

## Summary

Despite growing interest in the concept of Nature-based Solutions (NBS) and the efforts of the European Union and the International Union for Conservation of Nature (IUCN), significant gaps in knowledge still persist in the literature and planning practice regarding the assessment of these solutions' effectiveness and the principles of their implementation in urban environments. This dissertation focused on determining the effectiveness of NBS and defining their location criteria in relation to local legal, environmental, technical, ecological, economic, and social conditions. As part of the research, a model for assessing the implementation potential of NBS was developed and tested using the city of Lublin as a case study. The model enabled the identification of areas with the greatest potential for deployment and the evaluation of the importance of location-specific factors. The analyses resulted in a spatial database of existing NBS within the city, an assessment of their effectiveness, and the identification of solutions recommended for further implementation. Four types of NBS were selected for in-depth analysis: pro-ecological development of gullies, linear parks, lightweight modular green roofs, and household-scale constructed wetland wastewater treatment systems. The analysis of their implementation potential in the city indicated between one and six most favorable locations for each type, primarily due to legal, economic, and environmental constraints. The findings partially confirmed the research hypothesis regarding Lublin's considerable potential for implementing various types of NBS. This potential is supported by the city's landscape resources, spatial policy, and the acceptance of residents and local authorities, while being limited by legal and economic factors. The results of the assessment of the importance of location factors for the analyzed NBS types - based on a survey conducted among an international group of experts and on data obtained for Lublin - showed substantial differences in the significance of individual criteria, indicating that NBS have a distinctly context-dependent character. While it is possible to define a general pool of location criteria, their importance and hierarchy are strongly influenced by local conditions.

**Keywords:** Nature-based Solutions (NBS), IUCN global standards, site criteria, urban areas, Lublin