

# Evaluation of Urban Green Spaces and their Impact on Living Quality of Citizens (Case Study: Nehbandan City, Iran)

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**ABSTRACT:** Nowadays, due to exacerbation of the effects of urban development and increasing urban land use changes, urban green space is so interesting for researchers and the related organizations that it is considered as an indicator of the development in societies. Accordingly, the aim of this study was to investigate the city parks of Nehbandan to investigate the effects of green spaces in cities on life quality improvement of citizens. The descriptive- analytic research approach was based on library studies, documentation, and field reviews done through direct investigation of the city parks and receiving the viewpoints of experts and citizens (visitors to the parks). Ultimately, the gathered data and information were assessed and analyzed. The results suggest that green spaces within the city of Nehbandan have social, economic and ecological efficiency among which their environmental function or ecological productivity is the most important effect of these spaces making the citizens' quality of life more satisfactory through accessing to suitable green spaces. About % 50 of interviewees paid attention to this issue and they believed the availability of green spaces within the city can lead to reduction of environmental pollutants and elevation of the citizens' lifestyle. Moreover, based on their responses to the questionnaire, factors such as having recreation and leisure, being away from problems, enjoying life and refreshment respectively allocated % 60, % 25, % 10, and % 5.

**Keywords:** Urban Green Space; The Citizens; Quality of Life; Nehbandan

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## INTRODUCTION

Nowadays, the concept of cities in void of effective green space in its various forms is no longer conceivable. The consequences of urban development and the complexity of their environmental problems make the availability and expansion of green space almost inevitable. It is not only exaggeration to consider green space, as generally defined, as lungs of cities which play the respiratory function but, simply stated, it also refers to its least function as defined in ecological concepts of cities. These spaces deserve consideration in terms of both meeting urban and environmental needs and providing leisure spaces and making a context for communication and its social equilibrium.

Industry growth and population explosion in cities have led to business- like construction of buildings in which health issues, providing enough light and clean air and space of leisure are ignored. Nevertheless, for some reason, since the advent of the 20th century, urban man has paid attention back to nature and green areas in form of creating practical gardens rather than amusement gardens to respond to new needs of citizens (Moureh, 1994).

The city dwellers today do not simply need food to meet their needs. In fact, some of their basic needs are a deserve house, a proper space for living, a peaceful environment, and clean air (Shokoiee, 1985). Undoubtedly, rapid growth of cities can be regarded as the biggest hazards threatening environment whose effects will transfer to city dwellers, i.e. people, and it will

remain a very corrosive effect on the mind and body of urban man (Soltani, 1993). Considering these points and the above- mentioned issues, in recent decades, in parallel to the paradigms of sustainable development and human development, the idea of improving the quality of urban life is proposed and regarded. Urban parks which have social, economic and ecological roles as well as advantages such as providing mental health treatment, creating an optimal environment for raising children, reinforcing social integration, maintaining comfort and the like are also considered as an indicator for elevating both quality and space of life and developing societies (Balram, 2005).

Green space as a part of the skeletal system of cities has always been in contact with human being and it is, in fact, designed to suit the human and cultural needs of societies and to seek essential factors required for creating a proper urban green space. According to the above- mentioned issues, this paper attempts to examine the effects of green space on improvement of quality of life for citizens of Nehbandan city.

## Statement of Problem

Today, it is impossible to consider the concepts of cities with no effective green space in various forms. As the most concentrated sites designed for human life and activities, cities will lose the stability unless they accept nature- oriented structures and functions. Among all, urban landscape plays an essential role as a vital and integral component in the metabolism of the body of the cities. Increased urban population, industrial life, and

reduction of private open spaces have left such severe diverse environmental impacts that posit the necessity and importance of green space.

The most important effect of green spaces on cities is their environmental functions or their ecology which is conducive to qualitative improvement of citizens (Majnounian, 1996). Generally, one of the most dominant functions of urban green spaces is to provide a leisure context leading to improvement of social interactions and physical and psychological health of communities through creating more direct contacts between people and nature to grant a more purposeful and pleasant lifestyle to city dwellers. According to the above-mentioned issues, the following question is posed:

To what extent does the urban landscape play a role in improving the quality of life of citizens? To reply this question, several hypotheses are proposed:

1-It seems that urban landscape affects raising morale and fills leisure of the citizens of Nehbandan. The given hypothesis relies on this fact that creating these spaces in cities far from the countryside and the natural environment is inevitable.

