern language of shaping [1].

“Greenery, as a health improving and decorating element, is needed in every city. But nowhere is it more necessary than in sultry Central Asia. You can live here for 8-9 months, and people really live in the open air” [2].

Uzbekistan is the pearl of Central Asia, which managed to preserve its ancient fortresses, monuments, mosques, madrasahs. As if frozen in time, they beckon with their oriental beauty and bright artful architecture. Uzbekistan is rich not only in historical heritage, but also in unique natural and climatic potential. At present, much attention is paid to the problem of greening the cities of Uzbekistan. What should be the landscapes of cities? What will we leave to the future generation? The answers to these questions are sought by specialists from various branches of knowledge - ecologists, physicians, climatologists. Ultimately, the responsibility for ensuring that cities do not lose their natural origin, do not turn into a mass of continuous buildings, from which nature is retreating further and further, is borne by city planners and landscape architects.

II. MAIN PART. Today, due to the problems of urbanization, the nature of modern greening of the cities of Uzbekistan has undergone great changes:

- reduction of the area of landscaping;
- commitment to the decorative style of landscaping;

ISSN 2792-3983 (online), Published under Volume: 1 Issue: 6 in November-2021

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- unjustified felling and cutting of trees;
- an increase in the area covered with artificial decorative materials, etc.

The reduction in the area of greenery in the city occurs as a result of the expansion of territories for housing and other needs of the population of the growing metropolis, violation of the design standards for parks with a decrease in green areas in favor of game and entertainment zones.

Adherence to decorative style to the detriment of the functional properties of trees and resistance to regional climatic conditions. Replacing deciduous trees with conifers, in some places upsets the balance of various types and species of trees, compositional techniques, the spatial organization of green spaces. This leads to aesthetic disharmony of the city, a reduction in bird nesting, which in turn contributes to an increase in harmful insects and disruption of the biological chain. The implementation of the concept of sustainable development of modern urban open spaces implies a gradual departure from the use of landscape design as a means of decorative design of individual fragments of the open space environment and a transition to its use to return the priority of nature to the most conflicting urban open spaces as a means of architectural and landscape reconstruction city [1].

Felling and pruning of trees in violation of agricultural and environmental standards: illiterate felling of perfectly healthy perennial trees, which once gave a huge shade and decorated our streets; sawing off the lower spreading branches, leaving only the crowns. As a result, people suffer who are forced to get to the nearest stop or to a house under the scorching sun in the forty-degree heat. The trees themselves suffer, some of which, after a while, dry up, and some can no longer find their natural appearance. The problem is aggravated by the fact that in many parts of the city, pedestrian spaces are turning into parking lots, and for the population, self-safety measures are becoming more important than the ecological and aesthetic qualities of the environment.

The well-known American plant physiologist Alex L. Shego described the tree as an organism that changes over time. He determined that the processes of transformation of energy in a tree obey the second law of thermodynamics: no ordered energy system can function without the supply of energy. In the situation with a tree, this means that the more living matter and, consequently, energy in it, the more chances it has for existence and development. Pruning a tree is stressful, and any wound, especially a large one, is a gateway to infection by pathogens. Too much pruning leads to a lack of assimilates (stable organic compounds), the tree seeks to heal wounds as quickly as possible, forming the lost elements, and these processes require significant energy consumption [3]. Cutting down deciduous trees does not contribute to the improvement of the ecology of the city, deprives it of the shade, the aesthetics of the city suffers. Excessive planting of coniferous trees cannot serve as a source of shade and coolness in hot climates.

The high rates of urbanization of modern life have provided certain positive opportunities for the population, but at the same time led to a deterioration in the state of the environment. This is overheating, gas pollution, dustiness and high noise level. These factors have a very negative impact on the health of the population. Sharp continental climate of Uzbekistan, with its dry summer, when the temperature sometimes rises to 45* C, as well as the abundance of sunny days a year (about 300), oblige to take these factors into account in the landscape organization of the city.

