

## Investigate the distribution green spaces in the city of Zahedan Case study (Region 2 Urban)

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### Abstract

With increasing population and expanding urbanization, humans have gradually away from nature. Excessive density of population and man-made environments, environmental, physical, and psychological needs of human beings is further developed. Today the most important components of urban green space, the city is considered. In addition, urban green space as the city is breathing lungs. The lack of urban green space in cities is a significant lack of physical and mental health and day-to-day importance of green spaces becomes more tangible. This places a green space with public service in urban sustainable development factors. Therefore, in this context, aim of the present study, to investigate the distribution of green spaces in the city of Zahedan (Region 2 city) is. This study combines the methods of descriptive, analytical and based on library research, documentation and field is. The results show that Laleh Park with points (0.982) in first place with a score of Family Garden Park (0.111) ranks twenty-third place.

**Keywords:** Green space, park, Zahedan, GIS.

### Introduction

Urbanization and urban development particularly contemporary phenomenon. As centuries past century industrial revolution and the century of the city known as the Century. With increasing population and expanding urbanization, humans have gradually away from nature. Excessive population density and interference in the natural environment and man-made environments, environmental needs, physical and spiritual man is further developed. To meet the needs of people in urban areas, established gardens and green spaces within urban areas is artificial. Green spaces (parks) makes up part of the city landscape (Mohmmadi, 2003, 16) and is one of the most important systems of the human life. Since long, strong support for the continuation and enhancement of the quality of his life, and his unsparing still faithful service to humanity makes. Please note that vital green space in the world today, not because of economic value but also because of its environmental importance. Admittedly the presence of any stage of life has been so beneficial to humans. On the other hand, never threatened its existence on the surface is not so wide.

Urban development in recent decades, so leads to some inconsistency in how land use is urban. This is available facilities and public services to citizens, the city is difficult. This increase was urban travel. Among the various municipal services and facilities, green spaces and urban parks

for different reasons have been considered. Due to the importance of its recreational and play an important role in upholding the balance of the urban environment, and have adjusted the air, are considered. It also decreases the density and physical and mental nourishment are also considered citizens.

Green space expert's master plan for urban green space requirements as they are in every city. They say all the cities, especially in new cities or expanding their attention to this issue. This is because uncontrolled construction process without the need for green space, make the sale and profiteering are taken; cities will increasingly shape public accommodation. (Mollison, 1981). However, nowadays, modern cities in the world, before creates a comprehensive plan of any city in consideration of the streets, sidewalks, green space, residential houses and urban centers, urban and dynamic compilation is to be alive (Khooshnamak, 2002, 109).

The main effect of green space in cities, environmental performance, or efficiency of their ecological cities to live and make a favorable impact development and transport industry fights. The main effects of green space in cities, adjust the temperature, the relative humidity increases, the air soft and absorbs dust and produce oxygen. Because of this green space in the city is considered as the lungs breathing. Due to the critical effects, in terms of quantity and quality of urban green space should be proportional to the physical size of the city (roads and buildings) and social needs (leisure and health needs) must be provided in order to live as green space, efficiency and environmental be sustained.

Zahedan, due to its special geographical location, many problems, especially in urban parks. It also has the potential to overcome is the potential. Such they can access and use of land can be converted to a park in the city noted.

### **Research objectives**

- 1 - Rate Me distribution of green space (Park City) Region 2 in Zahedan.
- 2 - To study and understanding of the park at a head urban hierarchy and the physical separation of scales (neighborhood, community, region, city).
- 3 - Measurement of green space (urban parks) Zahedan, and the area under study and detailed design of the proposed implementation with per capita.

### **They history of research**

Farajisabokbar (2005), in research as locating business units using hierarchical analysis, case study in the city of Mashhad Torqabeh worked. Following the model of urban location.

Saberi et al (2011), in an article entitled, location of parks and green areas using GIS multicriteria evaluation method of AHP, the optimal distribution of green space in the city have Shushtar using GIS. Results from integrating layers, land area to select suitable locations for green space in 5 classifications. The username areas such as vacant land, orchards and groves and lands around the river are higher priority.