2-It seems that urban green spaces increase social interaction and improves mental health in the society. The underlying hypothesis assumes that these spaces will lead to an increased human contact with nature.

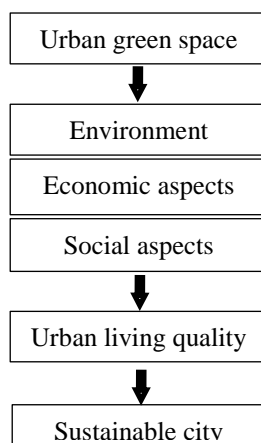
3-It seems that urban green areas play a significant part in reducing environmental pollution given the hypothesis that these areas can be beneficial for improvement of living conditions for citizens.

### Theoretical foundations

In order to provide an appropriate theoretical framework for the study of the subject and to achieve the purpose of the study, it is necessary to briefly discuss the main concepts, the relations between them and the applied methodology as follows.

### Urban green space

Urban green space is a part of open-space urban areas in which the dominant natural and mostly artificial forms are often under the cover of trees, shrubs, plants, flowers, grass and other plants. They are maintained or constructed based on monitoring and management of human and in consideration of the related terms, rules and expertise to improve living conditions, habitat and welfare of citizens (Khan Sefid, 2011).



**Figure 1.** Urban green space and sustainable city (Khan Sefid, 2011)

### The importance of urban green space

Despite its function on improving the bio- climate conditions of the city and its animated part as a physical structure of the city, green space has a significant effect on reducing urban congestion, creating conductive pathways, completing and improving educational, cultural, and residential facilities as well as preserving the land for future growth of the city.

Along with the unanimated structure of the city, this animated morphological aspect of the city constitute to context and profile of the city that affects its social and aesthetic dimensions. Moreover, green spaces play a significant role in defining the city birders, dividing urban spaces, and arranging pathways (Said nia, 2000).

Ecological effects of green space result from the inner activities of the ecosystem that lead to improving the ecological conditions of the city. In other words, whatever urban man possesses is the result and effect of natural and innate processes of the green space. On the other hand, green spaces have social and psychological effects on creating a quasi- natural ecosystem for man within the city (Bijan zad, 1990). Moreover, parks and other urban green space affect various environmental, social, and economic aspects of sustainable urban foundations. Improvement of living quality and livability of cities and their aesthetic functions contribute in achieving a much more favorable environment in the city.

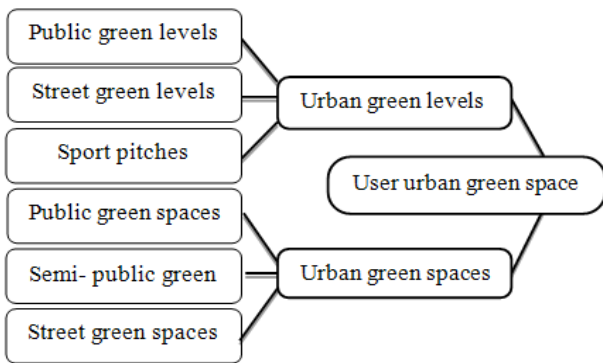
Environmental functions mainly aim to improve the ecological conditions and to reduce the amount of pollution including gases, particles, noise, radiation, unpleasant odors and other air, soil and water pollutants. In addition, such urban green space should provide ecological efficiency such as improving bioclimatic conditions in the city, reducing air pollution, increasing relative humidity and positive impact on the water cycle, raising underground water quality, increasing soil permeability and reducing noise pollution; it is the best way to deal with urban heat islands (Said nia 2000). of course, environmental functions of these spaces including absorbing pollutants , creating micro- climates , monitoring climatic conditions and erosion ,managing urban runoff and creating habitat for urban environments should not disregarded. Moreover, keep in mind the recreational role of providing pleasant environments, the visual structure of the city for creating a mental image and perception of the urban environment, and the ecological role and importance of green space in the city. Green spaces have several cultural, social, and psychological functions implemented through mutual interaction and social ties and by providing tourist facilities.

