

Djebel El-Ouahch Park in Constantine: A bridge between the city and nature and an indicator of its attractiveness

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Abstract: The presence of nature in the city through urban parks is invaluable for both the quality of life of city dwellers and the preservation of biodiversity. These green spaces are essential for making cities more livable and fostering a harmonious relationship between nature and the urban environment. This study aims to highlight the role of nature in the city of Constantine through the 'Djebel El-Ouahch' park, with the goal of promoting its sustainable use. It seeks to identify the park's strengths for development and the challenges that may hinder its growth. To this end, we adopted a participatory diagnostic method, including a site inventory supported by visual observation. The results allowed us to identify the challenges involved, with the aim of improving the park and enhancing its attractiveness.

1. Introduction

In recent decades, the importance of urban parks has gained increasing recognition, attracting attention from researchers and urban planners. Cities like New York, Paris, London, Chicago, and Boston have been pioneers in understanding the positive impact of urban parks on the quality of urban life.

In recent decades, the importance of urban parks has gained increasing recognition, attracting attention from researchers and urban planners. Cities like New York, Paris, London, Chicago, and Boston have been pioneers in understanding the positive impact of urban parks on the quality of life (Arnould et al., 2011). This awareness has reinforced the role of urban parks as vital for environmental preservation, recreation, education, and the mental and physical well-being of urban residents.

In the Dictionary of Geography, authors George and Verger (2013) offer us a simplistic definition of these spaces, describing them as generally low-lying, covered with herbaceous vegetation, and enhanced by isolated trees or small copses. In addition to this, Boutefeu (2005) expands on the concept of a park, describing it as "an urban or peri-urban green space open to the public, shared by many citizens, enclosed or not, and larger than a square, ranging from 2 to 3,000 hectares. These parks are designed for recreation, featuring ornamental lawns, decorative trees, and wooded areas, providing green oases for residents and visitors.

Parks are now key elements of sustainable development and play a vital role in shaping city identities (Boutefeu et al., 2008). In Canada, the Rouge National Urban Park, an ecologically protected area in the Greater Toronto Area, encompasses much of the Rouge River and Little Rouge Creek valleys. Spanning 79.1 km², the park opened in 2015 and is managed by Parks Canada to preserve a crucial corridor between the Oak Ridges Moraine and Lake Ontario (L'Encyclopédie Canadienne, 2018).

In South Korea, the Skygarden project represents a new generation of parks built on a one-kilometer-long motorway viaduct. Inaugurated in 2017, this multifunctional park serves essential infrastructural, ecological, educational, and cultural roles. As a living library of the country's natural heritage, it reconnects city dwellers with nature while offering breathtaking views of Seoul, as Bialestowski highlights in an online article (AMC Architecture, 2017).

The concept of urban parks in Algeria is a relatively recent development, shaped by significant historical changes. Its origins date back to the colonial era, which left a legacy of small urban parks and green spaces. However, the most emblematic model for ecologists and environmental experts remains the Jardin d'Essai d'Alger, created in 1832. This botanical garden quickly became a symbol of botanical diversity and a cherished space for relaxation and recreation.

Despite this rich history, the concept of urban parks has been largely neglected in Algerian cities in recent years. It was only with the rise of sustainable development that the Algerian state fully recognized the importance of integrating 'vegetation in the city', (Mehdi et al., 2012). This awareness led to the creation of a development strategy to preserve the urban environment, including legal measures and initiatives to rehabilitate green spaces.

At the same time, private investment has been encouraged, driving a major transformation in the tourism and leisure sector. A key example is the development of Grands Vents Urban Park, also known as Dounya Parc. As part of a broader plan to create a green belt around Algiers, this project aims to transform the area into a vast urban leisure park west of the city.

However, despite these positive developments, urban parks in Algeria face significant challenges in development and maintenance, highlighting issues in management (Bekkouche, 1997). The distribution of urban parks in Algerian cities reflects past sectoral policies, often contributing to a disorganized urban fabric. To fully harness their potential, sustained efforts and a long-term vision are essential to creating quality green spaces that meet citizens' needs while preserving the environment.

Although Constantine, an ancient city and regional metropolis, occupies a strategic geographical position, it faces challenges in leisure and recreation infrastructure. Perched on a majestic rock overlooking the Oued Rummel, the city boasts exceptional natural potential and rich tourist resources. However, inadequate infrastructure forces its population, estimated at 1,216,869 in 2015, to travel to other wilayas for entertainment. Despite this situation, Constantine has several green spaces, including Bardo Urban Park, Djebel El-Ouahch Park, Bab-El-Kantara Urban Forest, and Bennacer Garden. However, these areas still do not fully meet the criteria of a sustainable city.

Djebel El-Ouahch Park is particularly vital as the city's green lung, thanks to its strategic location at Constantine's entrance, its vast size, and its proximity to a protected forest one of Algeria's classified natural areas (Boubekeur et al., 2021). Unfortunately, this space is deteriorating, gradually losing its original function as a place of diversity, interaction, and sociability (Mebirouk et al., 2005). This raises the question: how can Djebel El-Ouahch Park be improved to enhance residents' well-being and boost the city's attractiveness?