Reviewing the Persian garden improvement articles written by M.R.Khalilinajad (2002). Essential to the survival and sustainability of the author indigenous culture, local, national traditions interact with the content to make the new world conditions to meet the demands of diverse views. It also explains the significance and utility of visual Persian gardens of towns and villages are very useful.

Urban forestry, author M.Amani (1996), author of green space to the idea that certain classified in three categories according to classifying green spaces, parks, urban parks and community green space is divided.

## **Theoretical Basic Green Space**

Terms of green space, less than half a century that has taken place in the urban literary culture. Put green space encompassing a wide variety of meanings. Here we have a bit of it below. Green space includes areas that are part of any plants or greenery, including trees, shrubs, and grasses to be removed. The green spaces when placed in the urban fabric, as part of the urban hierarchy tend to be. The city is divided into different scales. So same hierarchical differences among the various lands and different cultures, norms and standards of varying dimensions loses (Rostamkhani & Laghai, 2004).

Word and concepts, and perhaps the most important concept in Farsi on the green area that Pardis same word root of many words in other living languages in the world. This concept could be developed as novel interpretations to be more connected. But it is noticeable that concept (Park) is probably the Qajar period and then easily and quickly replaced the word and it takes dozens of other words. Pardis made synonymous with gardens and landscaping, while a series of plants associated with water is like heaven (Barati, 2003, 11).

### **Standard positioning of urban green space**

Before continuing at architectural design and landscaping, should take measures correctly identified and presented. Note that green space is of high importance, is its location. Jacob critic of contemporary urbanism believes that (the park should be a place where life beats wave. Place where cultural and commercial activities and residential. Several metropolitan areas such focal areas of life that are important to create Local parks or public squares, good looks), based on the location of the principles of green space (centralized, hierarchical access) will follow.

### **The importance and role of green space in urban planning**

By definition, urban planning is a thoughtful and systematic effort to use the resources and facilities of a city, the best and most cost-effective way possible to create and maintain a safe and attractive environment for residents. Therefore, urban green space, especially with the new issues that have bought the machine in the era of urbanization plays a significant importance in the city. The city is a dynamic system and green spaces which are one ingredient of this system play an important role in reducing urban congestion, creating a conductive path, completion and improve educational facilities, cultural and reserve land for future expansion of the city's. Which is very is worthwhile (Esmaeili, 2003) is an exaggeration if we say no master plan without having a planned urban parks and green space would not be complete. (Asadipour, 2005, 4) in recent decade's username and green space (urban parks) as well as other members of the executive instrument of urban planning, a comprehensive and detailed plan has been considered. In this scheme, after a series of preliminary studies on the status and use of green space, landscaping and maintenance of current and future development and its localization, policies that have been adopted. But due to some problems such as the sharp increase in urban population, uncontrolled physical expansion of cities, urban land prices rise, you can see the loss of green space in and around our city. Since green space, breathing lungs of cities are, revising policies to preserve and create green space in urban planning seems necessary. Therefore, following the failure of comprehensive plans and detailed in maintains green spaces in urban and reduce major use to not use other power control activities relevant authorities plan of urban planning, including the Ministry of Interior (Construction Vice-Chancellor's technical office) to develop a comprehensive plan to guide - urban green space. Is hoped that by providing this design, to guide

green space, such as: create, control, equable distribution, and to preserve the unity and coherence of urban green space within the town or city is responsible for legislation and policy as a policy that quality a little green space (urban parks) gave the order.

### **The Situation of the Area under the Study**

Zahedan is located in the province of Sistan va Baluchestan in southeast of Iran. It is bordering Afghanistan and Pakistan. Zahedan is the center of the province with an area of 5771 hectares and 2000 meters above the sea level. The area which Zahedan is situated on does not have identical topographical features. Hence, many urban problems are associated with the topographic of the region. Zahedan's topographic is mainly influenced by the surrounding mountains and vast plains (Siami, 2006: 78). According to the detailed plan of the city in 1991, Zahedan was divided into 3 regions, 20 Regions, and 85 localities.