Other function of these spaces is their economic aspect which can be used for attracting tourists and businesspeople, elevating the prices of lands and buildings, and ultimately, increasing the income tax paid to the municipalities. moreover, if these urban spaces are divided based on urban usages, it will prevent buildings' density and on the other hand, it will highlight the main pathways of the city and bring variety in dry lines of architecture, to mention some among other functions of urban green space (Ayat- ul- allahi, 2001).

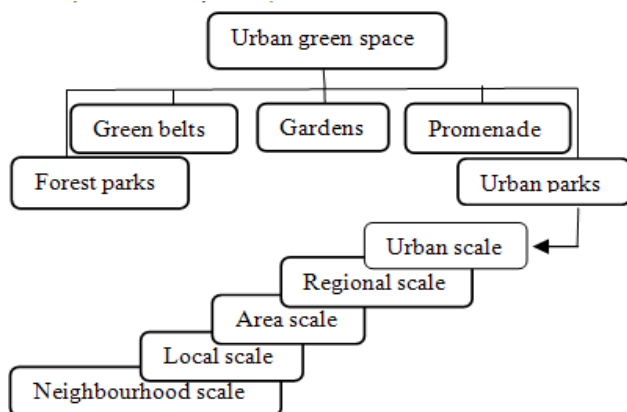
### Segmentation of urban green space

In order to develop the city spaces in future, urban green space which is the animated part of construction of

the urban fabric is divided into actual and potential and land usage with vegetation coverage is categorized as green levels and green spaces with diverse sub- groups (Figure 2). Furthermore, according to the criteria of locating green space which is based on centrality, hierarchy and accessibility, it is the hierarchy of the city access network (Saied Nia, 2000). Their classification follows the same criteria. In another subdivision (Figure 3), the types of urban green space, including parks, are shown on different urban scales. It is possible to generally classify and analyze the green spaces: green spaces within the city and suburban green space.



**Figure 2.** User segmentation of urban green space (Khan Sefid, 2011)



**Figure 3.** Classification of urban green space (Khan Sefid, 2011).

### Suburban green space

The surrounding green space or countryside is the suburban fringes which both inhibits the uncontrolled growth and monitors the ecological -environmental efficiency of the city and includes all living areas of the city (Yousefi, 2007).

### Green space within the city

Green space within the city can be generally divided into several cases:

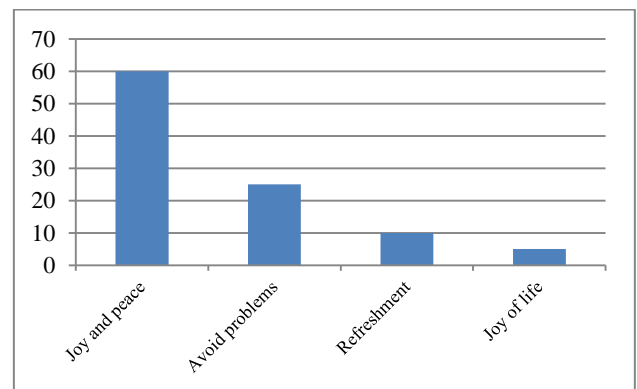
- 1- Public green spaces,
- 2-Green spaces of streets
- 3-Semi- public green spaces
- 4-Semi- private yard spaces

### Quality of Life

The most important aim of urban growth and development is improvement of living quality and providing citizens' welfare. However, the quality of life is

a multi- dimensional concept with various aspects. In fact, the quality of life is consisted of secular and non-secular issues. Its secular aspect includes concepts such as living standards, infrastructure facilities, economic production, employment, prices, regulations and the like. Let's add concerns such as health, entertainment, leisure, culture and art to this aspect. The non- secular concerns of quality of life are personal concepts and experiences and their feedbacks in real life (Dajian and Peter, 2006).

So that most theories about the quality of life have consensus about the following features: a general feeling of happiness, a sense of being positive toward social interactions and the opportunity to update individual abilities of quality of life which is a multidimensional concept by itself (Ramage and Davies, 2003). It demands a comprehensive study to measure the correct dimensions of quality of life. In fact, the overall quality of life refers to variables such as public health, political stability and family life security, social life, job security and so on.(Byock and Merrima, 1998) because quality of life, happiness and life satisfaction are considered as indicators of general physical and mental health (Zaki, 2007).



