

**Research Article**

## **Planning the development of green spaces and providing appropriate solutions**

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### **ABSTRACT**

Nowadays, the importance of green spaces in urban environments is, to the extent that it is considered as one of the indicators of sustainable development. Due to the ability of environmental and intersection privileged position, developing Miandoab city, with a population of about 120 thousand people in the West Province of South Azerbaijan, HASE has faced a tremendous increase of the population and physical growth in recent years. The consequences of such rapid growth can be seen in the physical disproportionate urban development, the gradual degradation of urban environments, orchards and agricultural gardens around the cities. However, the analysis and the use of green space land and its capitation in the Miandoab city with appropriate recommendations in order to balance the social and physical structure of cities is important.

The aim of this study is performed with the descriptive-analytical approach by using statistical data related to two different time periods between 2002 and 2012, shows that, contrary to national and international standards which are provided for green space land use of the urban, Despite the high environmental potential, Miandoab city faces a major shortage. Over the past decade, in parallel to the relative increase in urban green space per capita, the differences between the regions in this space have also dramatically increased and the imbalance in the spatial distribution of urban parks became more intense.

**Keywords:** planning, development, green space

### **INTRODUCTION**

Urbanization and urban development are a special contemporary phenomenon. As the last century is called the Industrial Revolution centuries and the current century is called the century of urban revolution. The rapid growth of urban areas in developing countries has created abundant social, economic and physical problems, including increasing urban poverty, inadequate access to housing and basic urban services, alienation of citizens from each other, the creation of slums and informal housing, pollution and loss of green space in cities, and so on. With increasing population and development and expanding urbanization, people are gradually moving away from nature and density of population and excessive interference in the natural environment and creating fabricated

environments, have shown more of the human environment, physical and spiritual requirements. To overcome this urban human's need, he creates gardens and artificial green spaces in cities. Green spaces (parks) form part of the cityscape (Mohammadi, 2004, 16), and it is considered as the most important systems of the human life and have always been a strong support for the continuation and improvement of the quality level of his life and still has been offering its unsparing service faithfully to humanity. It is noteworthy that the importance of green spaces in the world today is not only because of economic value, but also because of its environmental importance and it should be admitted that its presence has never been so useful and vital for human beings in any period of history. On the

other hand, its existence has never been threatened in such a vast surface (Aryanpour, 1987). By accepting, the fact that a green space is considered as the lung of the city and the lack of it is considered as the meaning of a physical and mental health lacking in urban and along industrial development that is an unreturned process, the importance of green spaces will be more tangible (Hyraskar, 1998). In the study city, the urban green space in addition to its low per capita compared with the standards, it is not following the equitable distribution and it is not available suitable for all the people in town. In general, inappropriate access of people in the city with parks and green spaces was the major motivations for this research. Chicora (2004) in an article called "The role of urban parks in a sustainable city," referring to the importance of green spaces within the city and the lack of international studies in this area, has tried to show the importance of nature in the urban for the welfare of citizens and the urban sustainability. The results of his study acknowledge that the experience of nature in the urban environment is a source of positive emotions and good service that meets the important immaterial and spiritual human needs. Jahad Daneshgahi educational Affairs (2008) has released a book entitled "The rules and principles of urban green space planning". This book examines the role and importance of urban green spaces in the lives of citizens and on the results of this book, it refers to the role of these spaces in mental relaxation and reduce anxiety and stress of the citizens that is as a result of living in bustling cities and apartment living. Finally, the conditions of constructing appropriate green spaces in the cities are expressed.

Milvard and Sebir (2011) in the article "The Benefits of an urban forest park" suggest that urban jungle parks provide numerous social, environmental and economic services with a measurable value for the cities.

#### **Research methodology:**

This research in terms of purpose is practical and the nature of its method is analytical-descriptive. To collect the required information, the library method can be used. In the theoretical part of the research, the library method is used, which involves the study of available resources, such as books, valid papers, reports and available plans in this field. The population, employment, and economy statistics have been taken from the library and document resources of the Statistical Center of Iran. The research model consists of a framework that is selected according to the nature of the problem and the research carried out within that framework (Soleimani, 2004, 51). Therefore, this study is carried out in the context of genetic research model, by using library resources, maps and diagrams that have been defined based on information resources. Analysis method is quantitative and is performed by using population statistics and population figures and models or the use of maps and models. At first, we examine the data collection and their classification and after this step, the analysis of information will be collected and it has been attempted to prepare a map and draw figures and tables. The statistical population of the concerning Miandoab city is in the form of a regional system.