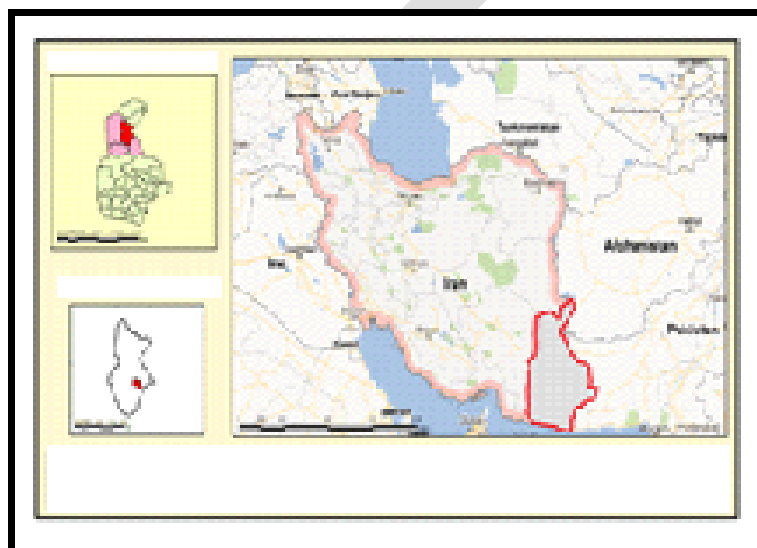


Figure 1; geographical location of Zahedan, Source: search results, 2014



Figure 2: Distribution of green space in the study area, Source: search results, 2014

The results of the surveys and municipal parks and green space, Zahedan, and evaluate the results of two studies municipality in the study area within the city for 49 points as the park has been introduced. Of these seven city parks, two regional parks and 40 neighborhood parks there.

### **Materials and Methods**

- Type of research: applied.
- Data collection: library studies and field research, interviews and questionnaires.
- Method of analysis: Model SAW.

### **SAW method**

In this method, the coefficient of the indicator, comments on the decision or the method of deciding the weights, such as Shannon Entropy and least squares eigenvectors, the Weighted Average, the coefficient of each of the options to be cones. Most of them consider it as the best option.

### **Determine the weight and significance of indicators**

This set of indices includes six indicators. Using entropy method to obtain index weight. According to another, the weight parameters derived from the temperature distribution in the form of a coordinate grid. Here is the method based on entropy distribution rate is calculated. The main source of weight, the entropy method. In Method (SAW) to try to estimate the utility function for each alternative option with the highest utility is selected. This method works on assume independence of individual preference and indicators of each other. In this method, calculating the importance weights of the criteria can be easily achieved in the preferred option. Therefore, this paper introduce the metropolitan area of study, state parks over 2,000 square meters, Region 2 in Zahedan, according to data collected and field studies have been presented. The index is determined by comparing and prioritizing them. Using the three-stage SAW field data, were analyzed. Finally, a case study considering priority of the park is done criteria and options.

### **SAW model for the evaluation indices of 23 Park in Region 2 in Zahedan**

Measures over 2,000 square meters, located on 23 Park in Region 2 include:

- Dimensions of land and green space.
- The position of the earth (sun block, away from strong winds).
- Slope.
- Physical characteristics (resistance to ground, away from the River, the boundaries are).
- Available (not directly related to the main street, allowing vehicle traffic relief).
- Installations and equipment (water, electricity, telephone, gas, sewage).

### **To use this method, the following steps are necessary:**

- 1-Quantification a decisions Matrix
- 2 - Scale Linear values for decisions Matrix
- 3 - Multiplication bi-scale matrix in weights of indicators
- 4-Choose the best option ( $A^*$ )



## Step 1: Quantification a decisions Matrix

Scores of each of the indicators and quantitative indicators are used as features that are shown in Table 1.

Table 1: Quantitative decision matrix (the Scores obtained indices)