**Graph 1.** elevated feelings in the urban parks, Nehbandan

### The role of green space in urban life quality

The role and importance of open and green spaces in the environment and the quality of life in complex biological environment is rising dramatically. Therefore, in most countries, open and green space is considered as an integral part of land use planning decisions. The overall efficiency of urban green space can be divided into three efficiency groups: ecological and environmental performance, physical and urban development performance, and Social – psychological performance. Regarding Social –psychological effects of green space, it is worth to note that man, in any situation, requires a calm and quiet space to spend a few hours a day, it is the green space that can provide this facility.

Among the main effects of green space in cities, their environmental function has changed the cities into a meaningful environmental human society and it has rejected the adverse effects of industrial development and incorrect usages of Technology in order to enhance the cities' environmental quality. Moreover, it has become as one of the most important applied topics in other countries so that every year a large area of the city lands assigned to this important usage. Ecological efficiency is to beautify urban areas, to reduce environmental temperature, to produce oxygen, to increase soil permeability against rains and the like. Generally, the social effects resulted

from creating and developing of urban green spaces is as follows:

### Sociological effects

1-Cultural effects

2-Psychological (psychiatric) effects

3- Psychological effects of green space on quality of urban life

Instinctively, human is created with numerous abilities that will diminish unless they have an intimate contact with natural beauties, i.e. green spaces in urban life. On the other hand, within these green spaces, man's creativity will flourish and it will pave the way for man's progress in life. Although most citizens are unaware of indirect advantages of these green spaces in their lives, numerous researches have proved the presence of this mutual interaction between green space and quality of life. For example, as written by scholars and cited in Hadith and Quran, the following statements are noteworthy:

1-Looking at green space eliminates man's grief and gives him peace, joy, and merriness.

2-Taking advantage of green space removes despair and creates or reinforces passion and hope.

3-Landscaping has a significant impact on the treatment of mental illnesses so that these problems are solved by looking at the landscape, walking, and breathing in green space.

4-Associating with green space creates ecstasy and motivates people to pace toward sublime and excellence.

### Review of literature

Numerous domestic and foreign researches have been implemented about green space and its effect on living situations. It is worth to mention some as follows:

1- In their article entitled "A research on development of urban green space to improve quality of life in cities and urban areas", Cloes and Maria Caserio (2001) presented a report to the European consortium referring to the social importance of urban landscape in which several social measures were introduced which were related to improvements of the living quality of citizens. These were running in Europe (Cloes and Caserio, 2001).

2- Qin, Zhou et al. (2003) in their research entitled "effects of green space on environmental satisfaction and physiological condition of urban dwellers" concluded that children and the elderly had more satisfaction of green space and its vegetative coverage than adults( Zhou Qin et al, 2013).

3- Rasidi et al. (2012), in their article, "designing urban green space on the social interactions of residents in Malaysia" concluded that green space within the neighborhoods plays the role of a residential community surrounding expanding social interaction of residents (Rasidi et al., 2005).

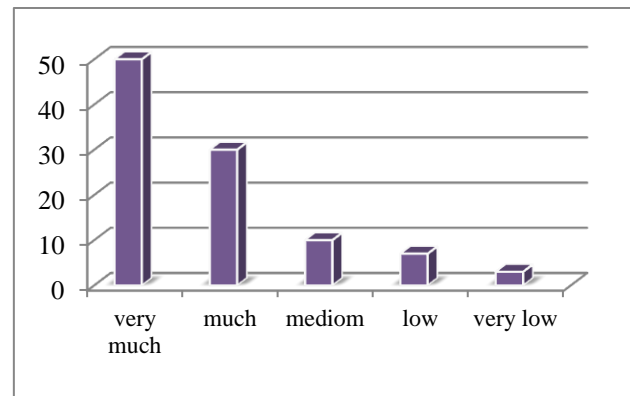
4- Eftekhar (2013) in a research about evaluation of the role and importance of green space on urban life concluded that urban green spaces have different functions among which their environmental function is the most important one since it provides proper situations for urban citizens (Eftekhar, 2013).