#### **Data analysis**

##### **The available green space status of Miandoab city and comparing it with the standards**

The standard represents the optimum condition that is involved in the theories and different tastes. Green and open space standard has a social, welfare and technical dimension that will be provided due to the location and climatic conditions and culture of the local residents as well as their needs and values and needs its specific sizes (Leghayi, 1994: 35). To determine the extent and amount of needed green space, from the environmental standpoint, it must be first determined the environmental conditions of the city and then on the basis of certain and specified requirements, provide a way to mitigate

the abnormal conditions as far as the green space will be a solution (Soltani , 2008: 6). So determining the acceptable standard and generalizable to all countries and regions is not possible. Even in the context of a country, the same standard cannot be offered. However, notice the standards of green space can be considered as an activity guidance level and policies. In this regard, according to studies and the Ministry of Housing and Urban Development review, a fair and acceptable per capita of the urban green spaces in Iran cities is between 7 to 12 square meters that in comparison to the determined indicators by the United Nations environment Department (20 to 25 square meters

per person), it is lower (Saeed Nia, 2004: 83). According to the experts' study, the international standard of green space per person is between 15 and 50 square meters and on average, is 30 square meters. Of standards of the developing countries is lower than in Europe and America (Dalal Pour-Mohammadi, 1996: 52). In different cities of our country, the urban green spaces per capita, is associated with differences according to their different geographical and climatic features with the outlined standards from the Department of Housing and Urban Development that its amount will be determined by the plans adopted by each city (Consulting Engineers of logistics environment, 1994: 83).

**Table 1.** Suggested urban green space per capita from the organizations and experts

Suggested per capita	Individuals, organizations and concerned Organs	Suggested per capita	Individuals, organizations and concerned Organs
15-20	*Tehran municipality	14	** National Institute of America Leisure
20-30	*Fouladshahr Russian planners	18	** Committee on Public Health and the Ministry of Housing in America
30-40	*Bahram Soltani	10	** Center for the Study of Department of the Interior Urban Planning
15-50	*Majid Makhdoom	20-25	* United Nations
10	*** Tehran Comprehensive Plan	7-12	* Department of Housing and Urban Development

Source: \* Ahmadi, 2006: 42, \*\* Bahman Pour and Moharamnejad, 2010: 531, \*\*\* Pour Ahmad, et al., 2010: 40.

In addition, the urban intellectuals estimated the minimum amounts in order to evaluate each of the expectations from a green space in accordance with the following table.

**Table 2-** the minimum per capita estimated by experts to meet the expectations of green spa

The experts' proposed level in square meter	The expectations
3	The need for beauty
8	The need for oxygen
3	The need to avoid noise
1 to 2	Recreation and spending leisure time
15 to 16	Sum

Source: (Khojasteh Ghamari, 2009: 68 quoting Management and Planning Organization, 2002)

According to the studies and existing situation statistics, the detailed design of Miandoab city that has been done in 2002, the average green space per capita in the city in this year was 1.79 square meters. This range is about 4 times less than the lowest of Housing and Urban Development per capita standard and proposed detailed plan of the city per capita (7 square

meters) with the exact amount of 5.68 square meters. Despite the very low, the urban green space per capita in Miandoab, distribution and transmittal of this available space amount were balanced and proportionate to the size and the population power of urban areas and therefore was not in accordance with optimal distribution and sustainable urban development. Because based on available statistics and calculations the

region of two Miandoab cities with 23,461 inhabitants and 2,774,676 square meter area is as one of the densely populated areas of the city, with 0.32 square meters green space per capita and virtually with no urban parks and available per capita is related to Green spaces of the streets and boulevards margins.

