Research Paper

A Study of Sustainable Development in Parks of North Tehran According to sdg11 Case Studies: Niyavaran and Qeytariyeh Parks †

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Abstract
Sustainable development is one of the important subjects of our world. It means supporting the needs of current populations without dangerous effects on the resources of future generations. This subject finds its vital role in different sciences and is an effort based on sustainable development goals (SDG), defined by the United Nations (in United Nations General Assembly) in 2015. In this paper, two parks, Qeytariyeh park and Niyavaran park located in Northern Tehran, Iran, were studied according to SDG. The study was designed specifically around goal 11 of United Nations General Assembly and the application of sustainable development in cities. After a literature review of research, the parks were examined to trace their success as a public space according to the SDG. Qualitative methods were used to investigate field observations and conduct personal interviews with daily visitors of the parks (selected randomly with small control over demographics of gender and age). The aim of this paper is to find out the extent that these parks are successful public spaces according to sustainable development standards. According to the analysis, considering the high percentage of positive answers in each part of the study, both cases are considered as successful sustainable public spaces. However, in most components of the study, Qeytariyeh scored marginally higher than Niyavaran. The primary concerns in each study were the ability of women to engage in physical activities and the low employment rates due to parks and surrounding businesses. These concerns should be considered for park design, maintenance, and future improvements. In conclusion, we have proposed solutions to strengthen the success of the parks as sustainable public spaces.

Keywords: Sustainable development, 11th SDG, Pedestrian way, Qeytariyeh park, Niyavaran park

1. INTRODUCTION

Throughout the past century, the world's population has been rapidly increasing in urban areas. The world's urban population was approximately 2.4 billion in 1995 and is expected to become 2 times more by 2025 (Antrop, 2000). Massive urbanization began in the industrial revolution in the nineteenth century. The decline of nature and natural environments have occurred during the same time period. Increasing population and urbanization are recognized as a complex process in the global scale. To address this growing issue, public initiatives were created to increase public awareness of the necessity of introducing natural assets and components in urban contexts, which led to the creation and development of the urban park movement with the objective of increasing life quality in the modern city (Pregill, 1999). Urban parks are an important part of the urban ecosystem network and provide significant ecosystem services. They benefit urban communities environmentally, aesthetically, recreationally, and economically. (Conway, 1996)

According to the United Nations Sustainable Cities Program, a sustainable city has continuing natural resources on which its development depends. A sustainable city is free from any environmental issues that may threaten its development (Whitehead, 2003).

A sustainable city represents an economic space within which the social, economic, and ecological contradictions of capitalism can be addressed strategically. On the other hand, sustainable urbanization and sustainable urban development apply to a dynamic process, achieving suitable conditions that address environmental, economic, social, and governance sustainability concerns (Shen, 2011). In September 2015, the United Nations (UN) adopted a list of Sustainable Development Goals (SDG) to aid in the creation of frameworks for global economic development, social equity, and ecological protection across the period of 2015–2030. Specifically, the SDGs are 17 universal goals that meet the urgent environmental, political, and economic challenges that our world faces (United Nations, 2015). Studies on urban sustainable development assessment account for many existing papers on SDGs. Recognizing the importance of cities in the contemporary world, the UN General Assembly, in 2015, decided to adopt "sustainable cities and communities" (SDG 11) as a distinct goal under the Agenda for Sustainable Development (2030). The overarching aim of SDG 11 is to make cities and human settlements inclusive, safe, resilient, and sustainable. Recent global policy discourses orchestrated under the aegis of the United Nations, such as COP 24, Paris Agreement (UN Framework Convention on Climate Change), and the New Urban Agenda of UN-Habitat, stress the need for focus on the city and community scale. There is also an emphasis on not only achieving long-term developmental objectives but also making direct tangible benefits to the quality of people's lives. (Barnett, 2016)

One of the biggest contemporary issues in many developing cities is city expansion without public green space planning, which affects the quality of life of city inhabitants. Tehran, the capital of Iran, is one of many Middle Eastern cities that has become a large sprawling metropolis. Tehran has experienced fast growth since 1970 with little comprehensive planning of green spaces as an organized system. Thus, a variety of approaches to planning and decision-making regarding sustainable open spaces and urban parks is needed. The essence of this kind of study on the lack of proper public green spaces in the city is not negligible. (Bahriny, 2020) According to recent data, most of the parks of Tehran are in 3 districts – district 1 is one of them (Tehran Municipality Information and Communication Technology Organization, 2020). Our case studies are located in district 1, which is known as one of the historical green spaces of Tehran. According to the history of these parks in this area, they have lots of visitors from various demographics during the day. Some of the people who took part in our survey claimed that their family members have used the parks for several generations.

