

## Reorganization of Cities with Hot Climates

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**Abstract:** The purpose of this article is to evaluate the landscape design of urban gardens and parks with a hot climate, as a means of aesthetic and ecological adaptation of the cultural space of the city with a hot climate.

The parks of culture and recreation are the most popular because they are within walking distance. These areas play a major ecological and aesthetic role in the development of the city, however, a significant problem is the deterioration of their landscape condition.

**Keywords:** optimization, pair dynamics, microclimate, silhouette, gas exchange.

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The maximum use of the properties of the landscape and the ecological approach represents the ecological optimization of the landscape. Restoration of landscape-ecological diversity in a certain territory is one of the most important principles of ecological optimization of landscapes [15]. The most important role in the spatial structure of the landscape is played by compensating areas (water bodies, bushes, and other natural and little-altered by man biocenoses). The main principles of optimization should include regional, typological and dynamic [24]. A more rational way to optimize typological complexes is the transformation of the terrain. The basic unit of a landscape complex, a type of terrain, can be defined equally as an area of an economic plan, which has a consistent combination of tracts that is unique to it. Such a principle creates the probability of designing measures of a typical landscape optimization plan. The dynamic principle is based on the concept of a pair of dynamic systems, adjacent typological or regional complexes, which are characterized by an active exchange of matter, energy and information. Among the main methods of optimizing landscapes are: 1. A method of landscape amelioration, i.e. radical improvement of the properties of landscape complexes and increasing their productivity. 2. Method of recultivation of landscapes is a complex of works aimed at restoration of economic, medical, biological and aesthetic value of disturbed landscapes. 3. Landscape protection method. 4. Method of rational organization of landscapes. Scientifically-based organization of the landscape provides a rational ratio and placement of lands of various economic or other (for example, recreational, residential, environmental) purposes [27]. As an ecological means of optimizing urban landscapes it is advisable to consider the landscaping of settlements - a complex of works on the creation and use of green spaces in cities and towns. Landscaping of settlements is a complex of issues associated with the formation of a full human environment. The largest share in the landscaping of the city are objects of citywide and district significance - city parks and gardens, squares and boulevards, objects of limited use, including plantings of residential and industrial areas. Green spaces affect the temperature and humidity regime: even a small green area reduces the temperature in summer by several degrees, not only within itself, but also in the surrounding areas. This feature is based on the high reflective capacity of green spaces and their property to absorb heat energy [38]. Green spaces promote horizontal and vertical ventilation, which significantly improves air composition. During the day, air movement comes from the green space and refreshes the surrounding buildings, and at night, hot air moves to the green space from the overheated surfaces of the built-up area. 13 Green

space affects the ionization of air. Studies have shown a positive effect of ionization on the human nervous system. Green spaces ionize the air in different ways (increasing the amount of light ions in the air). Mixed plantings give the best result for ionization. Green plantations have a great evaporative capacity. They evaporate 20 times more moisture than the area they occupy, while significantly increasing air humidity. Reduced air humidity is perceived by people as a slight decrease in temperature, so during the warm season and in areas with a hot climate it is especially useful. Green spaces play an important role in the process of gas exchange: they absorb carbon dioxide and release oxygen. This property of theirs is used in urban settings. Green plantations participate in this process in different ways. For example, the Berlin poplar absorbs carbon dioxide and releases oxygen almost 7 times more than the common spruce, the English oak - 4.5 times, the broad-leaved linden - 2.5 times. When selecting trees and shrubs for urban conditions, the activity of green spaces in this process should be taken into account [39]. Green plants produce special volatile and non-volatile substances (phytoncides) that inhibit the activity of some bacteria and microorganisms. Phytoncides from different plants are unequally effective against different bacteria, so when selecting plant species for landscaping urban areas should take this feature into account. Green plants can be successfully used to clean the urban environment from dust and gas. Even a lawn significantly prevents the formation of dust. Dustiness among green spaces is 2 - 3 times less than among the buildings. This occurs due to a decrease in the velocity of air masses among plants. In this case, the suspended dust particles contained in the wind flow fall out of it and are deposited in the crowns of trees, and during precipitation are washed to the ground. The amount of trapped dust depends on the structure of leaves: rough leaves deposit more dust than smooth ones, deciduous crowns deposit more dust than conifers, smooth and rough leaves are cleaned better than nappy ones. This peculiarity of trees is useful to consider when designing plantings that protect against dust [25]. Atmospheric pollution has a deleterious effect on all kinds of living organisms. Some gases have harmful effects on plants even at a distance of 2 - 3 km from the source of pollution (e.g. sulfur dioxide). Despite this, vegetation has the ability to absorb gaseous waste from industrial production and transport. Plants resistant to toxic air pollution and absorbing a significant amount of these pollutants from the atmosphere are chosen for planting, isolating enterprises with gaseous waste. The role of green spaces in the urban environment is great. The rustle of leaves, the singing of birds, the aesthetic effect is beneficial for the neuro-psychic state of the person, landscaping organizes the microclimate and brings the conditions of the human environment to the optimum. Sanitary and hygienic requirements for residential development determine the need to protect residential areas from noise. One of the main sources of noise in urban areas is motor transport. Green spaces help people to control noise. The absence of green areas often leads to an increase in the level of noise, as sound waves are amplified by reflecting from the vertical planes of buildings [20]. To protect the territory from noise, the screens of green areas between the noise source and the protected objects are arranged. The height of such screens take on special calculations. In accordance with them and select the species of trees of the required height. Inside the neighborhood, green areas reduce noise from other noise sources: sports, children's and household grounds. In this case the standards provide different distances from sports grounds to residential buildings in the presence and absence of green areas. 15 Green areas are used in engineering landscaping to overcome some undesirable phenomena of nature. Effective landscaping against mudslides, when along with melting snow from the mountains streams of stones and eroded rocks. With the help of green plantations change the direction of the flow, thus protecting settlements. Landscaping helps protect the site from snow and sand storms, prevent snow drifts, and where required, on the contrary, to form an adequate snow cover. With the help of landscaping strengthen the slopes, stop the processes of ravine formation, drain the marshy areas, eliminate the landslide phenomena. For these purposes, tree and shrub species with special qualities are used: moisture-loving, with a dense branched powerful root system [11]. Green plantings have architectural and planning value. In enriching the architectural appearance of residential areas and neighborhoods an important role is given to the landscape. Along with the expressiveness of buildings and the plasticity of small architectural forms, the natural conditions