The fourth district of the city with an area of 4.41 square meters of green space has devoted the

Table 3-per capita and green space area of Miandoab city based on the availability status studies of detailed design, 2002

Suggested per capita	The percentage ratio of green space to total area of the region	The total green space		green space				Population	Urban district
				Green space protection		Park			
		Area	per capita	Area	per capita	Area	per capita		
7 square meter	0.98	33798	1.22	6522	0.24	27276	0.98	27724	District 1
	0.273	7587	0.32	6369	0.27	1118	0.05	23461	District 2
	0.518	18427	0.75	13479	0.55	4948	0.20	24388	District 3
	5.52	72831	4.41	10397	0.63	62434	3.78	16528	District 4
	1.01	70444	4.32	16398	0.77	54046	2.55	21236	District 5
	1.12	202987	1.79	53165	0.47	149822	1.32	113337	The whole city

Source: Consulting engineers of plan and explore, 2002: 215 to 246 and research findings

Because no plan and study with the relevance of Miyandoab green space has been done and the unit of green space in the city has no figures and written information about the city's green space (according to municipal officials), so, status information and existing statistics of the city's green space were collected and calculated to analyze and evaluate the existing situation in 2012 and the evaluation of the proposed per capita comprehensive and detailed plans in the city's implementation through field observations and interviews with Shabanzadeh engineer, an expert and responsible for green space of the city. Studies show that the green space per capita in the city over the past decade (2002 to 2012) had relatively a good growth and this per capita from 1.79 square meters in 2002 is reached to 3.45 square meters. However, still there is long distant to achieve the proposed per capital comprehensive and detailed plans that equal to the lowest provided standard by the Department

highest per capita among the five districts of the city and the difference green space per capita between these two districts was more than 10 times and the exact amount was 4.09 square meters. Table number three shows per capita and green space area of Miandoab city divided by parks and non-parks, green space in 2002 and in the suburbs of the city.

of Housing and Urban Development (7 square meters) and about half of these proposed per capita have not been achieved yet. It should be noted that more than half of this per capita is related to the green spaces of squares, boulevards and streets margins and generally the non-park green space. These green spaces, though are important in terms of ecological function and are effective in stylized the weather of the city, but in terms of social function, they do not have much value. In simple terms, the citizens and families cannot use the squares and boulevards in the middle of the city's streets for recreation, entertainment, relaxation, and only urban parks have such a feature and function. Accordingly, real green space per capita or in more correct terms, park per capita in this city is only 1.47 square meters. However, the interesting point is that the district 2 of the Miandoab city with a population of nearly 30 million is still lacking

any parks at different levels of urban structure (Hussain Zadeh Dalir, 1999).

Although the green space per capita of the city had a relatively good growth in the past decade, but this growth was not in order to create balance in the amount of having green space in five regions of the city. Because the difference between District 2 that still has the lowest green space per capita (0.72) with district 4 of the city (12.3) is not only diminished but also it is increased. The ratio of green space to the total area of district 2 has been reached from 0.27 percent to 0.61 percent, while this amount in district 4 has been reached from 5.52 to 15.34.

Ata Beach Park location as the largest park of the city that has a function of the whole city level and green spaces of Zarineh river margin that lead to this park (in total an area of about 16 hectares, according to the green space head of the unit in the city) and Moalem Park with an area of 21,000 square meters in the administrative and commercial center of the city, has led to include a relatively appropriate per capita of green space in District 4 of the city. These parks, especially

Moalem Park is a resting place of many people daily that come from different parts of the city and Miandoab city in order to do office and commercial works for this part of the town. Because, this area of the city has administrative and commercial functions mostly, its percentage of residential usage was lower than other districts, and therefore the residential population of this district is less than other areas of the city, this in turn has helped to increase the urban green space per capita. It should be noted that green space per capita of district 4 is calculated on the ratio of residential population (A) but because of commercial administration functions of this district of the city, the proportion of the population that use the spaces is more than this population and in addition to the whole inhabitants of the city, it can be said that the whole residents of the city that refer to this part of the city in order to make their own business or commercial works, are benefited from these spaces somehow (mojtahedi, 2001).