With the rise of sustainable development, integrating nature into urban environments has become essential. Cities are increasingly incorporating parks, gardens, and green spaces to strengthen their connection with nature. Therefore, natural spaces should be considered a key parameter in urban planning rather than merely potential building land. The goal is to emphasize the role of nature in the city and position it as a key priority in Constantine's sustainable development. This involves assessing the current state of Djebel El-Ouahch Park and exploring the factors that impact its attractiveness. Enhancing this space within a sustainable city framework, where public well-being aligns with architectural considerations to create harmonious landscapes, can attract investment, fostering local development and urban growth in Constantine. (Millenaire 3 Métropole Lyon, 2007).

2. Materials and Methods

Our study is part of our final year project (2020) on the requalification of public spaces in Constantine. As a Master's thesis in City Management, it aims to deepen our understanding of urban dynamics and their management.

The analytical method used in this study is the participatory diagnostic approach. This collective process of analysis and reflection integrates qualitative information (knowledge, visions, and experiences) and quantitative data to develop a response tailored to the spatial, social, environmental, and functional needs of the territory. The participatory diagnosis assesses the current state of Djebel El-Ouahch Park, identifying its issues, assets, and public expectations while providing insights into its past evolution and future prospects (Definitions & Methodes, 2016; Mebirouk and Hamma, 2023). It also includes user and visitor surveys through questionnaires to assess the role of nature in the city and guide the park's improvement efforts.

2.1. The Questionnaire Survey

Questionnaire-based fieldwork is an observational method that uses structured, logical questions to collect quantifiable and comparable data on a specific population, allowing for statistical analysis.

The questionnaire was designed based on the key features of Djebel El-Ouahch Park and administered to a sample of 110 people. However, its development faced challenges due to the COVID-19 pandemic and the social distancing measures imposed by the Algerian government. Given this health situation, the survey was conducted online via social networks, which complicated data collection and hindered the full achievement of our objectives.

In 2021, we resumed our research on Djebel El-Ouahch urban park, refining the original questionnaire designed specifically for park users. The revised questionnaire consists of 27 questions, categorized as follows:

- 2 open-ended questions, allowing respondents to freely express their opinions;
- 9 semi-open-ended questions, enabling more precise answers and facilitating data processing;
- 5 pre-coded questions, providing a set of predefined answers for respondents to choose from;
- 11 closed questions, requiring clear and specific responses.

In selecting the sample, we aimed for representativeness in both age (15 to over 60) and gender distribution. We gathered testimonials from 70 users, with 60% women and 40% men (see Figure 1).

The survey primarily targeted young people, with 61% aged between 25 and 34 (Figure 1).

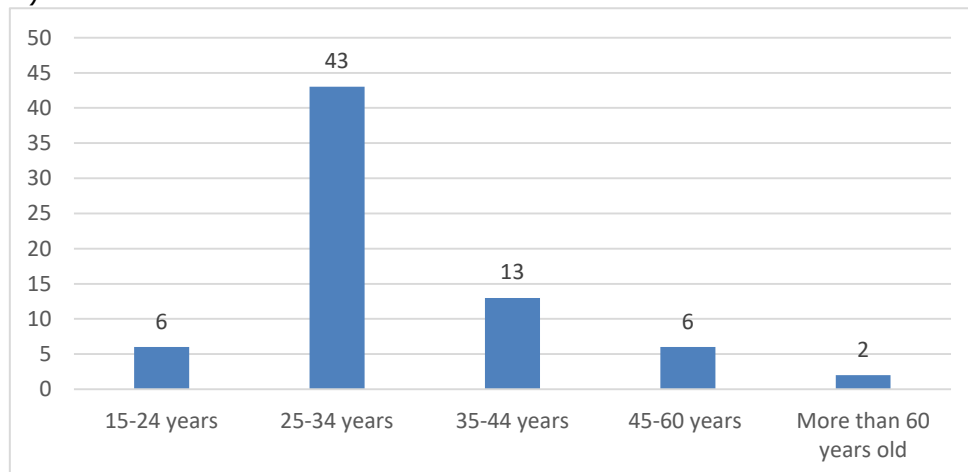


Figure 1. Age range of respondents. Source: Field survey, 2021

2.2. Semi-Structured Interview

In addition to the questionnaire, we conducted semi-structured interviews with various departments involved. This qualitative approach allowed direct interaction with managers, using flexible questions to explore their responses in depth and encourage free expression. To ensure consistency in our questions, we developed an interview guide as a reference. It primarily focuses on defining the management's role in overseeing the park as a forest asset, as well as its development and maintenance.

The survey results were compared with spatial and urban planning instruments to identify strategic issues and anticipate actions for improving the park's quality and use from a sustainable development perspective.

