

Spatial Accessibility of Parks in Hangzhou (Compare Network Analysis and 2SFCA)

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***Keywords:** spatial accessibility, urban parkland, environmental sustainability, network analysis, 2sfca*

Abstract

To deal with the challenges of environmental sustainability and public recreation in a rapidly urbanization, many big cities in China have launched urban parks programs. However, few researches focus on the accessibility of urban parks as public infrastructure, and all of researches on accessibility are use one method, actually, the results are not accurate enough. By calculating the spatial accessibility indexes based on the Two-Step Floating Catchment Area (2SFCA) method and Network Analysis method in three kinds of thresholds, this paper evaluates the spatial accessibility of 125 urban parks to 49 streets (6 zones) in Hangzhou, the existing problems of parks are obtained: the overall accessibility is weak and there are big gaps in zones, the accessibility value of one zone can up to 89.9% but the lowest is only 1.26%, there are big problems about fairness and spatial distribution. Besides, most parks are under load state and there are many places which parks can't service for. According to the existing problems, the corresponding optimization measures on numbers, area, spatial layout of urban parks, density of urban road network, and public transport facilities are proposed. At the same time, by comparing the two evaluation methods, the author can conclude that in evaluating accessibility, Network Analysis method focuses more on the spatial distribution of service areas and is not restricted by block. While 2SFCA focuses more on the spatial expression of reachability values and the results are limited by block. The author combined the two methods and get a third, more accurate method in the end using GIS software. This paper intends to provide suggestions for rational construction and areas of urban parks in the main urban area of Hangzhou for environmental sustainability and public equity and also a reference for method selection when making similar accessibility studies.