Assessment of Urbanized Area Architectural Environment

O A Rastyapina¹, N V Korosteleva¹
¹Volgograd State Technical University Institute of Architecture and Construction 1 Akademicheskaya Street, 400074, Volgograd, Russia

E-mail: o_rast@list.ru

Abstract. City urbanization have a direct effect on the state of natural environment, the development of infrastructure, technological and technical regimen of cities, and the city architectural environment as well. Misshaped and broken architectural environment exerts a negative impact on human. Landscaped areas are one of the main ways to build-up a favorable city-planning environment. Apart from esthetic functions, they contribute to the improvement of temperature and humidity conditions, the reduction of noise level and content of harmful substances in the air. One of the elements of natural environment, building up the city architectural environment, is plantation. The authors of this article consider different types of plantation, which allow improving the perceptibility of urbanized architectural environment.

1. Introduction
City development and urbanization have had a direct impact on the style and architectural image of urbanized environment. The architectural scene of a site takes shape depending on the chronologic age of the site development. As cities are developed and grown new styles begin to be added in the site architecture. The styles come which pertain to the period of the city growth and development. Besides, the architectural image is influenced by the speed and rate of urbanization. At fast-paced construction rates, standard architecture prevails in urban development. Buildings with a more individual look may be seen in cities when economic base is grown and expanded, while the construction rate slows down. However the buildings of this kind do not always blend well with the surrounding buildings and structures. Such an architectural diversity affects general perception of the urbanized environment architectural scene.

City development facilitates the growth of the industrial base, which in its turn contributes to the settlement population density growth and serves a direct proof of the urbanization of said area. In the process of development and as the rate of the urbanization goes up, the environmental impact grows, affecting the human health and the environment in general. Urbanization rate have a direct effect on the shaping of the architectural scene of an urbanized area [1]. A violation of and inadequacy or misbalance in the development of an urbanized area cause a direct influence on the human health. In respect of the above mentioned factors of area urbanization, there appears a need to develop methods aimed at urbanized space optimization and the improvement of its welfare level and the mitigation of human exposure.

2. Influence of urbanized environment on the settlement formation
Towns and cities grow at all times, however the rates of growth and construction inside the urban area differ. The urbanization of a settlement means that it grows spatially and its use develops. Thus
said process has got both benefits and drawbacks. The growth of an urbanized area is understood by authors as the extension of the developed space, occupied by the given settlement. And development supposes attaching new functions to the civic centre and infrastructure improvement. Correspondingly, this process cannot fail to influence occurring changes, not only in the architectural environment of an urbanized area, but also affect citizens themselves [2].

As the main benefits of urbanization one can identify the following [3]: the development of economic base, infrastructure and social services; improving the quality of life and consequently social and economic indicators. Only two last factors from the above mentioned positive characteristics of urbanization do not damage environment. The development of services sector and improving the quality of life are rather a consequence or a favorable outcome of urbanization process. The rest common advantages of urbanization cause damage to the environment in various ways. As a result of economic base development, production and consumption volumes increase, supposed to further facilitate recycling. Infrastructure development increases impacts on the environment. In order to eliminate the adverse effects of the urbanization advantages it is necessary to take a combination of local measures aimed at the abatement of environmental impacts.

Urbanization gives rise to population density and facilitates the rates of surrounding area development with the purpose of construction. Special emphasis here should be put on sticking to the style of the area development. Current housing retrofitting processes should include a requirement to shape a certain architectural scene of the settlement and its expressivity. The replacement of model low-density buildings should not only raise the building density, but it is also to be held with due account for the existing architectural integrity, using available modern construction means and materials which meet the requirements of environmental safety and architectural regulations.

From a mathematical standpoint, the population density index reflects urbanization to the most extent. The work [3] investigated a dependence between population density and a number of social, economic and ecological indicators. It has been established, that as the population density increases, the gross regional product (GRP) also rises. If the share of citizens changes by 1%, the GRP changes by 2.17%. Population density influences 61% of the GRP rate. If the population density increases by 1 man-sq km, the GRP changes by 0.3%. By means of the mathematical analysis of the considered indicators a tight correlation between the GRP and population density was identified. But, as mentioned above, urbanization affects some environmental factors, such as an increase in anthropogenic environmental impact. A similar research and determination of influence quantities were conducted for the Volgograd region. It has been discovered, if the town population changes by 1% of its mean value, the utility water rate discharged to water basins of the region changes by 45%; air pollution changes by 27%; and the GRP changes by 55%. As the city population grows, environmental discharge inevitably goes up, and consequently the load on the environment rises. Depending on the stability level, environment can sustain anthropogenic impact, adapt to them and go on developing; or fail to adapt and, correspondingly, gradually degrade. Irrespective of the environment stability level, people, being the main consumers of the environment and the impact factor, should minimize exposure. It is necessary to create conditions contributing to the adaptation of the environment to incoming adverse effects.

Urbanization process has got a lot of benefits, but these benefits result in the increased load on the environmental load [4]. In the course of economical base development, area urbanization should be used to improve the environmental component of these areas as well. It is necessary to develop and implement city-planning methods, which allow reducing the anthropogenic impact on the environment. Such city-planning methods shall be used apart from local methods, aimed at the elimination of an impact directly from a source. And, consequently, city-planning methods are global with regard to the urbanized area.