3. Inventory of Green Spaces in the City of Constantine

Green spaces are essential elements of urban quality of life (Stefulesco, 1993). They provide places for rest, harmony with nature, and a sense of connection to our roots. Additionally, they foster social interactions (Hacini-Chikh and Mebirouk, 2004). These spaces have the ability to provide multiple benefits, such as creating microclimates, offering shade and freshness, and protecting against drafts. However, in many Algerian cities, they face challenges and are gradually losing their role (Mebirouk, 2008). In this regard, the city of Constantine, despite its high potential for green spaces, has only 17 squares and public gardens. Most of these spaces are in a state of degradation (Gherraz, 2021), and are poorly distributed, being concentrated mainly in the central urban core. In addition, the new Bardo urban park was built on a plateau where homes were demolished as part of a rehousing operation launched in 2009. Covering an area of 65 hectares, the urban forest of El-Mansourah is the largest in the city. However, the establishment of the 5th Military Region, the construction of the viaduct, and urban expansion have significantly reduced its size to less than 7 hectares. It is worth noting that the only peri-urban forests equipped with recreational facilities are those of Djebel El-Ouahch, part of which was converted into a recreational and amusement park in 1983, and the recreational forest of El-Meridj (Ali-Khodja and Khenoucha, 2017). Covering an area of 200 hectares, El-Meridj features wooden cottages, a waterfall and stream, an artificial lake, and playground equipment for children.

4. Diagnosis of Djebel El-Ouahch Park

4.1. Situation and Accessibility

The Djebel El-Ouahch Park (1,200 m in altitude), a key landmark at the entrance of the city, was once a popular walking destination for the local population. It served as both the city's water reserve and its green lung. It is also one of the protected areas identified in Algeria. Today, the park has lost its appeal due to management and maintenance issues. The leisure park no longer serves its function and has been closed for purely managerial reasons.

Covering an area of 550 hectares, the park is located 10 km northeast of Constantine, on the outskirts adjacent to the neighbourhoods of Ziadia and Djebel El-Ouahch. It overlooks the highest point of the entire Djebel El-Ouahch Mountain range, standing at 1,290 meters making it the highest northern elevation of Constantine (Figure 2).

The Park faces accessibility challenges due to the lack of entry points. The most well-known and frequently used access is the Cedar Gate, southwest of the park, providing direct access from Constantine. There is also another, less frequently used gate located to the southeast (Figure 3).

According to data from the Directorate of Forest Conservation of Constantine (DCF), Djebel El-Ouahch was once a vast cork oak forest massif. Its history is closely tied to that of the Constantine region. In 1837, during the French colonization, Djebel El-Ouahch was

completely barren. It was a French engineer from the Ponts et Chaussées who undertook a project that transformed the area into an attractive site.

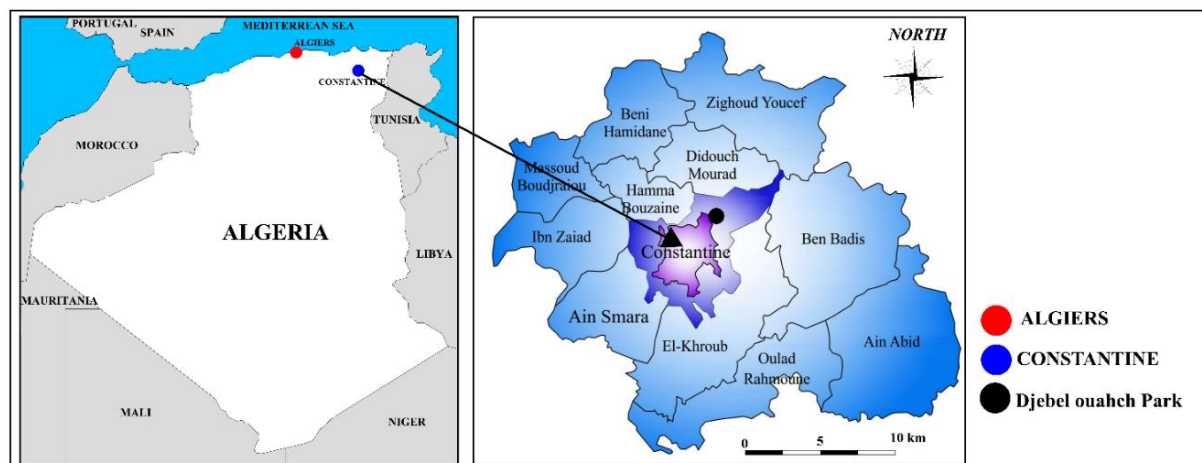


Figure 2. Location of the Park in Relation to the City. Source: MPDUP of Constantine, 2010

In 1906, the French administration established a test area for trees brought from various regions around the world. After independence, in 1970, the site was classified as an integral biological reserve under the ministerial decree of November 26, 1970. In 1983, it was converted into a leisure park, but this function lasted only 14 years, as the park was closed in 1997 and remains closed to this day.

