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THE ECOLOGICAL ROLE OF URBAN GREENING

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Abstract. The article describes the role of green spaces in the urban ecosystem. Green areas of settlements, especially in large cities are an important part of the ecological habitat of the population. It has been shown that plants can form green frameworks for better ecological, aesthetic and historical component of cities. Increasing the proportion of greenery in the urban environment, improves the urban atmosphere and the quality of the environment. The assortment of tree and shrub plants used for gardening in urban environment must not only conform to natural climatic, ecological conditions but also retain their decorative qualities.

Key words: urban area, plants, landscaping, urban ecosystem, development, environment, stress.

Green areas play an important role in cities, especially in the process of gas exchange: absorbing carbon dioxide and releasing oxygen. Due to these properties they are used in urban greening to improve the ecological environment. Today's requirements are to create an interactive environment that interacts with its active users.

In order to create an "interactive", environmentally friendly urban environment, one must learn to analyse the public space that has already been created. In order to find ways of reducing the anthropogenic load on the urban ecosystem, we need to know the history of landscape gardening and the mistakes made in its development, as well as the current scientific basis and trends in the field. Garden and park construction in Siberian cities has now begun in full swing and is developing in regular and landscape gardening styles.

The lack of vegetation is not only an aesthetic problem, where an entire city is transformed into a monotonous grey mass, but also an environmental problem, where a small amount of green space has the most negative effect on the local microclimate and ecological level. As a result, the average daily temperature in megacities today is on average seven degrees Celsius higher than in rural areas. Today, the average daily temperature in megacities is seven degrees higher than in rural areas, while the humidity level is much lower [1].

It is known that it is only possible to maintain a connection with nature in an urban environment by planting greenery. Planned and aesthetically pleasing green spaces are a manifestation of the high level of economic management within a city or village. The monotony and 'severity' of urban development can be the monotony of urban development can be minimized by shaping green public spaces around the city, moving away from intensification in the interior of the development. The greening of the industrial city is one of the prerequisites for the formation of a

comfortable environment.

At the moment, there are federal projects aimed at improving the environmental situation of industrial cities, and. Landscaping has been assigned to the last place in the list of necessary tasks. But beforehand. it is necessary to assess the current state of landscaping objects - the level of man-made load,. degree of plant degradation and so on [2].

Purposeful, deliberate landscaping of the city is an important point environmental remediation. Green plants enrich the air with oxygen, absorb carbon dioxide, increase the degree of air ionization 5-8 times, capture up to 70-80% of dust and aerosols, reduce the sound strength by 5-7 times [3].

It is noted that the species composition of woody vegetation of cities in the conditions of Siberia is limited by climatic and ecological characteristics. There is no doubt that urban plants are constantly under stress. In the process of urban development plantations have acquired a number of vital properties that enable them to function normally in a variety of unfavourable living conditions. It is known that the vegetation in the city performs various functions of sanitary and hygienic, soil protection and anti-erosion, water protection and climate management, in connection with which their main role in the urban ecosystem is clear. In general, for greening the city space uses plants with high decorative qualities [4].

The process of greening the recreational areas is always accompanied by a preliminary assessment of the existing plants in the territory. As a rule, the state of trees is estimated by the sum of biomorphological features: crown density and color, its cover (shape), color and damage of needles (foliage) necrosis of infectious and non-communicable nature, pests and pathogens, relative growth of shoots and trunk, age remaining on sprouts of needles (medium and extreme), presence of dry branches, in the state of bark and luba. On the basis of all these features, it is established the category of the state of the tree, which is its integral characteristic [5].

One solution to reducing the human burden on the urban ecosystem is to create parks and squares. It is clear that the basis of his composition is the skilful use of spatial features, relief, water surfaces, vegetation. At present the predominant technique in the composition of parks, gardens and other categories of urban plantations was landscape free planning with the use of group planting of trees and shrubs.The geometric forms of annual flower plantations are replaced by picturesque flower beds, mainly from perennial cultures. With skilful selection of perennial plants, their flowering continues from early spring to late autumn, creates maximum comfort and aesthetic appeal for citizens. However, recently in the city it is difficult to find a place where you can park.

The possibility of combining each with other components of the landscape, in particular water, is greatly enhanced by the individual design of park buildings. The use of its decorative properties in static and dynamic states acquires a certain artistic content as a result of the design of water mirrors and devices interacting with a variety of architectural forms [6].

Urban greenery is of great value, not only providing an aesthetic appearance by decorating streets, parks, squares and boulevards, but also being a kind of living filter, the foliage of trees has the properties of dust absorption, decontamination and reducing the degree of harmful substances in the air. But it is not uncommon that during the construction of roads or new buildings, there is often a problem with large trees standing in the way of builders. Previously, without special equipment, to transplant such trees was almost impossible. However, due to advances in technology and respect for nature, such trees are no longer cut down or uprooted from the soil, and special techniques are used to remove such an obstacle.