Installations and equipment (water, electricity, telephone, gas, sewage)	Available (not directly related to the main street, allowing vehicle traffic relief)	Physical characteristics (resistance to ground, away from the River, the boundaries are)	Slope	The position of the earth (sun block, away from strong winds)	Dimensions of land and green space	Indicators Park
high	Very high	high	high	high	Very high	Alex Park
high	high	Average	Average	Average	high	Blvd margin Bozorgmehr
Average	Average	Low	Average	Average	Low	Daneshjo 7
Very low	Low	Average	Average	Low	Low	Daneshgah 22
high	Average	Average	Low	Average	Average	parastar
Low	Low	Average	Average	Low	Low	Moalem 22
Low	Average	Low	Average	Average	Low	Moallem
high	high	Low	Average	Average	Very high	Farhangian
Very low	Very low	Very low	Very low	Very low	Low	Family Garden
Low	Very low	Very low	Very low	Very low	Low	Porai 8
high	Very high	high	Average	Average	Very high	Arash 22
high	Average	Average	Low	Average	high	Mehr 2
high	Very high	high	high	Average	Very high	Alghadir Park
Very low	Low	Average	Average	Very low	Low	Amir Moazez
high	Very high	high	high	high	Very high	Fadak
high	Average	Average	Average	Average	high	Nastaran
high	high	high	Average	Average	Very high	Saroallah
Very low	Very low	Low	Low	Very low	Very low	Ashrafi
Very high	Very high	Very high	high	high	Very high	Lalah Park
Very low	Low	Very low	Very low	Low	Low	Alley park workers
Very high	Very high	high	high	high	Very high	Kohestan
Low	Low	Very low	Average	Very low	Low	Margin Qlnbar
Low	Very low	Low	Average	Very low	Low	Motahari

Source: search results, 2014

## Step 2: bi-linear scaling of values in decision matrix

Type of Scale in the Scale of linear multi-criteria approach which is as follows:

If all indicators are positive aspects of whatever value maximum value in the column j I'll share:

$$n_{ij} = \frac{a_{ij}}{\text{Max}a_{ij}}$$

Equation (1)

If the index is negative minimum value of each column index are divided into:

$$n_{ij} = \frac{Mina_{ij}}{a_{ij}}$$

Equation (2)

Obtained value of zero and a healthy dose of each of the above formula are.

Table 2: Matrix of Scale

C6	C5	C 4	C3	C2	C1	Indicators Park
0.777	1	0.777	1	1	1	A1
0.777	0.777	0.555	0.714	0.714	0.777	A2
0.555	0.555	0.333	0.714	0.714	0.333	A3
0.111	0.333	0.666	0.714	0.428	0.333	A4
0.777	0.555	0.444	0.571	0.714	0.555	A5
0.333	0.222	0.555	0.714	0.428	0.333	A6
0.333	0.555	0.333	0.714	0.571	0.333	A7
0.777	0.777	0.333	0.714	0.714	0.888	A8
0.111	0.111	0.111	0.285	0.142	0.333	A9
0.333	0.111	0.111	0.142	0.142	0.444	A10
0.777	1	0.777	0.714	0.714	0.888	A11
0.777	0.555	0.555	0.428	0.714	0.777	A12
0.777	0.888	0.666	1	0.714	0.888	A13
0.222	0.333	0.555	0.714	0.285	0.333	A14
0.777	1	0.777	1	1	1	A15
0.777	0.555	0.555	0.571	0.714	0.777	A16
0.777	0.666	0.777	0.714	0.714	1	A17
0.111	0.111	0.333	0.428	0.142	0.111	A18
1	1	1	1	1	1	A19
0.111	0.333	0.111	0.142	0.428	0.333	A20
0.888	1	0.777	1	1	1	A21
0.333	0.333	0.111	0.714	0.285	0.333	A22
0.333	0.222	0.333	0.714	0.142	0.333	A23

Source: search results, 2014

Step 3: Calculate the weights of indicators

Based on a matrix of amorphous matrix probability scale up the process.

Equation (3) calculate the entropy

$$E_j = -K \sum_{i=1}^n [P_{ij} \ln P_{ij}]$$

(4) Calculate the amount of uncertainty

### (5) Calculation of Weights

$$d_j = 1 - E_j$$

$$w_j = \frac{d_j}{\sum_{j=1}^n d_j}$$

Weights obtained from the above method:

W= (0.475, 0.260, 0.177, 0.604, 0.557, 0.695)