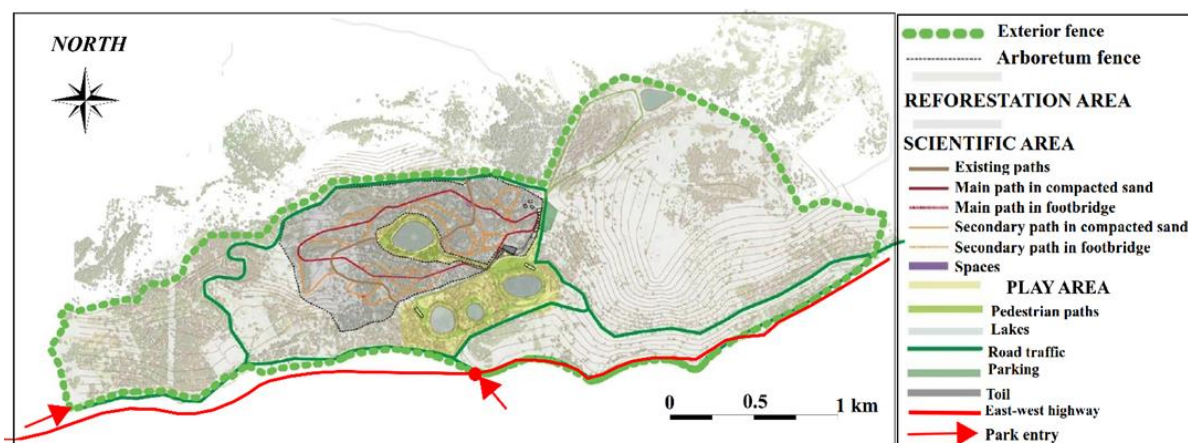


Figure 3. Accessibility to Djebel El-Ouahch Park. Source: Directorate of Forestry Conservation of the wilaya of Constantine, 2017

4.2. Internal Composition of the Park

The amusement park is divided into a green space and a leisure area. Covering an area of 13.5 hectares, it has an irregular layout and an almost trapezoidal shape (Figure 4). Its road network consists of three types of roads (Figure 3): A bypass of the East-West Highway, located to the south of the park, which acts as a barrier to access; secondary roads in poor condition, prevailing throughout the park; tertiary roads, used by forest agents, which are in a degraded state and consist of compacted sand main and secondary roads, along with a pedestrian path.

In addition to the leisure park, Djebel El-Ouahch includes:

- A mini zoo covering 3 hectares, previously located in front of the nursery and now relocated inside the park.

- An arboretum spanning approximately 30 hectares.
- An existing forested area.
- A nursery covering 1.8 hectares.
- A sports area of 2.52 hectares (not yet completed).
- Four lakes and a hillside reservoir within the park's boundaries.

Currently, the leisure park is in a state of deterioration, which began in the 1990s following the dissolution of the Wilaya company responsible for its management. Decades of neglect have worsened the degradation, which has now reached a critical point. Despite attempted interventions, no significant improvements have been achieved. In an effort to rehabilitate the park, a new management company has demolished several stores. However, the degradation persists, highlighting the urgent need for a more strategic intervention (Figure 4).

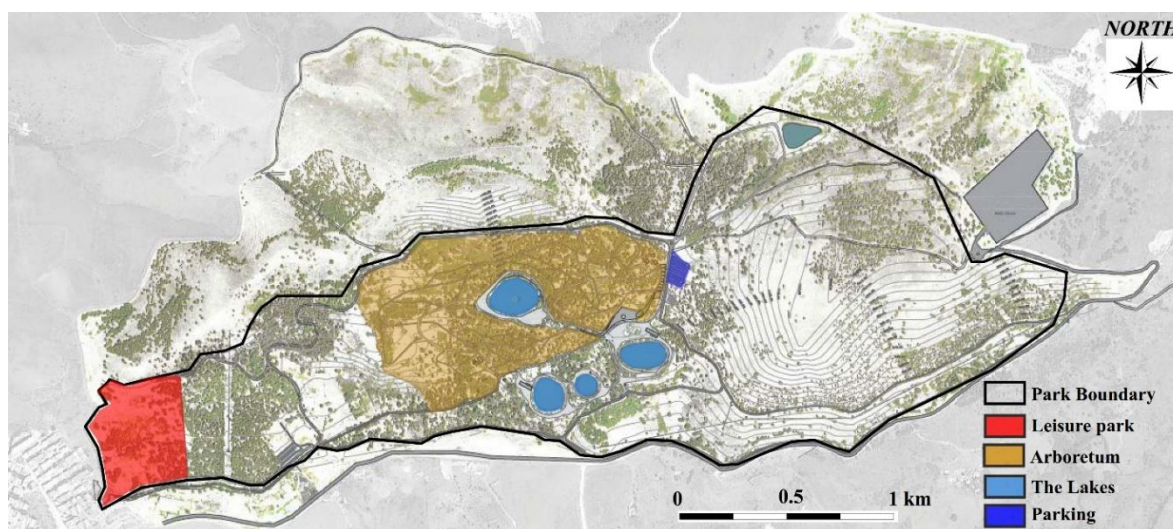


Figure 4. Main Components of the Park. Source: Directorate of Forestry Conservation of the Wilaya of Constantine, 2017

The Park is a multifunctional space but lacks urban furniture such as benches, litter bins, and public lighting. However, the lakes serve as popular relaxation spots, frequently visited by fishing enthusiasts. The forested environment is the most attractive area, offering opportunities for walks, hikes, and picnics. The park's main functions include relaxation, sports and games, and discovery such as nature outings and environmental awareness activities.