This article is critical in assessing the strengths and weaknesses of two parks, Niyavaran and Qeytariyeh, within the context of sustainable development views, By considering that urban parks play an important role in increasing the quality of urban life, which is also true for Tehran. The main goals of this research are to find out the degree of success of these parks in meeting sustainable development goals, also weaknesses that are responsible for their failure to meet these goals. A questionnaire which is used for the field study was the primary method for obtaining data in this study. The individual participants (park visitors) were chosen randomly, without any demographical limitations, and asked about the strengths and weaknesses of the corresponding park according to SDG. Within the context of our analysis, by using participant answers and SDG 11, strategies were created to resolve the weakness of these parks to make them more environmentally sustainable spaces for the urban public.

2. LITERATURE

2.1. Public space

Urban public spaces are important elements of modern cities. These spaces, in different parts of human life, play a vital role (Kurniaty, 2014). From the time of Agora management in Greece and the appearance of forums in Roman Empire, the concept of public spaces in cities has been noticed by urban planners. Unfortunately, in the era of modernism, there was less focus on urban public spaces (Jalaladdini, 2012). In recent years, many sociologists, geographers, political scientists, and urban planners have identified public spaces as healthy urban areas. (Rafieian, 2012) Public spaces are social areas that are accessible for everyone without considering specific limitations for a group of people. In other words, for these areas, participant demographics become unimportant in their ability to accommodate or become useful to all. (Sanei, 2017) The everyday use of public space has been changing from necessary uses to optional/recreational uses. These changing roles increase the need for appropriate, well-designed places in which people choose to spend time. Cultivation of space is needed for people to relax, socialize, and be part of urban life (Gehl, 2009). The main criteria of public space can be seen in Table 1, which are defined by some of the most known theorizers of this field (Nadarajah, 2006).

Table 1. The main criteria of public space (Nadarajah, 2006)

Theorizer	Year	Terms of public spaces
Jane Jacobs	1961	Arrangement of functions by considering the visual factor Multi-purpose activity Ability to be permeated Providing proper supervision and adequate maintenance The variety and use of widely used activities Prioritize the street Increase the integration of different social strata Use valuable activities
Kevin A. Lynch	1981	Enough adaptability Adequate access and proper monitoring Beneficiary of spaces Quality of being fair and impartial for all groups of people Vivacity and social mobility of spaces
Francis Violich.	1983	Enough clarity of spaces The possibility of choosing for everyone Showing the marked difference of urban spaces Shape of spaces The mirror to show ancestors' voice The ability to listen to the historical voice of spaces Not to forget the local factors of spaces
Ian *Bentley*	1985	The variety and use of widely used activities Ability to be permeated Different shape of spaces Enough clarity of spaces Arrangement of functions by considering the visual fact Use valuable activities, possibility of personalizing
Trancik R.	1986	Adequate circulation of spaces Centralization of urban spaces Emphasis on urban space edges such as sidewalks Suitable horizon for urban space and landscape The proper connection between inside and outside
Sherwin Greene	1992	Accessibility of spaces Quality of being fair for all groups of people Enough safety of spaces Stability of spaces Enough clarity of spaces Spaces relationships The unitarity of each space meaning The self-personality of spaces The proper scale of spaces The proper proportion of the visual factor of spaces Vivacity and social mobility of spaces
Graham *Haughton*, Colin *Hunter*	1994	Quality of being fair for all groups of people Ability to be permeated Enough safety of spaces Economical effect of spaces and their essentiality Overlapping of local people and users in spaces design Flexible urban space
JOHN PUNTER, MATTHEW CARMONA	1997	Ability to be permeated The function of land Walking area Vehicle circulation Visual quality Facade quality Form combination Conceptual design Easy understanding of spaces for everyone

Theorizer	Year	Terms of public spaces
Jahanshah Pakzad	2007	Flexible urban space
		Enough safety of spaces
		Vivacity and social mobility of spaces
Seyed mohsen Habibi	2010	Multi-purpose activity
		Enough safety of spaces
		Enough adaptability
		The self-personality of spaces
		The proper scale of spaces
		Flexible urban space
		Ability to be permeated
		Showing the marked difference of urban spaces
		Enough clarity of spaces
		Centralization of urban spaces
		Climate condition
		Emphasis on urban space
		The social effect of spaces

2.2. Sustainable Development and Urban Spaces

Humanity tries to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. Development should provide the modern needs of each society without imposing any harm on the environment or causing any sacrifice of the future generations' power for securing their needs. This kind of development is permanent and sustainable.

