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Optimizing Nature Protection and Tourism in Urban Parks

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Abstract : The paper deals with the problem of optimizing management options for urban parks within different scenarios of nature protection and tourism importance. The procedure is demonstrated on a case study example of urban parks in Novi Sad (Serbia). Six management strategies for the selected area have been processed by the decision support method PROMETHEE. Two criteria used for the evaluation were nature protection and tourism and each of them has been divided into a set of indicators: for nature protection those were biodiversity and preservation of original landscape, while for tourism those were recreation potential, aesthetic values, accessibility and culture features. It was pre-assumed that each indicator in a set is equally important to a corresponding criterion. This way, the research was focused on a sensitivity analysis of criteria weights. In other words, weights of indicators were fixed and weights of criteria altered along the entire scale (from the value of 0 to the value of 1), and the assessment has been performed in two-dimensional surrounding. As a result, one could conclude which management strategy would be the most appropriate along with changing of criteria importance. The final ranking of management alternatives was followed up by investigating the mean PROMETHEE Φ values for all options considered and when altering the importance of nature protection/tourism. This type of analysis enabled detecting an alternative with a solid performance along the entire scale, i.e., regardlessly of criteria importance. That management strategy can be seen as a compromise solution when the weight of criteria is not defined. As a conclusion, it can be said that, in some cases, instead of having criteria importance fixed it is important to test the outputs depending on the different schemes of criteria weighting. The research demonstrates the state of the final decision when the decision maker can estimate criteria importance, but also in cases when the importance of criteria is not established or known.

Keywords : criteria weights, PROMETHEE, sensitivity analysis, urban parks
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