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02 Landscape Planning Tools to Further Improve Urban Areas

Introduction

A complicated urban area necessitates integrated approach for solving social and environmental challenges. Furthermore it fastens the function of management tool after the landscape planning. Generally people understand that landscape planning (LP) involves / should involve urban and suburban areas, takes into account as natural as social and economic factors. LP is also believed to develop precaution measures and manage human impact [Smolitskaya et al., 2012].

It seems while working out the social, ecological and economic policies to elaborate a standardized processes for improving the spatial structure and specifying purpose is truly one of the most intricate and urgent tasks. Landscape planning orients on effective spatial organization of urban area, as well as on improving of layout [Golubeva, Korol, 2015].

Objects and methodology

The most serious of those issues are exactly in the industrialized cities; this calls for development of approaches and procedures, tools of environmental assessment to improve their spatial structure. Indeed that mentioned before procedure is grounded on landscape analysis, mapping and GIS technologies. Integrated study of various cities has revealed several vital points to make strengthen. They are environmental safety, reducing environmental risks, pro-

viding comfortable living conditions, improving public health, protecting the cultural, historical and spiritual heritage. "Green technologies" are thought good as practical application or the sort of innovation of landscape planning referring to vital points. With all this going on we are sure to support environmental safety of the area with consideration given to cultural and historical, natural, aesthetic, technological traditions. Landscape planning aims to meet needs and wants of human group and ecological capacity and improves existing urban layout.

Discussion

In urban planning we can distinguish three main trends:

1. Ensuring environmental safety and reducing environmental risks, based on evaluating of the physical, chemical, biological and aesthetic components of the environment, as well as the risk assessment and forecasting;
2. Improving the spatial structure, including specifying purpose, protection of natural and cultural heritage, developing recreational areas, planning of settlement;
3. The use of "green technology" in functional areas relating to both the layout and architectural features.

Continual urban sprawl leads to implementation of practical decisions on:

- rearrangement of cities' functional facilities;
- protection of natural and cultural heritage;
- arrangement of recreational areas providing nature protection and enhancing public health;
- development of new settlements.

Modern urban planning and design mean task-oriented transformation of the natural environment and design of urban landscapes with specified properties. One of key elements of the city's infrastructure, providing comfortable living conditions, is developed road network. Transport provides urban population not only mobility, but also quality of the urban environment. In many large cities the share of emissions from vehicles exceeds total emissions from stationary sources.

Recent studies demonstrate that the integrated assessment of social and environmental factors is an effective tool for improving road network and the environmental situation in the city (Fig. 1). Factors such as congestion of roads, the average speed of vehicles, the number of traffic lanes, the demand for bus routes, as well as noise and emissions from vehicles (based on share of maximum permissible concentrations) allows to identify the main problems and priorities for actions to improve urban transport systems [Atalikhova, Pakina, 2015].

Among decision-making tools the priority is given to the design of an ecological framework of the city, since it makes up “green corridors” that integrates the separate nature areas/ ecosystems of the natural environment.

Currently the main task of urban areas management is to find clear-cut decision that ensures the protection, development, and also high aesthetic value of urban cultural landscapes. Areas and objects related to the category of natural and cultural heritage enable to organize the spiritual living space of the city; they reflect an understanding of land use, aesthetic views, and the transformation of the components of the natural environment.

Taking into account specifics of heritage the key instrument to preserve the diversity of urban cultural and mixed heritage is to sustain a layout that provides a stable link between the components of the functional areas and objects of heritage and the implementation of the last major modern functions: museum, recreational, therapeutic and educational.

Decision-makers also have to arrange areas of recreational land use and meet the requirements of ecological capacity and recreational loads. In this regard, studies devoted to in what why recreational loads have to be settled are of great importance. "Green" improvement of the layout, including recreational areas, and improvement of public health, will design a sustainable landscape of high value within the city – more aesthetically attractive and comfortable. Spreading of the forest urban parks is the ground of recreational and educational activities in city.

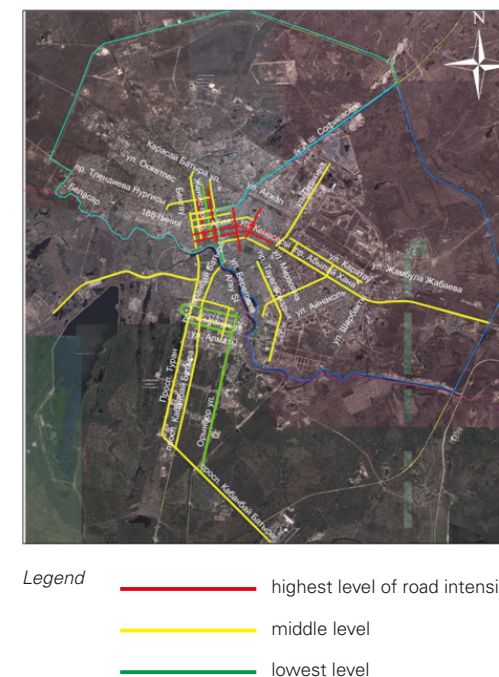


Fig. 1 Evaluation of socio-environmental intensity of the road network in Astana city
(Graduate work by Atalikhova A., 2014)

economic development of the area under conditions of fixed environmental regime [Kurbatova, 2004]. The construction sector is responsible for the emerging of many environmental problems, so the implementation of innovative green technologies may be the real way of solving them. The urgent tools to reduce the amount of consumed resources are waste reduction, energy efficiency, design improvements. Environmental safety and economic efficiency, green economy principles have become main trends in the construction. Currently in Russia ideology of green building is forming, and it involves the concept of sustainable development of urban areas. It implies security and favorable conditions of human life, limits the negative effects of economic activity on the environment and ensuring the protection and proper use of all natural resources (including in any activity of urban planning). In consequently, green building seems to be a tool for sustainable development for the area that is undergone building construction:

- specific area of construction has its own natural features and resources, so project decisions can be (and should be) corresponding;
- the construction and operation of new buildings should correspond to the environmental situation and, if possible, to improve it;
- for design and construction, it is important to take into account all factors of influence of buildings on the environment and human health;
- buildings and structures must interact with the environment, and this interaction should be useful for both sides.

In the circumstances it is important to identify the environmental factors of green building implementation in Russia. This approach requires analysis of climatic, environmental, economic characteristics of the territory. We also should regard large-scale levels of geographical factors impact on implementing green building technologies. The heterogeneity of climatic, environmental, economic and political conditions directly affects the possibilities of implementation and development of green building technologies and determines one or the other of these technologies or some set of them. Therefore, the most interesting from a geographical point of view, it is the study of the relationship between the “point of application” of green building and the optimal combination of green architectural solutions and innovative constructive-technological methods. Data of remote sensing and GIS technologies are of great impor-

tance as they may produce a variety of data and their interpretation.

Conclusion

The research has shown methodology of landscape planning covers a very wide range of challenges that the city has: the reconstruction of zones of different functional purpose, ensuring environmental safety, aesthetic appeal and effectiveness. Overall, it can be defined as the process of creating a comfortable living environment in the city where negative human impact is reduced, natural and cultural components are abundant. Instruments of landscape planning can significantly reduce the negative impact of the city on the environment, bringing innovative technologies in all spheres of urban economy.

Acknowledgments

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