Overheating is one of the most acute problems, in terms of the climatic background, in Uzbekistan. Everyone who has ever experienced the summer heat of Central Asia knows the value of water and shade under the trees. If earlier gardens, parks, boulevards were important, but not obligatory landscape elements of the city, today a large city cannot exist without open and green spaces.

Since ancient times, ditches have been used in the cities of Uzbekistan as an irrigation system for irrigation and creating a microclimate. The water bubbling in them, in addition to these functions, also created a special atmosphere of the city. Unfortunately, at present, for a number of reasons, many cities have lost these natural and simple means of regulating the microclimate. An alternative today can be a rather effective and economical, but not as attractive as ditches, drip irrigation system used in many countries of the world.

In the cities of Uzbekistan, an increase in the number of easily heated open asphalted areas and roads, wide avenues, glass high-rise buildings gives rise to severe overheating. Under such conditions, the asphalt pavement emits a large amount of vapors with a high content of carcinogens. And accordingly, the air temperature inside urban buildings is much higher than in the suburbs. The problem is aggravated by the fact that in many places of the city pedestrian spaces are turning into parking lots, and the saddest thing is that for the population, self-safety measures are becoming more important than environmental and aesthetic violations. One of the solutions to this problem may be the correct use of green spaces, which have a great impact on the ecological conditions of the city. They lower the temperature by evaporating moisture and shading the surface, preventing heating of the asphalt, promoting convective air mixing, helping to create constant air currents and ventilation. One hectare of green space during the growing season evaporates up to 3000 tons of moisture. This is almost 10 times more effect than from a reservoir of the same area.

Throughout the territory of Central Asia and neighboring states, dust storms are quite frequent. The issue of dust storms is also relevant for Uzbekistan, especially for its northwestern territories, where strong winds with dust storms are quite frequent. The wind speed here often reaches 17-22 m / s, and in some areas - 25-27 m/s. Continuing throughout the day, the wind raises dust into the air from the parched surface of the earth. The problem of dust storms in Central Asia is aggravated by the drying up of the Aral Sea - an ecological tragedy, as a result of which the Aralkum desert was formed on the territory of Uzbekistan and Kazakhstan on an area of more than 5.5 million hectares. Huge tracts of sand and salt marshes on the drained part of the sea only intensified the storms. The wind lifts into the atmosphere not only sand, but also salt from the bottom of the dried-up sea and carries these particles to the territory of other regions and neighboring countries. Dust-salt "clouds" that appear on the drained bottom of the Aral Sea reach the Khorezm region and adjacent districts of Turkmenistan. The scale of this phenomenon is striking: the volume of dust and toxic salts raised annually from the drained seabed is more than 100 million tons. The dust plumes are up to 400 km long and 40 km wide. Dust and sand particles carried by storms are hazardous to health.

For centuries, the deserts of Uzbekistan manifest themselves as dusty storms that cover the entire earth with dust and sand. Long after a storm, the air remains dusty, dusty trees, buildings, roads and sites. Green spaces impede the movement of the wind, reduce its speed and retain some of the dust, thereby filtering the air. It has been established that plantings can significantly reduce the content of harmful impurities in the air. This occurs due to the absorption of some gases by plants during photosynthesis, as well as their reflection and dispersion by vertical and horizontal air currents. The air rises above the warmer open spaces, and the cooler air in the green area replaces the rising one. Thus, landscaping regulates the process of air exchange, contributing to ventilation.

In the summer, trees accumulate up to 40-50% of dust, in the autumn-spring season - 25-40%. This is especially true for plants with pubescent, sticky and rough leaves. It should be noted that in areas of streets devoid of vegetation, the concentration of dust is increased by 2-3 times. The vegetation of city parks and squares, with an area of one hectare, clears from ten to twenty million cubic meters of air from dust during the growing season.

