Assessment of urban green space by using network analysis strategy to achieve sustainable development (case study: Zanjan Biseem zone)

Issa Ebrahimzadeh
Professor Dep. of Geography & Urban Planning, University of Sistan and Baluchistan, Zahedan, Iran

Mohsen Shaterian
Associate Professor Dep. of Geography and Urban Planning, Kashan University, Kashan, Iran

Sayed Ahmad Hosseini*
Ph.D in Geography and Urban Planning, University of Sistan and Baluchistan, Zahedan, Iran

Sohrab Amirian
Assistant Professor Dep. of Geography and Urban Planning, PNU University, Iran

Received: 14/02/2017 **Accepted:** 02/06/2018

EXTENDED ABSTRACT

Introduction
Today, the importance of urban and urban constructions was considered more than ever from environment purifying perspective in a healthy city framework, and it is a necessity of sustainable development. So the concept of a city without green space in its various forms is inconceivable. Given the importance of Green space in urban areas, research of quality and quantity condition of green space and its evaluation in urban areas of Iran has not been formulated. In the Biseem part of Zanjan, in addition to the low per capita of urban Green Space compare to existing standards, spatial distribution of this user does not follow the principle of equitable distribution and it is not properly accessible to all people in the city. In general, the lack of proper urban Green Space in this area is the main motivations for this research.

Methodology
The research method is descriptive-analytical**.** Collecting statistics and information technique is from, using library and questionnaire and data of detailed plan of Zanjan. Then the information is analyzed and categorized SWOTANP models and to perform this ARC GIS and Excle and Super Decisions software is used. Therefore, in order to the measurement of space distribution and spatial distribution of these services in Zanjan in city level, the average spatial statistic of nearest neighbor in geographic information system(GIS) is used. Ultimately, in order to present polestar guidelines in Biseem areas of Zanjan SWOT ANP models is used.

Results and Discussion
The index of nearest neighbor average has been used to evaluate the way of Green Space distribution in Zanjan city. Performed analysis by nearest neighbor average method shows that transmittal pattern of Green Space of Zanjan city at the level of 99 % is clustery pattern which this shows the reason of lack of suitable Green Space in Biseem area that is one of the problematic part of Zanjan city.
Considering the condition of Green Space in Biseem region of Zanjan, the situation of Green Space of Biseem regions were analyzed in three main zones including environmental, social-economic and physical. The result of a strategic network analysis shows that socio-economic development with a

* Corresponding Author: Email: ahmad.hoseyni@yahoo.com

weight of 0.37 has the greatest importance among the evaluated criteria and after that environmental development with 0.35 and physical development with 0.27 are located. After creating the initial matrix knowledge requirement of the internal and external effects in each of the criteria and sub-criteria were studied in the area. After expressing the general model and creating paired comparisons matrix and weight of each main criteria and sub-criteria and interior criteria and sub-criteria were studied in SWOT section. After performing these steps importance of strengths, weaknesses, opportunities and threats with regard to the specific circumstances of the region was determined that the most points are related to a chance strategy with 0.6056 point and after that there is an expense (cost) strategy with point 0.5515 and profit and threat strategies, respectively, are at lower levels that this indicates that there is ample opportunities to create green spaces in the study area. The results of the analyzes in previous parts carried out that the study area in terms of per capita and access to green space is faced with many problems and on this basis to intervene in the present context intervention priorities in this area and performance to improve the situation in the metropolitan area should be done. In this stage to provide a way of interfering in the context of the study according to the results obtained in the previous step relative weights of each factors are combined with the relative weights of gained options and their sum were averaged. The resulting number t, in fact, reflects that in the study area the highest priority relates to which type of intervention, in fact the higher score, the more priority.

Conclusion

According to the results, the more importance is dedicated to social-economic zone. So in order to achieve sustainable development strategy will need to know the external and internal effects of this subject in the level of areas of this city. Until now most studies of urban Green Space are discussed using only one of the physical, socio-economic and environmental variables. But this research evaluated all variables in mixed way by using network analysis model. Therefore, the result of this study can help urban planners to understand and prioritize urban issues and find solutions to solve these problems.

Key words: Green Space, network analysis, sustainable development, Zanjan city, SWOT