

The Analysis of Urban Green Space Distribution Using Spatial Justice Approach (Case Study: Ardabil City)

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Expanded Abstract

Introduction

Of the consequences of rapid urbanization growth, irregularity in the distribution system services and service providers focus on a specific location city. Among the services and utilities, urban green space plays an important role in balancing urban environment and mitigation of air pollution with qualitative and quantitative changes. Justice is the distribution of functions, services and facilities, convenient access to service centers and activities, without differentiating between residents of a city and urban areas. In the meantime, there is equitable access to urban green spaces and the preservation of the fundamental components of sustainable development and social justice. Today, we observe an increase in population and the growing trend of a decline in per capita green space and urban constructions. Ardabil city in terms of physical development, destruction of green areas, population growth and increasing marginal neighborhoods is faced with serious problems. Therefore, this study aimed to analyze the city as a base and distribution of green space and spatial justice.

Methodology

There are several indicators to assess the appropriateness of urban green space that was used in this study in both the physical and social factors. The indicators are used in the physical compatibility, comfort, utility, proximity and social dimensions including population density and households. This is to express the relative importance of the criteria necessary to determine their relative weights. For this purpose, the Analytical Hierarchy Process (AHP) was used to determine the weight criteria. The proposed mechanism of binary scale by the L. Saaty (1980) is used to calculate the weight and importance of the criteria. In this paper, we have used Expert Choice software with a final weight of each layer to determine the preferences of the layers to one another. After weighting, we used the criteria necessary to standardize a layer of fuzzy logic for this purpose. In fuzzy logic, there is uncertainty in Boolean logic and each layer is graded on a scale from zero to one. At this scale, larger numbers will have more utility. In addition to the question of scale for mapping fuzzy, fuzzy function should also be examined in this paper the functions sigmoidal, linear, User defined is used. It should also be considered for phase one of the standard maps threshold, which is also called control points.

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Discussion and Results

Analysis of indicators of compatibility, comfort, amenities and proximity to evaluate the spatial distribution of green space with justice approach is the physical dimension. The comfort and convenience of citizens depend on the distance and time of access to urban services. Thus, the spatial distribution of urban green spaces should be located in the areas with suitable access for all residents. Based on the utility factor, this factor is evaluated between the user and its location. One could say that each user is given the characteristics that need specific applications. In this study, we used 5 characteristics of slope, aspect, lithology, DEM and access to facilities and equipment. This is a measure of the distance between the near side and the criteria used in units of length. Green space in the study area with three user types (residential, educational and main thoroughfares) is more consistent with the theme of the study. Since green spaces for citizens and human beings are created using a greater number of citizens, we have access to these users according to the terms of the urban population and densely populated areas. Dimension and density of the population, including criteria for evaluating the appropriateness of green space is considered as the analysis of places with greater household density. The latter is the social aspect. After preparing the desired layers in the ArcMap and by applying a weighting processes in software, Expert Choice, the method of AHP, provided a model by IDRISI software. Then, using the GIS Analysis in IDRISI software, the layers are multiplied together, and the result was obtained as a green space zoning distribution.

Conclusions

The results show that Ardabil region with poor green space is in critical condition. With the total area of 1329 ha and with a population of 116216 people for Region 1, only 42 ha is dedicated to green space (15-25). There is a shortage of 16.39 Square meters per Capita. Region 3 with an area of 1717 ha and a population of 170516 people, 3.04 ha is the space dedicated to green space and there is a shortage of 16.96 Square meters per Capita. The Region 4, an area of 1485 ha has a population of 117217 people with the green space of 4.60 and 15.40 Square meters per Capita. In region 2 because of lake Shorabil and a large green space around it, there are exceptions and additional green space per capita is compared with the standard. In general, it can be said that Region 2 Compared with other areas has more green space but with no equal spatial distribution.

Suggested solutions are:

1. Some users have unnecessary transfer around the city and assign space to green space
2. Creating green spaces on rooftops of buildings
3. Demolition of old buildings and the space devoted to green space

Keywords: AHP model, Ardabil City, fuzzy logic, green space, spatial justice.

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