



Halyna Osychenko 
Viktoriiia Gryshyna 

<http://dx.doi.org/10.35630/978/3.00.032886.2.6>

KHARKIV URBAN GREENING SYSTEM: CURRENT STATE AND CHALLENGES

Beketov National University of Urban Economy, Kharkiv, Ukraine

Addressing issues of normalizing the ecological status of the urban environment directly depends on the state of urban greening. This particularly true in the largest cities, where against the background of intensive urbanization there is an increase in the number and density of population, invasion of free natural territories, and separated natural landscapes lose the ability to self-regulation and development. Kharkiv city is one of the most prominent examples of large-scale embodiment of the theory of a modernist city. Since the 1930s, the main provisions of the Athenian Charter (1933) were implemented in the master plans for its development with a clear territorial differentiation of urban functions and the separation of recreational areas. Relying on the ideas of the Howard's Garden city, the green recreational spaces of cities were singled out as an integrated system and an individual object of urban planning in the Soviet architectural theory. The urban green spaces system (UGSS) has been designed on the principle of uniformity and accessibility of the green spaces location and their connection with suburban natural landscapes. In Kharkiv, the process of the UGSS formation was studied and its main stages were determined: 1 - the emergence of public gardening in the city center, the organization of suburban forest parks (mid-17th century – early-20th century); 2 - the UGSS planning in the Soviet period (1936-1983); 3 - stagnation (1983-2000). At the end of the second period, by expanding the area of green spaces in the city, the optimal and efficient UGSS was formed, combining a system of green spots with three green wedges and urban forests (with a total area of 7.9 thousand hectares, including public spaces of 1,460 hectares, with the population of Kharkiv for that period amounting 1.46 million inhabitants).

A detailed analysis of the current state of 130 green spaces in Kharkiv was conducted in accordance with the following groups of indicators: morphological and dimensional; recreational (suitability for recreation); environmental (state and ability to autoregulation). The types of Kharkiv green spaces were selected regarding their environmental needs: I – natural landscapes, capable to autoregulation (31%); II – degraded natural and artificial landscapes (52%); III - natural and

artificial landscapes which lost the ability to autoregulation (17%). Mapping of the types enabled to identify natural and ecological framework of the city. An analysis of the current state of the UGSS of Kharkiv revealed decrease in public green spaces by 38%; reduction of area, degradation and significant separation of the wedges' territories, breaking ties with the natural environment, invasion of park areas with residential and public buildings.

Thus, the process of the UGSS degradation, the inability to meet the requirements of sustainable urban development and autoregulation of natural landscapes is shown. Nevertheless, within the limits of the Ukrainian town-planning norms (<100 people per hectare) all the population demand for recreation is fully provided. Another issue identified in the UGSS is the unsatisfactory state of green spaces, which is determined by the age of the vegetation and diseases of domesticated plants due to climate change.

In order to reconstruct the UGSS of Kharkiv, the following is proposed: to develop methods and measures for the sustainable development of natural ecological framework in the city; to stop hard zoning of urban areas and developing the recreational functions outside the green spaces; to establish new green areas due to redeveloping industrial enterprises and the greening of "third-order landscapes" (P. Bouchain and G. Clement); to re-create the connections between existing green areas within the city and with external natural landscapes using green corridors; conservation and reconstructing the existing green spaces of the city; to landscape public spaces; to change the quality of the living environment; to create natural gardens of the new wave including local plants.

The strategy of the reverse expansion of nature into urban areas, including the need to change the quality of the urban tissue and the spread of natural territories outside the UGSS is determined as the main one. The means of reverse expansion are vertical gardening and greening the roofs of houses, constructing of nature-integrated architecture, forming the green pedestrian infrastructure and green streets, construction of eco-quarters, etc. The reconstruction of residential areas rebuilt in 1960-1980s into eco-quarters has been determined as the most effective method of reverse expansion in Kharkiv.