Table 4. The per capita and green space area of Miyandoab city in 2012

Suggested per capita	The percentage ratio of green space to total area of the region	The total green space		green space				Population	Urban district
		Area	per capita	Green space protection		Park			
				Area	per capita	Area	per capita		
7 square meter	1.17	40250	1.44	14250	0.53	26000	0.93	27924	District 1
	0.61	17050	0.72	17050	0.721	=	-	23630	District 2
	1.57	55717	2.27	51717	2.1	4000	0.163	24580	District 3
	15.34	202408	12.3	102102	6.2	100306	6.1	16447	District 4
	1.12	77745	3.63	39699	1.85	38046	1.775	21430	District 5
	2.18	393170	3.45	224818	1.97	168352	1.47	114153	The whole city

Source: Green space unit of Miandoab Municipal and author's computing

Comparing the area and available green space per capita with available standards of the country (7, 10 and 12 m<sup>2</sup>) also shows that apart from district 4, the rest of the urban districts compared to the mentioned standards have severe shortages. Table five clearly shows this problem.

**Table 5-** The proposed per capita implementation in the detailed design and shortages and surpluses of Miandoab urban green space based on the country standards

Surplus and shortage compared to 12 m	Surplus and shortage compared to 12 m	Surplus and shortage of green space compared to 7 m	The total green area		Population	Urban district
			Area	Per capita		
294838-	238990-	155218-	40250	1.44	27924	District 1

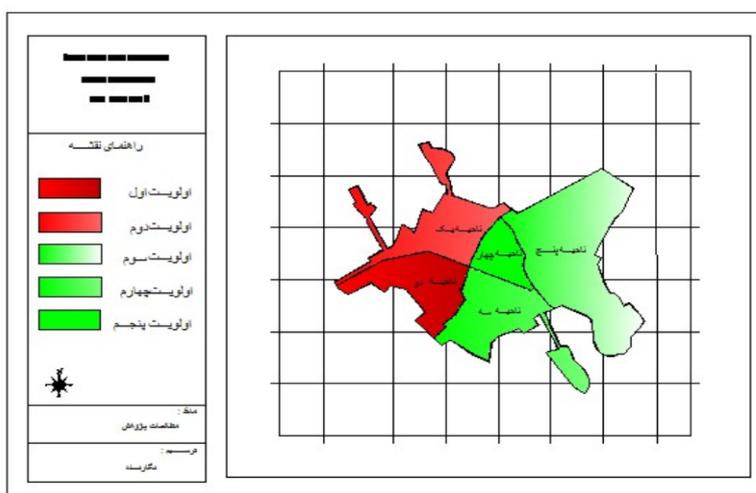
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266510-	219250-	148360-	17050	0.72	23630	District 2
239243-	190083-	116343-	55717	2.27	24580	District 3
5044	37938	87279	202408	12.3	16447	District 4
179415-	136555-	72265-	77745	3.63	21430	District 5
976666-	848360-	405901-	393170	3.45	114153	The whole city