The problem of scarcity of vegetation and the catastrophic lack of oxygen-saturated air is becoming more and more urgent in large cities, where the number of new homes is growing at an enormous rate every year. Lack of vegetation is not only an aesthetic problem, when the whole city turns into a monotonous gray mass, but also an environmental problem, when a small number of greenery most negatively affects the local microclimate and environmental level [7].

One of the main indicators of plant quality is resistance to urban conditions, as well as their decorativeness. The introduction of plants allows to expand significantly the assortment and increase the diversity of plants in conditions of abrupt continental climate. This technique increases the artistic

expressiveness of the city landscape. It is possible to diversify planting species that have more decorative qualities (beautiful blooming, decorative deciduous, beautiful fruit). Assortment of wood and shrub plants used for greening the urbanized environment should not only correspond to natural-climatic, ecological conditions, but also maintain their decorative qualities in this environment [9]. Therefore, environmental management in the territory of a city should be regulated by regulations, which creates the basis to develop a long-term, broad-based sustainable development strategy for the territory. Landscapers are environmentally friendly in the formation of landscapes in the urban environment [8].

Green plants in urban areas perform certain functions. In this regard they can be divided into two large groups: hygienic and decorative planning. The hygienic value of green plants is that plants create a zone comfort, while intensively reducing heat and solar energy. Scientists-hygienists have determined the comfort zone for humans, it is in the range of 17.2-21.70C. Urban planning is an important factor influencing the urban environment structure, features of relief and climatic features that provide ventilation air pollution. An important part of the environmental preservation of settlements are green plantings. It is they that have a positive effect on cleaning atmospheric air, regulation of the groundwater level and improvement of the microclimate of the territory [10].

In the city of Nur-Sultan it is necessary to form a combination of interconnected and complementary greenery of different species, that is, a continuous uniform system of landscaping with the inclusion of forests, all groups of green plantations, open areas covered with meadow vegetation, to ensure their interaction, both among themselves and with urban forests.

In general, the planning structure of the cities of the Pavlodar region has a compact appearance (with a predominantly perpendicular framework of streets), which creates the opportunity for effective ventilation of the urban area and reduce the concentration of harmful emissions in the air.

Wood plants such as lilac, poplar, maple, hawthorn are very effective in combating atmospheric pollution in urban ecosystems. It is necessary to pay special attention to the landing of seedlings along roads, planted lilac, poplar balsamic can absorb lead - a metal that is very toxic. Shrubs and trees retain harmful substances: dust particles by 60-70%, sulfur gas, ammonia, nitrogen oxides up to 60% [11].

The microclimate of the city directly depends on the number of green plants that serve source of ozone, oxygen, phytoncides, are environmental filters, purify the air, increase its humidity, protect against overheating the soil, buildings, asphalt and tile coatings pavements, create favorable conditions for outdoor recreation of the population.

Conclusion. Based on the studied sources and the results of their own research, the authors came to the following conclusions:

- to improve the environmental situation in urban areas is necessary establishment of scientifically based and optimal planting patterns in accordance with the realities of an urban environment in which road transport increases and infrastructure in general;
- green spaces should be planted regularly along the carriageway.

For landscaping should be used coarsely deciduous shrubs and wood, as on volumetric plate collects more dust from the exhaust gases of cars. The height of these stands should be from 1-2 m: it is at this height that the human breathing level is located and it is at this level that most of the pollutants are contained in the form of dust in the suspended state.

Preference should be given to mixed tree and shrub plantations, which are more biologically sustainable and have higher decorative advantages than homogeneous plantings. A multi-row, dense band of tree and shrub stands can significantly reduce the concentration of exhaust gases in the pedestrian traffic area;

Creating a comfortable urban or rural environment is possible only when creating comfortable, safe and attractive areas for people's lives. It should be noted that the main elements of the landscape: greenery, water and relief, are preserved and created in the city for its ecology and beauty. The modern state of urban greenery is regulated by a combination of stress factors, one of which is air pollution. Environmental pollution in large industrial cities has now led to major changes

in environmental conditions and deteriorating living conditions. The regions of Nur-Sultan have been particularly affected by these transformations, where the formation of industrial centres has led to unwarranted concentration large industrial complexes and to aggravate the environmental situation. Greenery is a major contributor to the recovery of urbanized areas, but tree plants, in most cases, do not withstand the existing man-made pressure, degrade, weaken and die.

Wood plants involved in urban greening protect residents from the negative impact of industry and automobiles, constant noise and facilitate the perception of large crowds. The improvement in the living environment is due to the fact that phytoncides reduce the content of pathogens in the air.

As a result, urban greenery has beneficial effects on the body human and environment, protect engineering structures and open areas from strong wind and excessive insolation, form favorable microclimatic conditions, protect from noise and dust, clean the air from pollutants, allocated by industry and vehicles. Improve the habitat of green planting in the city, and therefore the population itself, is possible only on the basis of ensuring that the species composition of the green plantations meet growing conditions. Creating bright «spots» in the form of plants and green lawns, as well as a combination of different tones of foliage and a variety of trees and shrubs, the city is transformed, the unfavourable environmental situation subsides, physical and emotional health of citizens is restored.

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