Sustainability means consistency, coherence, and continuity. It is active, implying movement, and is a gesture for a possible future. Sustainability, despite its fundamental and universal mottos and promotion of environmental conservation, recommends a local attitude. It considers the slogan, "think universally but act locally," to provide realistic and feasible solutions while also providing protection of diversity. Sustainability is a complicated concept and is defined differently by different groups of people. One of these definitions has been introduced by Cato. Diagram 1 shows the relationships between the three elements of "economy", "society" and "environment" in sustainable development from Cato's perspective. In this diagram, the environment limits economic and social factors, which means, compared to the other two factors, the environment has a higher priority in sustainable development. In other words, the tolerance capacity of the environment should have a high priority in the sustainable development plans. According to these, any causing harm to the environment and its component is forbidden (Khaleghi, 2019). The sustainable design tries to remove negative environmental responses, such as increasing carbon footprints.

The concept of sustainable development is noticed from the point of view of several researchers. According to various perspectives, sustainable urban design is categorized into 3 main groups. It should be noted that each category has its own domain. The first one is the economic subject, which increases the human life quality by increasing the production of goods and services for human consumption. The second one is an environmental perspective, which focuses on the ecosystem and its

safekeeping. The last domain is socio-cultural and has the goal to increase the human scale of urban spaces with a relationship between social interaction and culture. (Nadarajah, 2006) The importance and necessity of sustainable public spaces in a city have roots in the effort of the global environment to change macroscopically. Countries are increasingly interested in following universal agendas in an attempt to improve the quality of public spaces (Nadarajah, 2018). In summary, the components of sustainable development of urban spaces include 3 main categories: physical, cultural, and ecological subjects. (Kim, 2014)
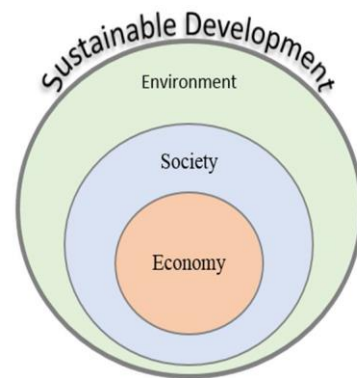

Diagram 1. The interrelation between the main elements of sustainable development (Khaleghi, 2019)

2.3. Parks as public spaces

The green and cheerful environment of cities improves human development and increases human comfort. Public spaces in a city are amongst the major parts of urbanization which are considered in societal development and also in the measure of that development in terms of quality of life. Green public spaces are tools for the arrangement of city structures and the elements that create beautiful living areas. According to the role of green public spaces in sustainable development, they can be considered a principal solution for various urbanization problems. They also have positive effects on aesthetic qualities, while also decreasing economic and

environmental issues, solving pollution concerns, and solving crowded city center problems. These are many concerns for people moving to cities, often prohibiting them from migrating. Solving these issues encourages migration, ultimately contributing to the rich cultural diversity in a city. It also encourages people to participate in voluntary activities that contribute to sustainable development programs in a city.

The components of sustainable development and its link to public green spaces provide the platform for urban sustainable development and its goals. (Karimi Namini, 2016) Parks are open spaces inside a municipal territory. Their objective is to provide air, recreation, and contact with nature. Their principal characteristic is a significant amount of the green area. In many parts of the world, parks are also used for cultural or seasonal events and activities (UN-Habitat, 2018). The public parks in cities are valuable properties, but because of their indirect benefits in comparison to other public services, the only funding they receive is for routine maintenance. There is no adequate reason for their construction because of the open-ended and loosely defined activities that occur within them. The existing properties of parks and facilities are important for society, but without understanding their values, planning for optimization faces deeper challenges.

Studying the history and importance of urban parks is only an entry point to find relationships between park systems. Instead of focusing on a general understanding of the roles and relationships of park systems, it is more effective to focus on the specificity of their roles. (Ellis, 2016) For example, this article highlights the role of parks in the sustainable development of a city for reasons already reviewed in this article. One benefit of this focus is discovering the neglect of green spaces in city planning, Tehran, Iran is one of these cities. (Bahriny, 2020) Fortunately, the increase of global sustainability initiatives is updating municipals with a hopeful focus on green spaces.

3. METHODOLOGY

Qualitative research methods were used to conduct field observations and personal interviews. To investigate the role of parks in sustainable development, a questionnaire was prepared to examine the impact of these public places.