have an important impact on the overall aesthetic perception. With the help of the landscape you can noticeably enrich the appearance of the city, give the features of individual expressiveness to any area of the city. In fusion with nature, the traditions of ancient Russian urban planning come to life. Use of the available hilly relief, picturesque outlines of the banks of rivers and ponds, large areas of green plantings, ravines, streams, clusters of boulders and other, even at first glance non-apparent elements of the landscape leads to a unique picturesque and expressive nature. If necessary, the natural environment is enriched with elements of landscape architecture. All this gives originality to the silhouette and panorama of individual districts and the city as a whole. Landscaping is the most important element in the city and takes up a considerable amount of space. Each city's master plan plans to increase the area of green space.

### LIST OF REFERENCES

1. Atlas: Natural Resources and Ecological State of the Belgorod Region, ed. by F.N. Lisetsky. - Belgorod: Belgorod State University, 2005. - 180 c.
2. Vladimirov V. V. The city and the landscape. - Moscow: Mysl, 2016. - 238 c.
3. Gorbachev V.N. Architectural and artistic components of landscaping cities / V.N. Gorbachev. - Moscow: High School, 2013. - 207 c.
4. Zalesskaya L.S. Landscape architecture L.S. Zalesskaya, E.M. Mikulina. - Moscow: Stroyizdat, 2017. - 240 c.
5. Zatolokina N.M., Bobyleva E.V. Modern state of recreational areas of Belgorod // Proceedings of the International Scientific and Practical Conference "Architecture, Construction, Land Management and Cadastre in the Far East in the XXI Century", Komsomolsk-on-Amur, 2015. - C.323-326.
6. Zvolinsky V.P. Modern principles of ecodiagnosics of the state of natural-anthropogenic systems. - M.: RUDN, 2017. - 226 c.
7. Ilchenko I.A. System of green spaces of the city as an environmental factor of the urban microclimate. // Bulletin of the Tarnogsky Institute of Management and Economics. - 2014. - № 1. - C. 37-41.
8. Kazakov L.K. Landscape science with the basics of landscape planning. / L.Kazakov - Moscow: Academy, 2008. - 336 c.
9. Kazakov L.K. Landscape science / L.K. Kazakov - Moscow: MNEPU, 2014. - 264 c.
10. The concept of the regional project "Green capital" (2010-2014) // Department of Nature Management and Environmental Protection of the region (stock materials). - Belgorod, 2010. - 42 c.
11. Kotlyakov V.M. Changing the natural environment of Russia in the XX century. -M.: Molnet, 2012. - 405 c.
12. Koroleva A.S. Typification of recreational areas of the Belgorod region by functional specialization and dominant directions 70 of tourism development in the region for GIS. Scientific result. 2014. T1. №2 C. 33 -37.
13. Korneev K.N. Landscape science. - MOSCOW STATE UNIVERSITY, 2006. - 788 c.
14. Kochurov B.I. Assessment of aesthetic potential of landscapes / B.I. Kochurov N.V. Buchatskaya // Methods of ecological research. - 2015 - № 4. - C. 25-34.
15. Landscape of flowers in your garden [Electronic resource] - URL: <http://www.udec.ru/landshaft/cvety-landshaft.php> (Access date: 03.04.18)
16. Letvinova Yu.A. Landscape design of the park. - MOSCOW STATE UNIVERSITY, 2014. - 132 c.

17. Litvenkova I.A. Ecology of the urban environment. -Vitebsk: All-Union State University, 2015. - 163 c.
18. Mukhina L.I. Principles and methods of technological assessment of natural complexes. - Moscow, Nauka, 2015. - 96 c.
19. Nefedov V.A. Landscape design and sustainability of the environment. - St. Petersburg: Polygraphist, 2012. - 295 c. 20. Nikolaev V.A. Aesthetic perception of landscapes / V.A. Nikolaev // Bulletin of Moscow University. Ser. 5. Geography. - 2015. -№ 6. -C. 10 - 15.
20. Nekhuzhenko N.A. Fundamentals of landscape design and landscape architecture / - St. Petersburg: Peter, 2015. - 192 c.