EVALUATION OF THE COMFORT LEVEL OF GREEN SPACES LOCATED IN URBAN AREAS

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The aim of the study was to improve the methodology of assessing urban areas, taking into account the level of comfort of green spaces. The necessity of this type of assessment is considered. The object of assessment is substantiated. These are public green spaces of St. Petersburg. The analysis of their quantitative and qualitative indicators was done. A methodology of assessing of the comfort level of green spaces is presented. It is built in five stages: the formation of a system of rating factors, the formation of rating scales, determining the weights of rating factors, the calculation of the comfort level of green spaces, and estimated zoning. The substantiation of the first, second and third stages was done by using expert methods, in particular, the Thomas Lewis Saati hierarchy analysis method, as well as the qualimetric method. The calculated indicators of the comfort level of green spaces and estimated zoning were carried out on the example of 339 public green spaces of the St. Petersburg Primorsky district. The interpretation of the results was done. Recommendations were given on improving the existing landscaping system of St. Petersburg. The practical implementation of the developed technique is proposed.

Key words: comfort level, assessment of urban areas, public green spaces, system of assessment factors, estimated zoning, urban areas, land of settlements, sustainable development.

REFERENCES

1. Federal Law of the Russian Federation No. 136–FZ of October 25, 2001 (as amended on August 02, 2019). Land Code of the Russian Federation. Retrieved from ConsultantPlus online database [in Russian].

2. Federal Law of the Russian Federation No. 190–FZ of December 29, 2004 (as amended on August 02, 2019). Town Planning Code of the Russian Federation. Retrieved from ConsultantPlus online database [in Russian].

3. Declaration of the United Nations Conference of the Human Environment. Retrieved from http://www.un.org/ru/documents/decl_conv/declarations/declarathenv.shtml (access date: 07.10.2019) [in Russian].

4. Rio Declaration on Environment and Development. Retrieved from http://www.un.org/ru/documents/decl_conv/declarations/riodecl.shtml (access date: 07.10.2019) [in Russian].

5. Johannesburg Declaration of Sustainable Development. Retrieved from http://www.un.org/ru/documents/decl_conv/declarations/decl_wssd.shtml (access date: 07.10.2019) [in Russian].

6. Avdeeva, E. V., Poletajkin, V. F., & Avdeeva, E. A. (2008). Assessment of the quality level of urban landscaping facilities by applied qualimetry methods. *Khvoynye boreal'noy zony [Coniferous Boreal Zone]*, *XXV*(1-2), 93–98 [in Russian].

7. Avdeeva, E. V., Vagner, E. A., Nademyanov, V. F., & Chernikova, K. V. (2015). Information-analytical system "Quality management of urban landscaping" Module I – Monitoring the status of urban landscaping. *Khvoynye boreal'noy zony [Coniferous Boreal Zone]*, *XXXIII*(3-4), 89–95 [in Russian].

8. Avdeeva, E. V., Vagner, E. A., Nademyanov, V. F., & Chernikova, K. V. (2015). Information-analytical system "Quality management of urban landscaping" Module II – Assessment of the quality of urban landscaping. *Khvoynye boreal'noy zony [Coniferous Boreal Zone]*, *XXXIII*(3-4), 96–102 [in Russian].

9. Prokopenko, V. V. (2015). Improving the methods of assessing the comfort indicator of public facilities of the greening system of the largest cities (for example, Volgograd). *Extended abstract of PhD's thesis*. Moscow, 20 p. [in Russian].

10. Fedorova, N. B. (2011). Determination of the quality and value of green spaces in the territory of St. Petersburg. *Vestnik Moskovskogo gosudarstvennogo universiteta lesa – Lesnoy vestnik [Bulletin of Moscow State Forest University – Bulletin forestry]*, 4, 144–150 [in Russian].

11. Kovyazin, V. F., Skachkova M. E., & Lebedev P. A. (2015). *Informatsionno-analiticheskie tekhnologii kadastra rastitel'nykh resursov Sankt-Peterburga [Information and analytical technologies of the St. Petersburg Plant Resource Cadastre]*. St. Petersburg: SPb-katalog.rf Publ., 216 p. [in Russian].

12. Skachkova, M. E. (2007). Development of the information model of accounting of green spaces of St. Petersburg urban lands. *Extended abstract of PhD's thesis*. St. Petersburg, 147 p. [in Russian].

13. Skachkova, M. E., & Lepikhina, O. J. (2016). Methods of standard rates of financial expenses calculation on landscaped areasmaintenance (on the example of St. Petersburg, Russia). *International Journal of Economic Research*, *13*(6), 2497–2508.

14. Jankevica, M. (2012). Assessment of landscape ecological aesthetics in urban areas: Example of Jelgava, *Research for Rural Development*, 2, 134–140.

15. Ives, C., Oke, C., Cooke, B., Gordon, A., & Bekessy, S. (2014). Planning for green open space in urbanising landscapes. Final report for Australian Government Department of Environment.

16. Aliman, M., Yustesia, A., Barlian, E., & Syah, N. (2017). Spatial Analysis of The Needs of Green Open Space at Universitas Negeri Padang. *Sumatra Journal of Disaster, Geography and Geography Education*, 1(2), 140–146.

17. Skachkova, M. E., & Kopalina, K. M. (2018). Methodological support for the comfort level of green spaces of general use. *Environmental management*, 2, 125–131 [in Russian].

18. Law of St. Petersburg No. 430-87 of October 08, 2007 (as amended on March 15, 2019). About public green spaces. Retrieved from ConsultantPlus online database [in Russian].

19. Population. Petrostat website. St. Petersburg, 1999–2017. Retrieved from https://petrostat.gks.ru/ (reference date: 07.10.2019) [in Russian].

20. Azgal'dov, G. G., Kostin, A. V., & Sadovov, V. V. (2012). *Qualimetry for All: Study Guide*. Moscow: InformZnanie Publ., 165 p. [in Russian].

21. Simankina, T. L., & Popova, O. N. (2013). Qualimetric examination in assessing of the development status of an urbanized area. *Stroitel'stvo unikal'nykh zdaniy i sooruzheniy [Construction of Unique Buildings and Structures]*, 7(12), 71–78 [in Russian].

22. Saati, T. (1993). *Prinyatie resheniy. Metod analiza ierarkhiy [Making decisions. Hierarchy Analysis Method]*. R. G. Vachnadze (Trans.). Moscow: Radio i svyaz' Publ., 278 p. [in Russian].

23. Postnikov, V. M. (2012). Analysis of approaches to the formation of the composition of an expert group focused on the preparation and adoption of decisions. *Nauka i obrazovanie: elektronnyy nauchno-tekhnicheskiy zhurnal [Science and Education: Electronic Scientific and Technical Journal]*, 5. Retrieved from https://elibrary.ru/download/elibrary_18127217_72102639.pdf (reference date: 07.10.2019) [in Russian].

24. Saati, Tomas L. (2008). *Prinyatie resheniy pri zavisimostyakh i obratnykh svyazyakh: Analiticheskie seti [Decision making with dependencies and feedbacks: Analytical networks]*.

A. V. Andreychikov, & O. N. Andreychikova (Trans., Scientific Eds.). Moscow: LKI Publ., 360 p. [in Russian].

25. Moskvin, V. N., & Sokolova, T. A. (2018). The methodology of expert assessment of lands of industrial settlements for contesting their cadastral value in the commission of Rosreestr and in court. *Vestnik SGUGIT [Vestnik SSUGT]*, 23(2), 185–199 [in Russian].

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