Questionnaire: The questions were structured around 3 categories according to SDG 11: social inclusion/universal design and human health in parks, urban innovation and social innovation in parks, and environmental effects of parks. In Niyavaran and Qeytariyeh parks, the effect of the park on the social and economic function of their corresponding areas were studied.

Method survey: The questionnaire was distributed on a peak day (Friday) and a non-peak day (a day between weeks) during the day (morning and afternoon) among the visitors of the park at random. Surveys conducted through field surveys, interviews, and questionnaires with 100 people at random, implemented in addition to the distributed questionnaire. The number of male and female interviewees in both parks was equal. In addition, out of fifty interviews for each gender, half were conducted for people between the ages of eighteen and thirty-five and the rest for those over thirty-five. Based on the answers of these individuals, the impact of the studied parks on sustainable development was investigated, and the results of the two parks were compared. The number of samples in the statistical population is estimated using G Power software with a probability of non-reversibility of 100. Then the average opinions of passers in each quality index were obtained. The questionnaire featured multiple-choice questions (yes and no answers); however, visitors were also asked to briefly explain their answers.

4. ANALYSIS

4.1. Case studies

The two parks (Niyavaran park and Qeytariyeh park) of the project are in Northern Tehran. They are 50 minutes walking distance from one another (Fig. 1). Niyavaran Park was built in 1963 with an area of about six hectares, according to the plan of English designers, by the order of Mohammad Reza Pahlavi and with the architecture of Sardar Afkhami. Niyavaran Park is located at the beginning of Shahid Bahonar Street. This park consists of different floors and several sets of stairs have been built as special features. One entrance is in the North of Pasdaran Street and the other is in the South of Pasdaran Street. The large fountains of this park, with an area of 3320 square meters, are also a special effect. The green space of Niyavaran Park is formed by the coordination of 8000 square meters of flowers, 20,000 square meters of lawns, and numerous trees. The park consists of different parts, including the Children's Cultural Center, where English language instruction is held under the supervision of the Center for the Intellectual Development of Children and Adolescents, and the library which used to have an amphitheater. There is also a children's playground, prayer hall, WC, and four large pools. The water of the pools in the park was supplied by the city of Tehran, but in 2000, a canal was created in the middle of the park with a water source derived from the Niyavaran aqueduct. Along with different sports facilities, there are 10 chess tables and 7 ping pong tables in this park (Jalili Sadrabadi, 2015).