4.3. The Environmental Aspect

The environmental aspect is characterized by a relatively moderate and rugged topography, with elevations ranging from 860 m to 1,025 m. Djebel El-Ouahch, of Quaternary geological origin, is distinguished by the juxtaposition of high plains, hills, depressions, and abrupt slope breaks, resulting in a heterogeneous landscape. Its slopes vary, indicating an irregular topography.

The climate is influenced by several factors, including the park's unique and heterogeneous site, its size, components, and altitude, which together create a distinct microclimate (cool sub-humid). This microclimate is marked by higher precipitation levels, occasional snowfall, and lower winter temperatures, with a shorter dry period. Additionally, the park is home to approximately 43 autochthonous and non-autochthonous forest species from various botanical families, as well as a diverse fauna and four artificial lakes.

4.3.1. Flora

The arboretum is an old-growth forest covering an area of 30 hectares, located east of the nursery and south of the park. Surrounded by reforested areas, it consists of noble, giant, and ecologically significant forest species, including a rich variety of trees such as various conifers, sequoias, and hardwoods, making it a valuable biological reserve.

However, the arboretum has suffered degradation due to excessive forest exploitation and overgrazing, which has accelerated the process by overloading the land with livestock. With its unique landscape value, the arboretum is home to a diverse range of indigenous (native) forest species, including *Pinaceae*, *Cupressaceae*, *Fagaceae*, *Ulmaceae*, *Moraceae*, *Salicaceae*, and *Oleaceae*, as well as non-native species such as *Pinaceae*, *Cupressaceae*, *Aceraceae*, *Fabaceae*, *Ulmaceae*, *Moraceae*, *Taxodiaceae*, *Myrtaceae*, *Tiliaceae*, *Platanaceae*, and *Salpiniées*.

4.3.2. Wildlife

The Park is home to a diverse range of animal species, both aquatic and terrestrial, including 12 species of mammals, 5 varieties of reptiles, and approximately 30 species of birds. However, some of these animals have disappeared, while others are endangered.

4.3.3. Lakes

Four artificial lakes were created in 1860 for irrigation purposes, along with a more recent hillside reservoir (Figure 5). Coveted by visitors for their rich fauna, these lakes are in a highly concerning state. The first lake has been deteriorating for several years due to leaks and drought, while the second is polluted by algae and garbage. As of today, both lakes are nearly dried up, especially following the construction of the tunnel for the East-West Highway. The third lake, covering an area of 0.6 hectares, and the fourth, extending over 1.5 hectares, are experiencing a decline in water volume but continue to resist pollution.

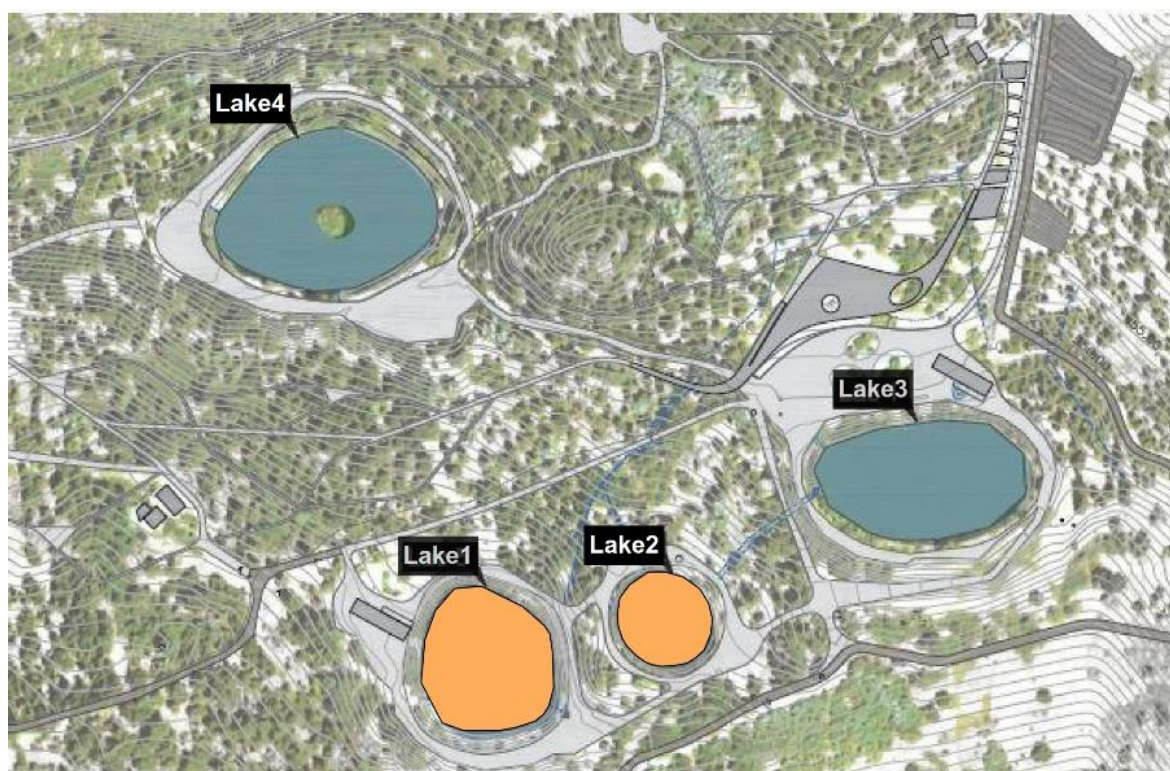


Figure 5. Layout of the Lakes. Source: Source: Directorate of Forestry Conservation of the Wilaya of Constantine, 2017