	C1	C2	C3	C 4	C5	C6
A1	1	1	1	0.777	1	0.777
A2	0.777	0.714	0.714	0.555	0.777	0.777
A3	0.333	0.714	0.714	0.333	0.555	0.555
A4	0.333	0.428	0.714	0.666	0.333	0.111
A5	0.555	0.714	0.571	0.444	0.555	0.777
A6	0.333	0.428	0.714	0.555	0.222	0.333
A7	0.333	0.571	0.714	0.333	0.555	0.333
A8	0.888	0.714	0.714	0.333	0.777	0.777
A9	0.333	0.142	0.285	0.111	0.111	0.111
A10	0.444	0.142	0.142	0.111	0.111	0.333
A11	0.888	0.714	0.714	0.777	1	0.777
A12	0.777	0.714	0.428	0.555	0.555	0.777
A13	0.888	0.714	1	0.666	0.888	0.777
A14	0.333	0.285	0.714	0.555	0.333	0.222
A15	1	1	1	0.777	1	0.777
A16	0.777	0.714	0.571	0.555	0.555	0.777
A17	1	0.714	0.714	0.777	0.666	0.777
A18	0.111	0.142	0.428	0.333	0.111	0.111
A19	1	1	1	1	1	1
A20	0.333	0.428	0.142	0.111	0.333	0.111
A21	1	1	1	0.777	1	0.888
A22	0.333	0.285	0.714	0.111	0.333	0.333
A23	0.333	0.142	0.714	0.333	0.222	0.333

0.475  
0.260  
0.177  
0.604  
0.557  
0.695

=

0.917  
0.690  
0.521  
0.433  
0.590  
0.482  
0.513  
0.714  
0.111  
0.142  
0.791  
0.604  
0.824  
0.412  
0.887  
0.651  
0.777  
0.201  
0.982  
0.262  
0.926  
0.392  
0.345

The equation between SD and 6 more options (strategies) has a larger amount.

Equation (6)

$$A^* = \{A_i | \text{Max } \sum_{j=1}^n n_{ji} W_j\}$$

So prioritize the options of best in the worst parks SAW model is as follows:

A19> A21> A1> A15> A13> A11> A17> A8> A2> A16> A12> A5> A3> A7> A6> A4> A14> A22> A23> A20> A18> A10> A9



Table 2: situation Parks Region 2 final ranking in Zahedan city

Rank	Weight	Area(Square meters)	Park
3	0.917	14900.	Alex Park
9	0.690	3500	Blvd margin Bozorgmehr
13	0.521	2500	Student 7
16	0.433	2100	University 23
12	0.590	2800	Nurse
15	0.482	2146	Teacher 27
14	0.513	2336	Teacher
8	0.714	4078	Farhangian park
23	0.111	12400	Family Garden
22	0.142	2050	Poriai 8
6	0.791	5500	Arash 22
11	0.604	3375	Mehr 2
5	0.824	5531	Alghadir Park
17	0.412	2116	Amir Moazez
4	0.887	9024	Fadak
10	0.651	3500	Nastaran
7	0.777	4036	Saroallah
21	0.201	2000	Ashrafi
1	0.982	900000	Laleh Park
20	0.262	2021	Alley park workers
2	0.926	165000	Kohestan
18	0.392	2618	Margin Qlnbar
19	0.345	2090	Motahari

Source: search results, 2014

The results show that Laleh Park with points (0.982) in first place with a score of Family Garden Park (0.111) ranks twenty-third place.

### Conclusions

Experts landscape master plan for urban green space requirements as they are in every city. They say all the cities, especially in new cities or expanding their attention to this issue. Uncontrolled construction process, and without the need for green space in cities that have adopted Create Sell and profiteering, public accommodation will gradually form. However, nowadays, modern cities in the world, before to create a comprehensive plan for the city, with consideration of the streets, sidewalks, green space, residential houses and urban centers, urban and dynamic compilation to be alive requirements. Therefore, in this context, aim of the present study, to investigate the distribution of green spaces in the city of Zahedan (Region 2 city) is. This study combines the methods of descriptive, analytical and based on library research, documentation and field is. The results show that Laleh Park with points (0.982) in first place with a score of Family Garden Park( 0.111) ranks twenty-third place.

### Suggestions

- Recruitment specialist in the location, design, construction and maintenance of urban parks.
- Prevent damage and preserve all parks and local parks.
- Culture of the people involved in to develop urban green space.

- Spatial distribution consistent with the capacity to coordinate compliance with the environmental capacity.
- Positioning of furniture in parks with easy access.
- Research in operational issues associated with the various parks.
- Research on the needs and expectations of the public towards the park.

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