Qeytariyeh Park has an area of about 12 hectares, with irregular geometry, and contains old and towering trees. It became a public park in 1973, but prior to that, it was privately owned. It was built about 160 years ago by a man named Sarem al-Dawla. In addition, the remains of an ancient cemetery were identified in this area. The Qeytariyeh Palace building, now known as the Cultural Center of Nations, was built by Mirza Ali Asghar Khan Atabak. Some believe that this was the house of Mirza Taghi Khan Amir Kabir, although Amir Kabir had never lived there. In 1993, this property was purchased by Tehran Municipality. It was renovated and made available to the public as a cultural center. Qeytariyeh Park was named the first tobacco-free park in 2012 (Sotoudeh, 2011).
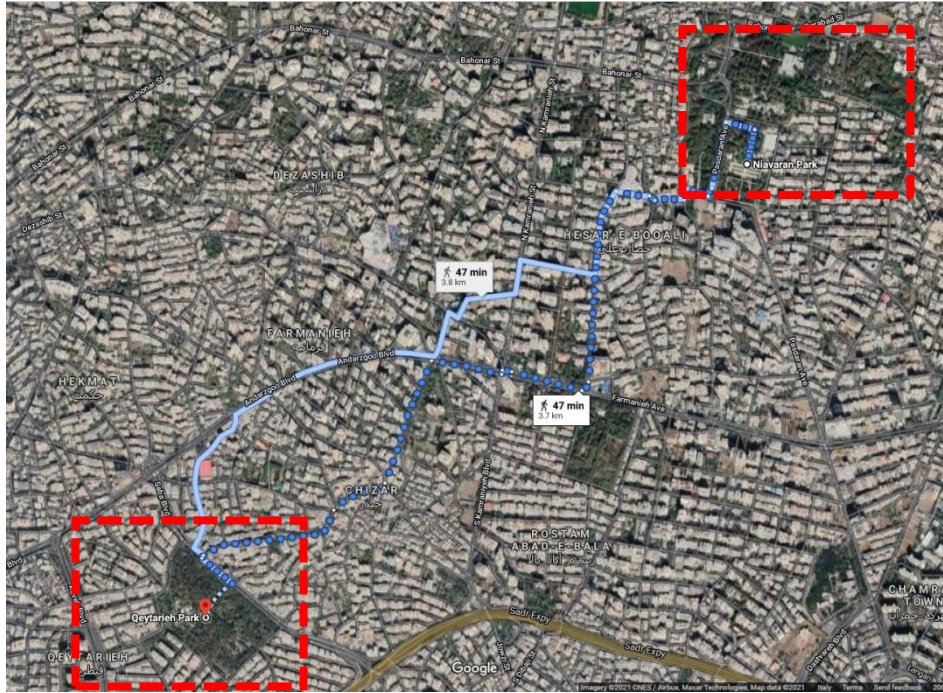
Fig 1. Location of case studies according to each other
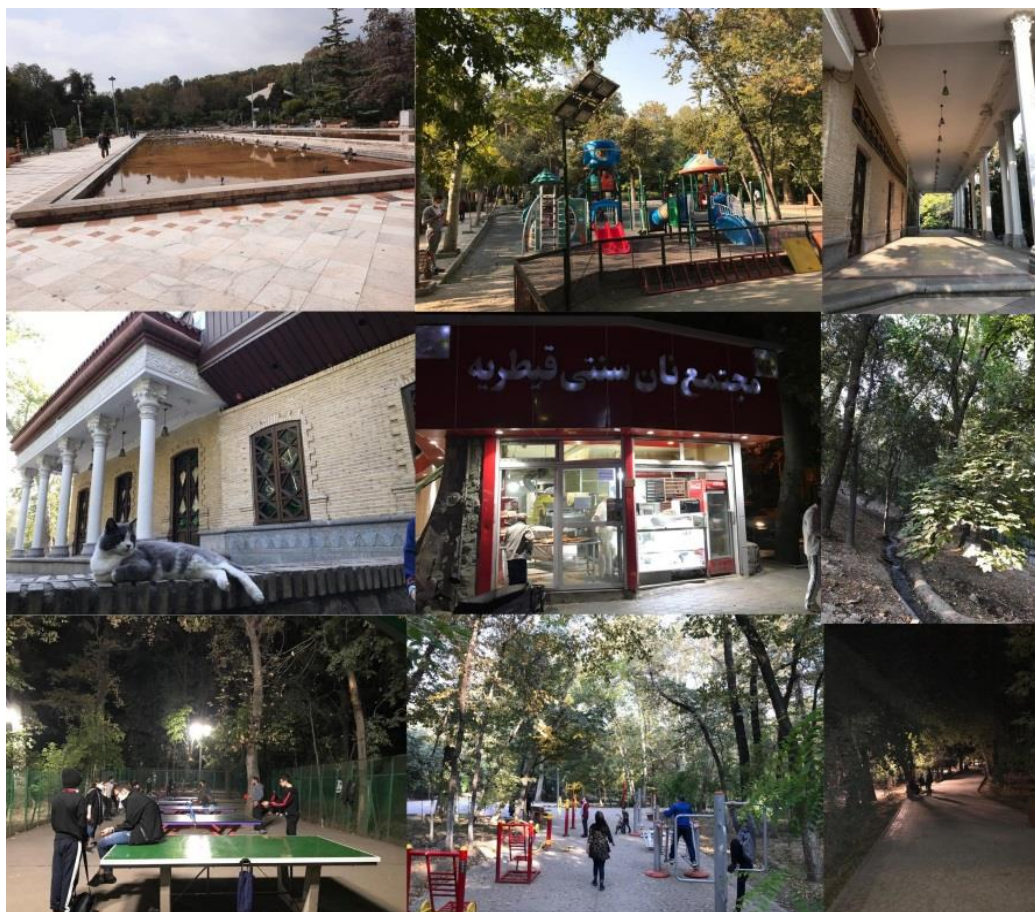

Fig 2. Niavaran Park

Fig 3. Qeytariyeh Park

4.2. Social inclusion/universal design and Human Health

Both parks are located near the main street and bus station of Northern Tehran, accessible for people living in the city

Niyavaran park, because of the stairs that have a lower height, as well as its ramps with bikeways has more accessibility. There are even benches under big trees and streetlights for the night, temporary exhibitions, and markets. Niyavaran park has play areas, sports facilities and is known for morning exercise groups.

