



ECOLOGICAL SYSTEM OF LANDSCAPE ORGANIZATION IN CITIES

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Annotation. *In cities with complex climates, the landscape system is not just a complex of trees and shrubs, it is a complex system in the urban environment. The main parts of the urban greening system include planning, analysis of existing conditions, landscaping plans, selection of plants suitable for the environment, accurate calculation of planting times, systematic organization of irrigation and analysis of many similar factors. should be applied*

Keywords. *urban environment, climate, water regime, air humidity, dry climate.*

The urban greening system is not just a complex of trees and shrubs, but a complex system that includes the planning, design, creation, maintenance and management of green spaces.

The main elements of the urban greening system are as follows:

1. Planning:

- Determining the goals of beautification: creating comfortable and healthy living conditions, improving the ecological situation, preserving biodiversity, increasing the aesthetic appeal of the city;
- Analysis of the current situation: assessment of the quantity and quality of green areas, identification of problem areas taking into account climate and soil conditions;
- Development of the beautification concept: Determining the main principles and directions of urban landscaping.

2. Design:

- development of a beautification plan: determination of places for creation of new green areas, selection of plant species, taking into account the landscape features of the area.
- design green areas: Develop planting plans, irrigation systems, sidewalks, lighting, recreational furniture, playgrounds.
- designing a care system: determining methods and means of plant care, sanitary protection, pest and disease control.

3. Creation:

- Planting: choosing the right time for planting, using quality planting material, correct planting techniques.
- Creation of infrastructure: construction of corridors, lighting, furniture for recreation, children's playgrounds.
- Organization of irrigation systems: installation of drip irrigation systems, rainwater harvesting, irrigation from lakes and rivers.

4. Care:



- When choosing plants and landscaping technologies, it is necessary to take into account the specific climatic conditions of the region.

- Wide involvement of the population in the creation and maintenance of green areas is important.

Creating an effective system of urban greening requires the coordination of actions of all interested parties (urban planners, landscape architects, environmentalists, authorities and residents) and a comprehensive approach.

Organization of the ecological landscape is a complex process that includes many elements and factors that interact with each other. Here are some of the main ones:

Elements of ecological landscape:

- *Green areas*: Trees, shrubs, grasses, flowers are the main elements that provide air purification, temperature reduction, shade, microclimate improvement and animal habitat.

- *Water bodies*: Rivers, lakes, ponds, fountains, cascades - important for moistening the air, creating a microenvironment, improving aesthetics.

- *Soil*: Its quality affects plant growth, water conservation and pollutant removal.

- *Territory*: Shapes the character of the landscape, affects microrelief, water and vegetation distribution.

- *Infrastructure*: roads, sidewalks, lighting, furniture for recreation - should be integrated into the landscape, taking into account ecological principles.

- *Architecture*: Buildings and structures should fit into the landscape and use environmentally friendly materials and technologies [1].

Factors that make up the ecological landscape (Fig.1):

- *Climatic conditions*: temperature, humidity, precipitation, solar radiation affect the selection of plants and landscaping technologies.

- *Soil condition*: soil type, its acidity, fertility affect the growth of plants and the choice of greening technologies.

- *Biodiversity*: conservation and restoration of natural flora and fauna is a priority.

- *Anthropogenic impact*: pollution, urbanization, destruction of natural ecosystems are factors that must be taken into account when organizing an ecological landscape.

- *Social and economic factors*: availability of green areas for all segments of the population, economic viability and sustainability of projects.



Figure 1. The importance of the division of green areas within the urban area

The main principles of ecological landscape organization:

- *Use of local plant species:* They are well adapted to local conditions and do not require special care.
- *Taking into account the specific characteristics of climate and soil conditions:* Selection of plants and greening technologies resistant to local conditions.
- *Conservation of biological diversity:* creating conditions for the development of local plant and animal species.
- *Minimizing anthropogenic impact:* reducing pollution, using environmentally friendly materials, creating green areas in the city.
- *Integration of landscape with urban infrastructure:* Creation of green areas along roads, parks, residential complexes, school and hospital areas.
- *Sustainability of projects:* ensuring long-term functionality and ecological safety of the landscape.

Organization of the ecological landscape requires a comprehensive approach, taking into account many factors and the interaction of experts from different fields [2].

The interdependence of ecology and landscape is manifested in:

- *Landscape defines environmental conditions:* Soil type, topography, climate, water resources affect the diversity of species, distribution of living organisms and ecological processes.
- *Ecological processes shape the landscape:* plants change the soil, water resources shape the terrain, animals affect the distribution of plants.

Changing the landscape affects the ecology: deforestation, water pollution and urban development disrupt the ecological balance, causing the extinction of species and changes in the microclimate.

- *Environmental protection depends on the sustainable organization of the landscape:* urban greening, reforestation and creation of protected areas help preserve biodiversity and improve environmental quality.



Ecology and landscape (Fig.2) are two closely related concepts that interact and influence each other;

- It is impossible to maintain ecological balance without sustainable organization of the landscape;

-Human activity affects the landscape and ecology, so it is necessary to approach landscape management with ecological responsibility.

Green spaces have a huge positive impact on people, both physically and psychologically.



Figure 2. Positive environmental impact of green area amounts on the environment

Physical health:

- *Improved air quality:* Trees and shrubs absorb carbon dioxide and pollutants, releasing oxygen, purifying the air and reducing pollution. This reduces the risk of respiratory diseases, cardiovascular problems and allergies.

- *Temperature reduction:* Green spaces provide shade, reduce surface heating and lower air temperatures by several degrees. This makes the urban environment more comfortable and reduces the risk of heat stroke.

- *Improving the microclimate:* Trees and shrubs humidify the air, reduce wind speed, and create a cozy atmosphere.

- *Noise Reduction:* Green spaces absorb noise, creating quiet areas in the city. It reduces stress levels, improves sleep, and improves concentration.



Figure 3. The importance of green areas in moderating the urban environment and cleaning the air, and the effect on human mood

Psychological health:

- *Reduce stress*: Walking in green areas reduces stress hormones, improves mood, and reduces anxiety.

- *Increased happiness*: Research shows that people living in green areas are more likely to feel happy and satisfied with life.

- *Enhance creativity*: A green environment promotes creativity and innovation and stimulates thinking.

- *Improved social relationships*: Green spaces provide places to meet, socialize, and play, which strengthens social connections and a sense of community.

- *Increased sense of attachment to a place*: Green areas make a city more welcoming and attractive to live in, which strengthens the feeling of attachment to it [3,4].

Other positive effects:

- *Increased property values*: Housing in green areas costs more as people are willing to pay more for a comfortable and healthy living environment.

- *Job creation*: The development of green infrastructure creates new jobs in the areas of landscape design and green space care.

- *Improved tourist attraction*: Green areas make a city more attractive to tourists, which boosts tourism and the economy.

Green spaces are not just a decoration of the city, but an important factor contributing to the health, well-being and quality of life of people.

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