Notably, the hillside reservoir remains preserved, as it is fed by a nearby water source. Additionally, Lake No. 4 suffered from drought due to both high temperatures and the cessation of water flow through the pipeline. However, its volume was eventually replenished after the rains of March and April 2022.

The synthesis of the site's current state has highlighted its strengths and weaknesses, which we summarize in a SWOT matrix (Table 1).

Table 1: Summary of the diagnosis

Strengths	Weaknesses
- Strategic location (at the entrance to the city) - Green lung of the city - Unique environmental landscape with a panoramic view - Ecological biodiversity and the presence of a biological reserve - Diverse functions - Well-structured road hierarchy - Large surface area	- Lack of transportation - Insufficient entry points - Insecurity and social issues - Degraded condition of the park - Lack of urban furniture - Insufficient parking spaces - Poor road conditions - Inefficient management - Deterioration of the leisure park
Opportunities	Threats
- Unique space for the creation of an international park - Noise-free Park - Site of the old park suitable for developing a leisure park.	- Forest fires - Lake pollution

5. Results and Discussion

5.1. The Questionnaire Survey

It is important to note that using a questionnaire as a data collection method required the development of a set of standardized, pre-prepared questions for participants to answer. These questions were carefully designed to address various aspects of the Djebel El-Ouahch Park issue and its revitalization.

5.1.1. Socio-spatial Aspect and Degree of Attendance

The survey results show that more than half of the respondents (57.14%) consider Constantine a monotonous and polluted city that lacks leisure spaces. They also observe acts of incivility that disrupt the basic rules of social life. In contrast, 42.86% of respondents find Constantine to be a pleasant city, citing its historical and natural assets, such as its suspension bridges.

Furthermore, to assess the importance of nature, a question was asked about the image of an ideal city and its relationship to greenery. The results revealed that greenery is a fundamental component of the ideal city for 87.14% of respondents, while 12.86% believe the ideal city should prioritize built environments over natural spaces.

Additionally, the survey sought to define the concept of "green space." Among the respondents, 37.14% provided a broad definition, describing it as "everything that is green"; 21.43% associated it with specific elements such as plants, trees, and grass; and 41.43% viewed it as an artificial space created and maintained by humans, including gardens, parks, and squares (Figure 6).

The responses to the question about park visitation indicate that 62.85% of citizens rarely visit it due to its remoteness, insecurity, and lack of public transportation (Figure 7).