In Qeytariyeh, there are many shelters in the park, which makes more enjoyable picnicking whilst being among the marvels of nature with family and friends. Visitors are enthralled by the lively songs of young artists who perform in street. There are also barbecue areas, children's playgrounds, seven-dimensional cinemas, ping-pong tables, a skating rink, chess tables, communication equipment, a buffet, and a library. In the Centre of Nations building, are held educational programs related to celebrations and national religious festivals, such as Yelda Night and Nowruz, poetry, painting, theatre, and children's exhibitions. There is also an Art Museum that promotes interaction between artists, viewers, and their works. Additionally, the park is famous for its cats; the visitors play with them. These features represent a socially inclusive design. Qeytariyeh park has walking and cycling paths lined with trees that twist in and out, creating a picturesque landscape that is simultaneously inviting and mysterious. Visitors can use the gym equipment available at the park to exercise .In both parks, planning interventions represent public space in the urban design process as a resilient and adaptable space due to modernization that attracts new uses while keeping its historical identity. The attitude of users about the impact of parks on social inclusion/universal design is shown in Table 2.

Both case studies reveal qualities regarding psychological comfort. 85% of questionnaire results show comfort related to social psychology in both Niyavaran and Qeytariyeh. Visitors reported that their presence in the parks provided times for social interactions while they enjoy walking, talking, and conversations with others. Unfortunately, besides these results also there are some concerns. For example, women report for both parks that they worry about their safety at night and in quiet spaces when they are alone. However, older women are less concerned about this than younger women. 80% of people in Niyavaran and 85% in Qeytariyeh believe that parks are suitable places for their physical activities (GEM) and for nurturing the soul. However, women also report the disappointment of their limitations to do physical activities, such as jogging, due to religious beliefs and restrictions. In terms of accessibility to public transportation in both parks, 90% of visitors claim that there are enough ways to achieve public transport. One

important weakness of Qeytariyeh park in this study is the accessibility for the elderly, individuals with physical and developmental disabilities, and children who may need accommodation for wheelchairs and strollers. In Qeytariyeh and Niyavaran parks about 80% of visitors are satisfied with landscape design. In both parks, 70% of people claim that the presence in the parks enables situations to start new friendships. In another shortcoming, half of the visitors in Niyavaran park believe that its facilities are not enough for leisure activities, such as chess tables for the elderly. The results for this measure are 40% for Qeytariyeh park.

4.3. Urban innovation and social innovation (economical local development and local economies)

Social innovations are highly embedded in the park environment. Indeed, environments are different in each park significantly, including some environmental factors, like freedom, and diversity that correlate to innovation (Evers, 2014). This is one reason why cities have always been locations for innovation (Cattacin, 2011).

In Qeytariyeh park, some innovation has taken place to promote economic and local activities. These have been well received by park users and include some economic benefits, where locals are able to expand small businesses. In the Center of Nations market, visitors can find an assortment of eatables, sweets, and pickles from various places in Iran. Items like bracelets, jewelry, bags, artwork, handicrafts, and mannequins that are hand-woven or made by local artists are also offered in this market. The food diversity within the park is small and limited to a few booths and a coffee shop. However, around the park, there are many restaurants and fast-food centers.

Niyavaran park is surrounded by Niyavaran Palace, a museum, and a cultural complex that has exhibitions, a library, a cinema and amphitheater, and many popular restaurants and cafes. Furthermore, temporary exhibitions held in this area, like book and handicraft pop-ups, attract local people and tourists every year, especially in spring and summer. All of these increase economic benefits. The attitude of visitors about the impact of parks on Urban innovation and social innovation is shown in Table 3.

Table 2. Attitudes of Park users about impact of the park on Social inclusion/universal design and Human Health

Social inclusion/universal design	Niyavaran	Qeytariyeh
Social-psychological comfort	85%	88%
Health of body and soul	80%	85%
Park access to public transport	90%	90%
Quality of park space design	80%	82%
Establishing friendly relations	70%	70%
Doing leisure activities	50%	60%

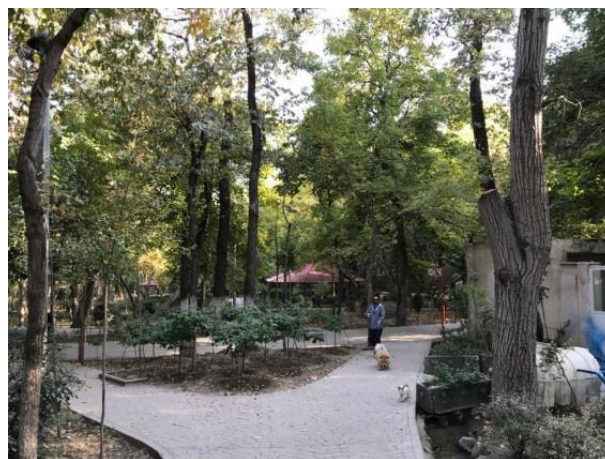**Fig 4.** Perspective of Niyavaran park

Fig 5. Perspective of Niyavaran park

Table 3. Attitudes of Park users about the impact of the park on Urban innovation and social innovation