5- Gorbani and Teimori (2010) in their research entitled "An Analysis of the urban parks in promoting the quality of urban life using the Seeking-Escaphng pattern

"refer to the psychological - social impacts of urban parks on quality of life. The results show that most of the inhabitants of Tabriz in order to achieve healthy air, family entertainment, business vitality and to avoid pollution have gone to the urban parks (Gorbani and Teimori, 2010). Ghorbani, and Ibrahimpour Laniran, (2010), in an article entitled "motivational modeling in developing recreational spaces around the city. It is a strategic program for improving the quality of life" concluded that people to take refuge from the pressures of everyday life to nature in order to enjoy the benefits of environment which has a tangible role in improving the quality of life (Ghorbani and Ibrahimpour, 2010).

6-Mohammadi et al. (2007) in another research entitled "qualitative evaluation of the roles of urban green spaces in order to optimize it for citizen in Shahr-e-kord" concluded that urban parks are among the most important factors affecting the formation of social stability and urban consistency. On the other hand, factors such as urban life troubles, safety of parks and green spaces, lack of security and proper facilities for different age groups have diminished the citizens' willingness to use these areas (Mohammadi et al, 2007).

7- Mohammadi et al. (2012) in their research entitles "assessment of space priority for developing green spaces and parks using AHP method in Mian do ab" concluded that the per capita green space in this city has increased. However, this increase has led to a greater gap between per capita in areas with and without green spaces and has aggravated the current inequality for spatial distribution of parks. So far, no research has taken place regarding this issue in the study area (Mohammadi et al., 2012).



**Graph 2.** Effects of green space on environment of Nehbandan

**Table 1.** Per capita green space, offers a variety of resources (Tabatabaii nejad, 1998)

Individuals, organizations and other organs	Per (Sq2)
Department of Housing and Urban Development	7-12
UN org.	20-25
Tehran municipality	15 -20
Bahram Soltani	30-40
Majid Makhtoum	15-50



## MATERIAL AND METHODS

According to the topic of the study, its field of study and its problems, a combination of documentation-analytical methods and scrolling was used to complete the required information. The required data were mostly extracted from valid and authorized references. Major part of this research was in the form of field study through distributing a questionnaire among people in parks in order to perform the final analysis. The statistical population of the research was the parks in the city of Nehbandan. The sample size included 320 subjects who had referred to these parks. Cochran formula was used to determine the sample size. Questionnaires were distributed in various parts of the parks at different times on weekdays and weekends.

### Introduction to the study area

With a population of 27,000 people and an area of 21,000 km, Nehbandan city has a high population density. It is located in 58° 32' east longitude and 30° 28' south latitude Greenwich meridian. Its distance to the capital of the province and to the border is 180 km and 85 km, respectively. This city has 7 city parks, Basij, Qaem, Shahdari, Vahdat, Jangali, Motahari, and Farhangian. Its total green area is 553,100 sq<sup>2</sup> of which 425 sq<sup>2</sup> is covered with green space, i.e. 23 sq<sup>2</sup> of green space per citizen. In comparison with the standard index of the UN environmental Organization (20-25 sq<sup>2</sup> per head), this figure is much lower.



**Figure 4.** Satellite map of the city of Nehbandan (www.wikimapia.org, with Corrections by the authors, 2013)



**Figure 5.** Location of the studied Parks (Basij, Motahari, Farhangian parks) (www.wikimapia.org, with Corrections by the authors, 2013)



**Figure 6.** Pictures of parks, Nehbandan, Farhangian Park: (Writers, 2013).



**Figure 7.** Pictures of elements in Basij park, Nehbandan (Writers, 2013)

## RESULTS AND DISCUSSION

In this survey, which was implemented through distributing questionnaires between 320 people referring to the parks in Nehbandan, 150 respondents were male, and 170 people were female. Age classes ranged from 15 to 55 years who were divided into 5 age groups, most of whom had diploma or bachelor degree. Most respondents mentioned that they have visited the parks once a week, mostly in the evenings and holidays, so the highest incentives were having entertainment and leisure, being with family, friends, avoiding problems, and concerns of life. Besides having leisure and recreation at the park of Nehbandan, they referred to some other reasons such as lack of recreational facilities such as entertainment parks, big pools, and appropriate sport facilities.