2.1. Urbanization impact on human

Any changes in the environment influence human life cycles.
Academician V.D. Surzhikov [5] has established, that the population aged 20 to 39 years is least sensitive to anthropogenic load. Children aged 3 to 6 years and people aged over 60 years are the most sensitive to anthropogenic load. The list of diseases, caused by different changes in the environment and related to anthropogenic exposure, is rather large. And this list expands as corresponding researches are conducted. One of the most common manifestations of urbanization impacts is daily stress, which the man experiences being inside the urbanized area [6,7, 8].

Thus, urbanization not only improves social and economic factors of human life, expands the spheres of technical and technological services, but at the same time causes a direct influence on the human health. To control this influence, it is necessary to take a complex of measures purposely to the introduction and development of actions for creating a comfortable and safe environment.

3. Components of urbanized area architectural environment

Architectural factors are one of the essential indicators defining the estimate of the favorable urbanized area. This group of factors includes the ones which characterize the value of buildings, adherence to architectural conception in the urbanized area development and the perception by population.

As it has already been noted in this work, in the course of the development of an area, its urbanization level increases, having a significant influence on the arrangement of the urbanized area. The value of the development reflects its significance from a historical viewpoint. Building facades are made with account of historic period, and the value of a building is identified by its facade regardless of the functional and historical significance.

As a city develops, its functional significance escalates. Due to the construction, the notions of three main functions of human life have come into common use: work-every day routine-rest. Cities began to be formed in conformity with those notions. Based on them, functional parts of cities developed. At present, with due account of the amended requirements to urbanized areas and economical significance of different parts of the city, spatial flows of city functions have been observed. Priority is given to building up the downtown as a main economical part of a city and neighborhood with residential districts. Such a division of urbanized area is based on environmental factors, having effect on human and set up by the environment. Infill construction which is mostly prevalent in cities, does not give an aggregate picture of a development.

People receive about 80% of information and perceive it through eyes. The degree of perception affects human health, view of life and comfort [9]. The degree of impact on human made during the perception of the environment is investigated by videocology. [10, 11]. As researched, the worst harm to eyes and psychoemotional state is done by uniform elements of building and facilities. [12, 13, 14, 15, 16, 17, 18]. Among the major factors typical of the image of a modern city and generating a negative impact on human one can list the following: lack of visual elements, lack of urban amenities, distinct monofunctional city division, blind fencing, underground passages, grey color prevailing in buildings [19] and others. The mentioned factors provoke such diseases as: myopia, mental disorders, aggression escalation [20]. Thus, the unfavorable development of urbanized areas have a direct impact on human, the latter being the essential element forming this human life environment.

4. Method of the urban area architectural environment improvement

The methods of the architectural environment improvement can be of global and local nature. Global methods intend to use the patterns of planned engineering, strict observance of standards and requirements of construction with account of economic development. These are drastic methods and they are obligatory, especially in the construction of new sites. Local methods can be considered as preventive; they are aimed at the optimization of existing development conditions. The methods of local nature are the most relevant under the conditions of current human life environment.

The most acceptable and universal method purposed to the optimization of urbanized area perception is making a natural oasis, i.e. different ways of landscaping. An active use of landscaping
methods is exactly the way, which would allow to improve the human perception of the environment [21]. The following are recommended as different forms of landscaping: facade gardening; setting gardens, public gardens, parkways, putting together different districts and clusters of houses at the urbanized area; making winter gardens in front of glass facades of public buildings. An active use of city landscaping elements will allow not only improve the architectural image of the environment, but also enhance ecological factors.

The main health protection functions of plantation are: diffusion effect and filterability from dust and air pollution; noise protection, improvement of health-related (hygiene) and microclimatic living conditions for town population [22]. The effectiveness of plantation is considered in many researches [23, 24], based on which the dependences of the reduction of dust content, noise level and chemicals contained in the urbanized area atmosphere. Besides, the investigations have established the effectiveness of plantation provided that microclimatic characteristics of an urbanized area were improved [25]. The conducted researches confirm the effect of plantation as a main way to shape the architectural view of an area.

Esthetic properties of plantation allow creating natural oases, which human eyes perceive favorably and consequently an aggressive impact of urbanized environment is mitigated.

5. Conclusion
The performed analysis has allowed establishing a strong interrelation between the architectural environment being shaped and the degree of its urbanization. The urbanized environment created by human, is a source of an adverse human effect. Architectural environment is an integral element of the urbanized area. This environment is built up in the course of the development of a settlement and its modification goes under the influence of the urbanization level. The urbanized area development itself and the urbanization degree reflect in an architectural image of a settlement being constructed. Thus, interdependence of these factors is obvious.

The impact of urbanization on human, being the main element of the urbanized environment, has been also examined. As urbanization goes on, human and environment impacts increase. The natural environment is able to sustain changing conditions and adapt to them depending on the degree of anthropogenic effect. But despite this feature, it is necessary to work out and take appropriate measures to improve the natural environment, and increase the anthropogenic impact perceptibility of the environment. One of the universal measures is the plantation of urbanized area. Landscaped areas may both improve health-related, ecological and microclimatic conditions of the natural environment, and make the architectural environment more perceptible by population. The use of various types and ways of urbanized area plantation will let to improve the living conditions for the population, and, as a consequence, make ecological, health-related and architectural living environment much better.

6. References

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