Source: research findings

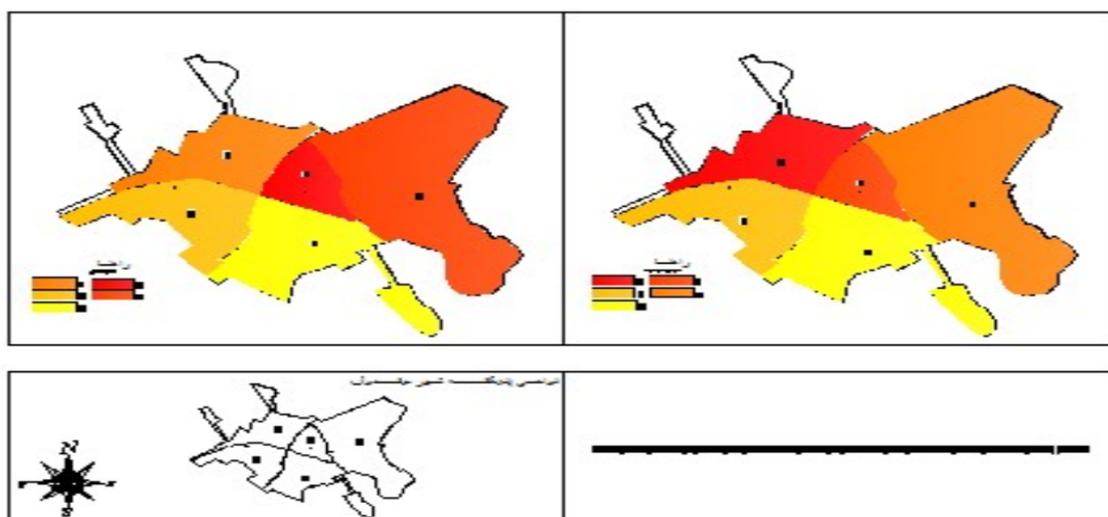
Given that the majority of green spaces and parks of Miandoab city have been located on the Zarineh river margin and some also in city center and have full compatibility with surrounding land uses, so it cannot be said that the location of these parks was a mistake, but the reality is that Miandoab city has a relatively intense shortage of green spaces and urban park, according to the standards of urban development and the proposal of urban comprehensive and detailed plans (7 square meters), also due to the ability and natural talents of the region, but this shortage was not the same in different districts, and consequently the necessity and local development priority of these spaces is not the same in the city.

**Map 1-** determining the local development priority of green spaces and parks in Miandoab city



Source: author

**Map 2-** Comparing population rank and the amount of having rank if each district of the area and per capita of urban green space



Source: Urban green space department

## CONCLUSION

Green spaces, which will form part of the cityscape as a real phenomenon, is one of the first issues that a human has always been and will be in contact with it. The importance of green spaces in urban environments is, to the extent that, it is mentioned as one of the society development indicators and at the same time, it is considered for improving the quality of life. Therefore, the correct positioning of these spaces in cities is very important.

A very important point in locating public green spaces is a social necessity for creating a park. Incorrect positioning of urban green spaces, ultimately, is leading to abnormalities such as low use of created green spaces by users, creating a restriction in presenting an appropriate architectural design, creating a restriction in selecting and arranging appropriate plants, turmoil in the urban environment, problems of irrigation and soil improvement, proper social unwillingness, management and maintenance problems, reducing mental and social security and so on.

In this study, not only we tried to assess the available distribution and dispersion situation of Miandoab urban parks and green spaces, but also we determined the local development priorities in urban districts' surface.

Study results showed that in 2002, an average urban green space per capita was 1.79 square meters. This amount is about 4 times with the exact amount of 5.68 square meters are less than the minimum limit of Housing and Urban Development standard per capita and the detailed plan of the city proposed per capita (7 square meters).

Despite the very low urban green space per capita in Miandoab city, distribution and transmittal of this available space was not in a balanced and proportionate to the size and the population power of urban districts and therefore was not in accordance with optimal distribution and sustainable urban development. Given that the

majority of green spaces and parks in Miandoab city is located in the margins of Zarineh river and some are in the city center and has compatibility with its surrounding land uses, thus it cannot be said that the location of these parks had been wrong, but the truth is Miandoab city has a severe shortage of green spaces and urban parks, but this shortage was not the same in different districts and consequently the necessity and local development priority of these spaces is not the same in the city.

Available green space is not proportionate with desirable per capita of urban green space. Based on the considering criteria in this study and evaluation of them, it is confirmed that because the available green space in Miandoab city has a great distance with the minimum urban green space per capita, which is 7 square meters and this is a strong evidence based on the validity of this assumption.

It appears that urban parks are scattered across the city proportionally. Referring to the previous entries, the validity of this hypothesis is also determined. Because in some urban areas, citizens are facing problems in terms of accessing to the neighborhood parks, community and ..., this issue will highlight the creation of a fundamental change in building urban green space for urban officials.

## Suggestions

1. Due to the evident shortage and insufficient of green space in Miandoab city district 2 , municipalities are required to provide these spaces by planting trees at the edge of the streets, crossings and also provide part of the needs by identifying and changing the dead sand unused paces for green space.
2. Raising public awareness and education and familiarize them with the benefits and user importance of green space and its impact on urban sustainability and negative consequences caused by the lack of green space in urban areas.

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