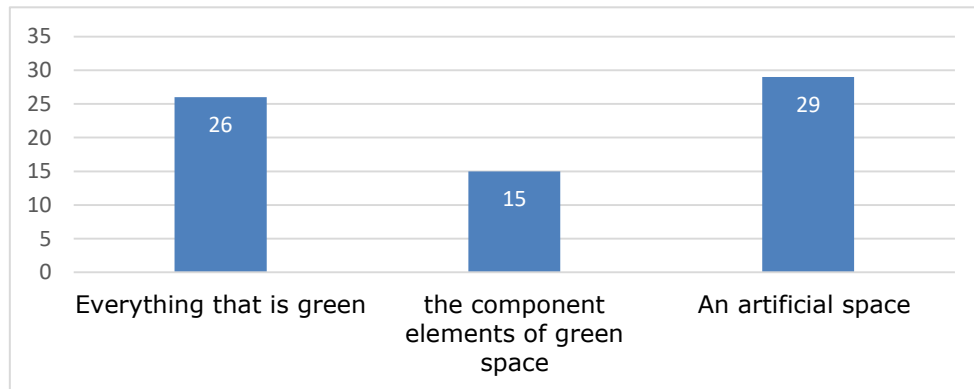


Figure 6. Definition of the notion of "Green spaces. Source: Field Survey, 2021

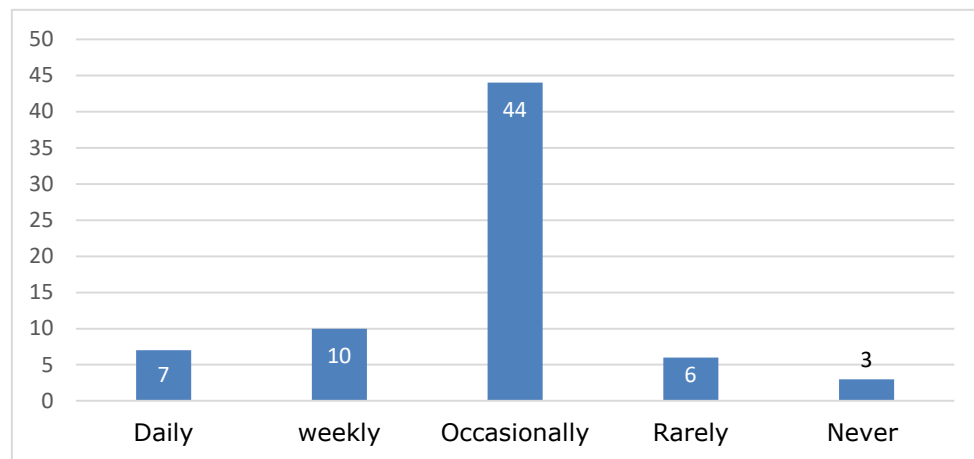


Figure 7. Frequentation of the park. Source: Field Survey, 2021

The primary mode of transportation to the park is the private car (67.07%), followed by buses (18.29%), which mainly serve the surrounding neighborhoods (Figure 8). Furthermore, park visitation varies by age group and the function of the space. According to the responses, the central area, where Lake No. 4 is located, is the most frequented (60% of responses).

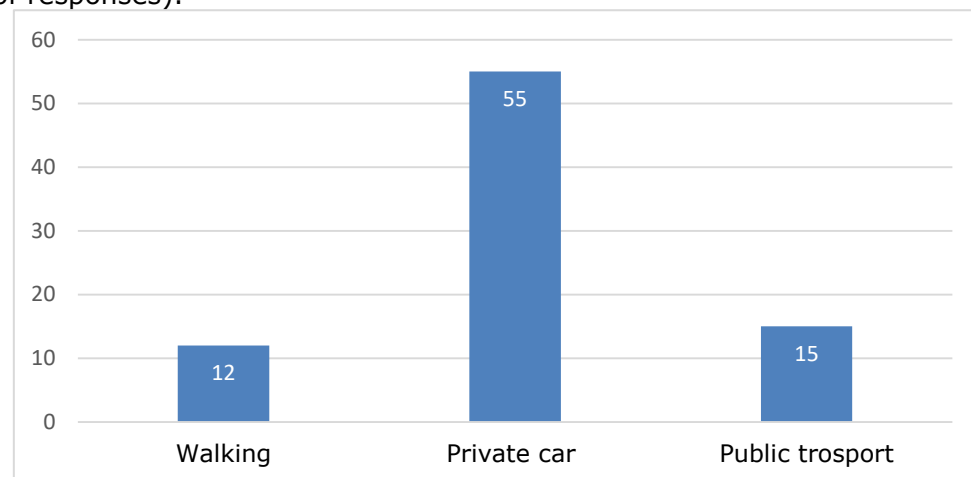


Figure 8. Means of transportation used. Source: Field Survey, 2021

5.1.2. Activities Performed

Some activities are more commonly practiced than others, with multiple reasons given (121 responses received). According to the survey, 37.19% of respondents stated that walking is the most practiced activity, followed by enjoying the natural landscape (30.58%). Sports activities are also popular among 11.57% of users, encouraged by the presence of green spaces. Despite the lack of playgrounds, 9.92% of visitors accompany their children to watch them play.

Additionally, 10.74% of responses indicated that certain activities, such as reading, fishing, and camping, are gradually disappearing (Figure 9). Notably, 78.57% of respondents believe that diverse activities in the park encourage social interaction and connections between citizens. However, for the remaining respondents, acts of incivility and insecurity hinder social gatherings.

Given its large surface area, the park is considered more suitable for sporting activities, according to 85.71% of respondents. Its natural features provide an ecologically pleasant landscape.

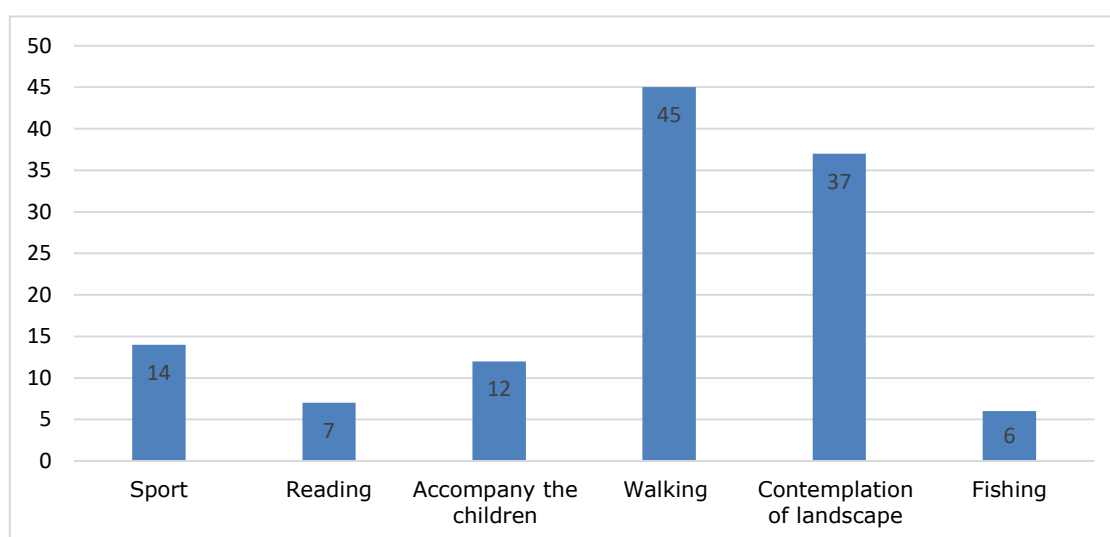


Figure 9. Activities performed. Source: Field survey, 2021

5.1.3. Environmental Aspect

Regarding the environment, 81.42% of respondents stated that the park was created to preserve nature, thanks to the presence of the biological reserve. Additionally, this space, located far from urban and noise pollution, promotes well-being and urban hygiene, according to 74.28% of responses.