Urban innovation and social innovation	Niyavaran	Qeytariyeh
Increasing the value of surrounding lands	60%	70%
Employment and job creation	5%	15%
Tourists attractions	55%	62%

70% of Qeytariyeh park visitors and 60% of Niyavaran's visitors claim that because of park establishment, the price of surrounding areas has increased. Only 5% of visitors in Niyavaran believe that the parks had positive effects on fostering job opportunities. This quality was measured at 15% for Qeytariyeh park. Analysis has shown that most complaints of the parks relate to the provision of seats, flower boxes, and lights. Elderly individuals are unsatisfied with the introduction of modern elements into the park, like paved stone paths, which they believe are in conflict with the park's identity. These complaints show a negative backslash of social innovation and modernization of the park for older generations. These policies were implemented with a globalized and top-down approach by municipality planning officers without consulting other stakeholders, such as the older users of the space. These older visitors believe job opportunities in parks have no notable effect on the employment rate. 55% of questionnaires in Niyavaranand and 60% in Qeytariyeh show that these areas have acceptable effects for attracting tourists.

4.4. Environmental effects (contribution in mitigation strategies as low mobility, CO2 and other pollution reduction, adaptive urban solution for water management and/or for local climate comfort)

The negative consequences of excessive paved surfaces in cities are well known. Parks, gardens, and playgrounds, particularly when well distributed in an urban area, are essential antidotes to this problem, in addition, open and green spaces perform vital ecological functions. A well-planned city-wide public space system can create green networks to regenerate ecological systems and restore environmental connectivity (wildlife, sanctuaries, and watercourses) and support biodiversity in urban areas. This can, in turn, create ample benefits for the citizenry at large and attract visitors. The role that public spaces can play in the provision of ecological services is extremely important in the mitigation and adaptation strategies to climate change. A city with a strong web of productive and natural green areas that are linked to forms of active urban stewardship is better suited to tackle some of the challenges posed by climate change (United Nations, 2016). The definition of WSUD varies among practitioners across the world. The definition provided by the National Water Initiative defines it as the integration of urban planning with the management, protection, and conservation of the urban water cycle, which ensures urban water management is sensitive to natural hydrological and ecological processes. Understanding the climate benefits of WSUD is important because WSUD commonly integrates vegetation into its design or provides an alternative water source (e.g., rainwater tank) for irrigation of vegetation (Tsiros IX, 2010). The Solid Waste Management (SWM) is associated with the control of waste generation, storage, collection, transfer and transport, processing, and disposal of solid waste in a manner that is in accordance with best principles of public health, economics, engineering, conservation, esthetics, and it is the response to the public requirements. SWM includes all administrative, financial, legal, planning, and engineering functions which are involved in delivering solutions to all problems concerning solid waste.

The functional elements of SWM are principally waste generation, waste handling, and separation, storage, and processing at source, collection, separation, and processing and transformation of solid waste, transfer, and transport and disposal.

In the case of Qeytariyeh park, there are more permeable pavements to slow the water from flash flooding. Niyavaran park design was inspired by old Persian gardens – large pools and ponds store water for drought seasons, while canals and streams irrigate plants. There are also local plants that are adapted to the climate and are more resilient to extreme temperatures and changes in season. Fountains are used to retain water and create a cooling effect in the park – an important addition for counteracting the effects of global warming. Qeytariyeh park and Niyavaran park are improving the air quality of the region through their many trees, which are known to effectively eliminate CO2. Additionally, the parks limit the entrance of cars and motor vehicles. Both are steps towards a sustainable city by lowering amounts of CO2 and other greenhouse gases. Trees in the area also act as homes for many small animals like birds. These welcoming places for birds reinforce the park ecosystem's sustainability and protect different kinds of biodiversity. The attitude of visitors about the impact of parks on environmental effects is shown in Table 4. The ecological impact of parks is undeniable, but in traffic peak time, noise pollution exists in both Districts. Controlling the amount motorcycles entering both parks would aid in this issue.