Also, green spaces play an important role in the fight against car exhaust gases. Considering that traffic jams form at intersections, cars burn out oxygen and saturate the atmosphere with exhaust gases, traffic jams at traffic lights are places with a special concentration of exhaust gases in the atmosphere. Their harmfulness has been repeatedly proven scientifically. These gases accumulate as much as possible at a height of 50-70 cm, which corresponds to the growth of small children and has a detrimental effect on health. Green spaces along the roads - bushes that act as hedges - can serve as a natural filter and obstacle for exhaust gases.

An important factor for the health of the population is the noise regime of the territory. The irritating effect of noise and vibration, even in small doses of air, impairs people's well-being. An incorrect or absent structure of the proper organization of landscaping negatively affects the noise background of the city, contributing to the destructive development of a person's neuro-emotional character. City noise exacerbates cardiovascular diseases, mental disorders, it disrupts metabolism, increases blood pressure, and impairs hearing.

In accordance with modern scientific research, the background noise, which has a sound power of more than 90 dBA¹, adversely affects the human body. Therefore, in the areas of pedestrian traffic, the noise level should be no more than 75 dBA, and the transport noise level should be no more than 85 dBA. Plantations act as the most effective neutralizer of excessive noise level, reducing it by an average of 6.0-13.2 dBA, and in the leafless state (bare) by 2-6 dBA, that is, two to three times less. Accordingly, unjustified exposing of trees by cutting their branches disrupts the process of absorbing excess background noise.

Today in our cities we are faced with a disruption of the natural balance of the natural environment. This leads to serious medical problems such as allergies, lung diseases, depression, and chronic overwork. The more a person moves away from the natural landscape, the more he tries to return "pieces of nature" to the urban environment in the form of various green spaces, pedestrian zones, etc.

III. RESULTS AND DISCUSSION. Architectural and landscape reconstruction of cities is a very complex and difficult process that requires careful analysis. It consists of many stages:

- awareness of the leading importance of the natural and climatic factor;
- rich urban planning experience in the landscape organization of the cities of Uzbekistan;
- assessing the current state; development of a general plan and technical solutions;
- the correct selection of plant assortment.

The primary tasks are:

- the creation of continuous green frames running through the entire city. The natural frame should be formed in the form of a holistic and continuous structure, permeating the entire space of the city and going out into the suburban environment;
- greening of at least 50% of the territory of residential areas;
- creation of a network of bike paths and pedestrian paths that do not intersect with highways;
- arrangement of aryk system;
- preservation of areas of "wild nature";

¹ acoustic decibel, a unit of measurement of the level of noise, taking into account the perception of sound by a person.

- greening, if possible, of all horizontal surfaces of buildings and structures available for this (loggias, balconies, roofs, etc.);
- rejection of materials that emit harmful substances, etc.

When developing street greening schemes, it is necessary to keep in mind that street greening is part of a complex task of the architectural and planning organization of space, which includes climatic, anthropogenic and aesthetic features and take into account the following main factors and parameters: dimensions, classification and direction to the cardinal points of the streets ; the intensity of traffic and its types; the intensity of pedestrian traffic; environmental factors and the functions of plantations that they will perform (dust, noise, gas pollution, soil compaction, etc.).

The composition and design of the plantings used, the size and density of plant crowns (dense, openwork, transparent) are of great importance. Given the peculiarities of our hot climate, it is very important to limit direct solar radiation on paved sidewalks at midday. The decorative qualities of plants at different times of the year are important: height, crown shape, color of leaves, flowers and fruits. This will enhance the influence of plants on the microclimate of the city and enrich its artistic appearance. The range of plants currently used in the practice of landscaping in the cities of Uzbekistan should be expanded and improved, taking into account local, regional, climatic and other conditions and requirements.

It is unacceptable to use a limited, sometimes insufficiently valuable from the point of view of sanitary and hygienic efficiency, short-lived assortment of tree species; inept, irregular care, as well as poor-quality watering of plantings. This leads to a decrease in the artistic expression of the city.

IV. CONCLUSION. Thus, all of the above issues and the vast experience of urban planning show that the most important task of the architectural and landscape reconstruction of cities is to preserve the natural landscape and establish a balance and harmonious combination of the artificial environment and nature.

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