### Psychological and social impacts of parks and green spaces in the city of Nehbandan

The results of the psychosocial- social effect of parks and green spaces that were obtained during the inquiry show that most people (about %60) feel happy and peaceful in the parks. In fact, walking in these parks gives them a sense of peace, joy, and prosperity. It is in part because people often go to these parks to enjoy clean air, diverse vegetation coverage. In addition, psychologically, green makes them calm and emotional. Avoidance of daily difficulties, as observed in 25% of respondents, shows that after long hours working during the day, they prefer to attend parks to relieve their fatigue and forget their troubles. As it was observed in Nehbandan, about

%10 of citizens claimed that going to parks reduces their exhaustion and malaise. %5 of these citizens chose joy obtained which has some positive impacts on their quality of life.

### The per capita amount of green space and its impact on welfare of residents of Nehbandan

Per capita, the average quantity that is transferred from a whole to a person, for instance green space per capita is the green space that is distributed per person in accordance with the total users of green space. Different Per capita are used for each urban usage (Souzanchi and Behrouzfar, 2001). since per capita is mostly used an most countries as a vital factor increasing living level in cities and due to importance of such spaces and necessity to establish cities in order to create elegant air and to make fun for people and to beautify the city, it is necessary to set strict standards for building green space (Eftekhar, 2012). The United Nations has recommended 20- 25 sq<sup>2</sup> green space per capita, while this index in France, Latin America, and in the UK is 18, 15, and 10 sq<sup>2</sup> respectively. According to the experts' studies, the international standards of green space per person living in crowded cities are 15-50 sq<sup>2</sup> and on the average 30 sq<sup>2</sup> whereas the conventional per capita in Iran is about 7-12 sq<sup>2</sup> per person.

These investigations and studies show that there is an inverse relationship between the population size of the cities and extent of urban greenbelt land use (urban parks) so that if the population of the city increases, the proportion of green space usage will reduce, and vice versa (Table 2).

**Table 2.** Relation between city size and usage ratio of green space

Per capita (sq <sup>2</sup> )	Population size of the cities (to 1000 people)
3.03	5-50
2.40	50-100
1.40	100-25
0.96	250-500
0.75	+1000

Urban green space, urban planning and studies Dep (1998)

As mentioned before, it can be concluded that despite its vast area, the city has a small population. The annual amount of green space per capita is 23 m<sup>2</sup> suggesting that smaller the city, greener space per capita. This conclusion is also confirmed by the analysis results of the questionnaires handed out to the citizens about the availability of green space in the city. It is clear that the amount of green space per capita of these citizens was higher than that of the normal national rates reflecting the notion that these citizens have a good welfare and quality of life.

### The environmental impacts of urban green space in Nehbandan

Green space is thought to be the lung of the urbanites so its lack is considered as absence of health and wellness in cities. Among the effects of green space on urban environment, there are reductions of various kinds of air, noise, and environmental pollutants as well as

audio-visual beauty of the cities. Given the above, and as in Figure 2, it is observed that nearly % 50 of the citizens in Nehbandan have confirmed the question of whether green space will affect the reduction of environmental pollution.

## CONCLUSION

According to the obtained results of analyzing the questionnaire distributed in parks of Nehbandan, it can be inferred that all people at all times and in any age group have a consensus about the role of nature and taking advantage of its benefits for improving their spiritual, mental, and social and even economic conditions. Most people feel relaxed and comfortable in these areas and consider them as a place for refreshment and eliminating mental problems.

About %80 of visitors to the parks in Nehbandan who filled up the distributed questionnaires were in the age group between 15 and 35 years. In this research, it was observed that there is a significant relationship between age and having a sense of escape from the urban environment and being attracted to the parks. Youth were more willing to turn away from the problems of urban life and to refuge to the parks and nature. Some of these reasons are spending their free time far from the maddening problems and difficulties of the environment and life, relieving exhaustion and boredom and taking joy from life among which spending free time, joy and tranquility allocated % 60 to themselves.

It represents that parks can, both directly and indirectly, affect people's quality of life. People suffering poor weather or lacks of home entertainment often come to the parks and green spaces to turn up for a short time and to achieve mental tranquility. Green spaces within Nehbandan have social, economic, and ecological efficiencies. Their most significant effect of these spaces is their environmental function or ecological efficiency, which is confirmed by 50 % of people attending green space in the environment. Based on these findings and by considering local parks as places to meet the psychological- social needs of the citizens, expansion and enlargement of these green spaces and local parks seems necessary and inevitable to elevate the living quality of these citizens.

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