In both cases, 95% of people believe that parks are effective in decreasing the air pollution. The values for decreasing noise pollution are about 70% for each park. 80% of questioners in Niyavaran park and 85% in Qeytariyeh park believe that water system management is sustainable for these areas. The results for solid waste management are 85% for each park. In Niyavaran park, 80% of people, and in Qeytariyeh park, 75% of people, believe that the parks were successful in controlling motorcycles entering the sites.
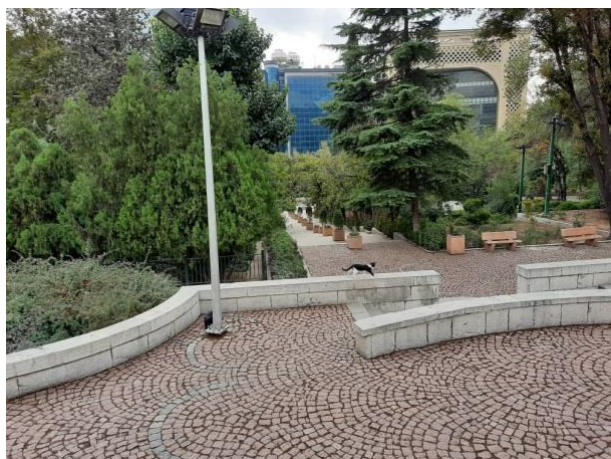
Fig 6. View of Niyavaran palace

Fig 7. Nations market – Qeytariyeh

Table 4. Attitudes of Park users about the impact of the park on environmental effects

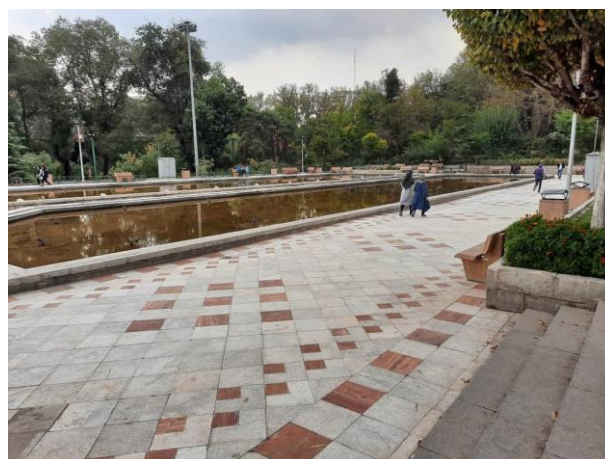| Environmental effects	Niyavaran	Qeytariyeh
Decreasing air pollution	95%	95%
Reduce noise pollution	68%	70%
Water management	80%	85%
Solid Waste management	85%	85%
low mobility	80%	75%

Fig 8. View of fountain in Qeytariyeh

Fig 9. One of the Large pools in Niyavaran

5. CONCLUSION

In response to the analysis of the study and the high percentage of positive answers in each study, we can consider both cases as successful sustainable public spaces.

In most components of the study, Qeytariyeh scored marginally higher than Niyavaran.

The main concerns in each study were the engagement of women in physical activities and low employment rates due to parks and surrounding businesses. For example, the creation of new jobs is the only component of the study that scored below 50 percent, and near 10 percent in the final analysis. These concerns should be considered for park design, maintenance, and future improvements.

Strategies are identified for each case study in response to study analysis to increase sustainable development goals in these public spaces.

• A weakness of both parks is the accessibility for the elderly, individuals with physical and developmental disabilities, and children who may need accommodation for wheelchairs and strollers. There are many staircases around park entrances that lack these accommodations. It is necessary to accommodate these individuals by adding smooth ramps near existing pedestrian entrances and stairs. These additions would promote the notions of public park safety and accessibility. Accessibility can also extend to the textures, sounds, feelings, and environments that make people feel safe. The design of the park itself, in terms of a groomed landscape, is successful and cultivates a welcoming place.

• Improvements in local economies can be made by reorganizing markets. These can be flexible spaces for local markets and seasonal festivals to provide a structural framework that helps promote small businesses. It also increases the attraction of individuals to the parks. Additionally, this encourages community involvement in space design, which increases usability.

• Incorporation of renewable resources, like solar panels, can reduce the energy need for lighting the area at night.

• Creating a parking area for Niyavaran will provide convenience and accessibility while also activating the southern portion of the park.

• A connective section from Niyavaran park to the Cultural complex garden can expand the space and provide safety and convenience to visitors. Currently, a fence separates these areas, making a large amount of space unusable, and making it dangerous for people to access either location as they find a street crossing. An additional and simple solution is to open the fence for specific hours of the day or create pedestrian bridges/walkways/tunnels that merge this area.

• Restoration of the café would also improve Niyavaran park. There are restaurants and cafes near this public space, but accessing them requires visitors to cross the street, which can be dangerous for some groups of people, like the elderly and children. Renovating this space, like the connective sections created in the previous suggestion, would create more economic development and exchange between business owners and park visitors.

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