

Multicriteria Assessment of Cemeteries as Urban Green Spaces: The Case of Vilnius City Municipality

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Abstract:

A dynamic and constantly transforming landscape can determine not only changes related to the evolving human environment but also raise new questions regarding the fairness of established spatial functions. Green spaces and their accessibility are crucial factors in ensuring the quality of life for urban residents. Due to continuous migration to cities, the population is increasing, making it increasingly difficult to provide adequate green space services. The lack of these spaces and the shifting perception of cemeteries' societal functions may lead to the transformation of cemeteries into spaces adapted for conditional recreation. Cemeteries can certainly be considered an important part of urban infrastructure, providing space for the burial of human remains. Today, society rarely perceives them as multifunctional spaces that could offer services beyond burial alone.

The aim of this study is to develop a multi-criteria evaluation methodology for cemeteries as urban green spaces and apply it to the case of cemeteries in Vilnius City Municipality. A multifunctional approach in the context of cemetery adaptation could help expand the existing network of urban green spaces while preserving their historical and cultural value.

To create a methodology for evaluating urban cemeteries as green spaces, it was essential to determine the main criteria for assessing cemeteries. Based on a literature review, three key criteria were identified: recreational potential, natural condition, and anthropogenic impact. Each criterion consists of indicators - 12 in total: size, surface, paths, amenities, tourism potential, lighting, accessibility, vegetation, location, potential population load, operational status, transport impact. These indicators evaluate cemetery characteristics related to the defined criteria. The study utilized official spatial data managed by government institutions but also various open-access sources such as OpenStreetMap. Before conducting the evaluation, it was crucial to properly prepare the data for calculating the selected indicator values, which would not have been possible without GIS software. According to the established indicator evaluation scale, all criteria together form a total score of 54 points. The overall score was calculated by summing the points assigned to each indicator.

The multi-criteria evaluation methodology proved suitable and confirmed the real situation in Vilnius, revealing differences among cemeteries in terms of size, functions, and infrastructure. After calculating the indicators and assessing cemeteries based on the assigned scores, it was found that the overall results range from 7 to 36 points out of a possible 54. The highest scores, 36 points each, were achieved by Antakalnis Cemetery, Našlaičiai Cemetery, and the Vingis Park I and II PK military cemeteries. Cemeteries received the lowest scores in amenities, lighting, and tourism potential—respectively, 0.29, 0.77, and 0.81 points. These low values indicate that such infrastructure is rare in cemeteries. It was observed that the highest-rated cemeteries are larger in size and located either in the city centre or its periphery. The distribution of scores among cemeteries may also be influenced by their size—larger cemeteries in Vilnius generally have more developed pathways, better infrastructure, more amenities, and lighting. The larger the cemetery, the broader the range of recreational services it provides and the greater the opportunities for tourism development or other activities.

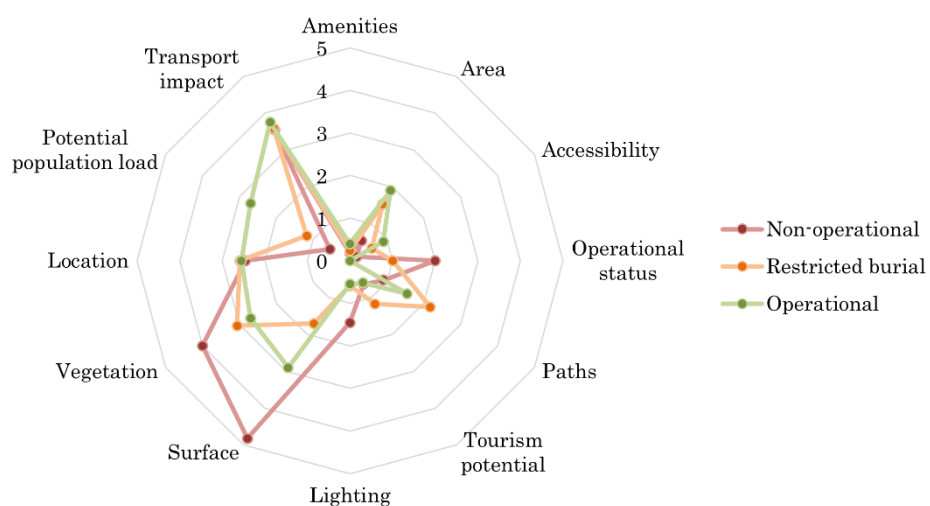


Figure 1. Distribution of cemetery evaluation scores by operational status and indicators

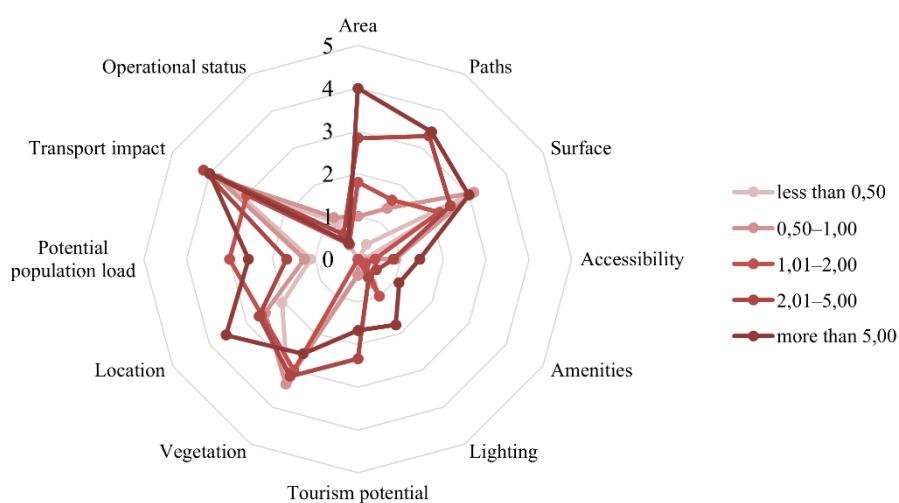


Figure 2. Distribution of cemetery evaluation scores by indicators and size (hectares)