When asked about urban pollution, 67.14% of respondents identified the park as the healthiest area due to its forests, trees, and green spaces. These natural assets undoubtedly contribute to environmental education, as affirmed by 67.14% of respondents. Furthermore, the presence of wildlife is seen as particularly attractive by 91.42% of respondents. The most effective ways to raise environmental awareness, according to the survey, include programming conferences and debates (12.85%), organizing activities for schoolchildren (12.85%), guided discovery trips (18.57%), providing information on the city's website (14.3%), conducting awareness campaigns (17.14%), and installing informational panels in the park (24.29%).

5.1.4. Indicators of Satisfaction in the Park

According to 57.14% of respondents, the park is in poor condition, while 41.43% believe it is in good condition. The remaining 1.43% consider its condition to be excellent. Figure 10 illustrates the dissatisfaction of 54.28% of users.

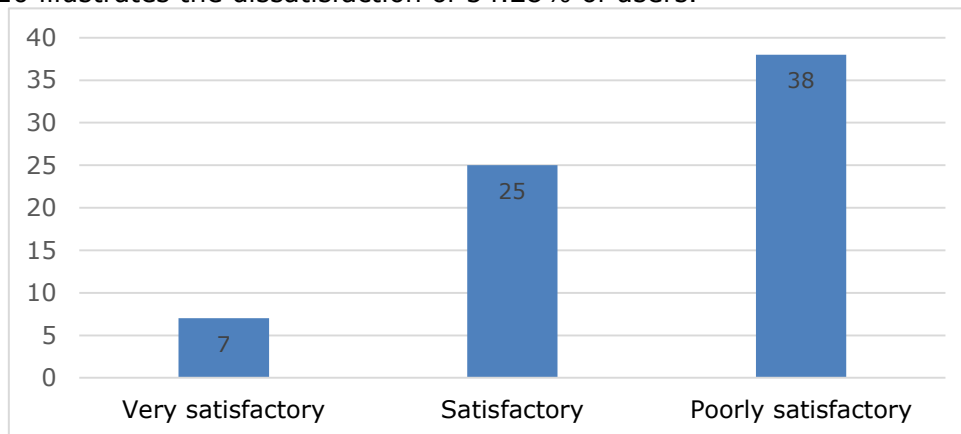


Figure 10. Degree of user satisfaction. Source: Field survey, 2021

To further refine these results, satisfaction was also evaluated based on the quality of service, safety, and hygiene. The findings reveal respondents' disappointment with all three indicators. As shown in Figure 11, dissatisfaction represents the highest percentage: disappointment is particularly evident in responses related to the quality of service (60%), hygiene (48.58%), and safety (41.43%).

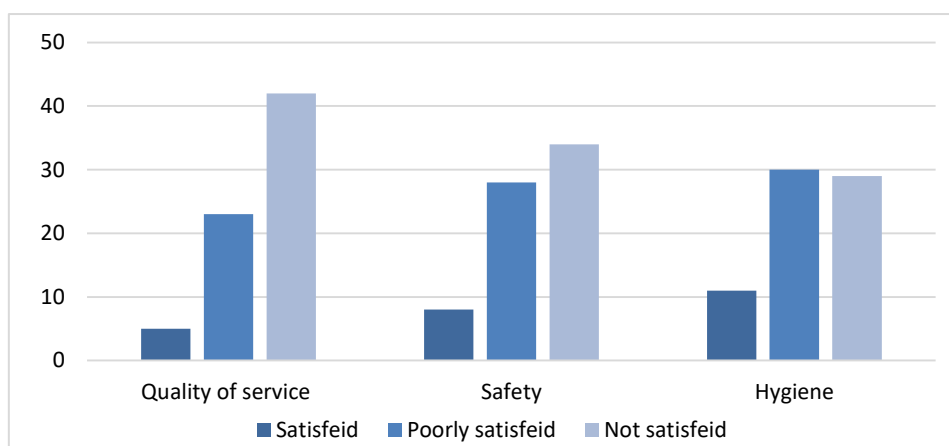


Figure 11. Satisfaction evaluated by the quality of service, safety and hygiene. Source: Field survey, 2021

5.1.5. Evaluation of the Role of the Actors in the Management of the Park

According to 64.28% of users, the role of the actors is poorly assumed. The management of public space is the responsibility of the Commune. However, respondents believe that local authorities are not capable of fulfilling this role. Their efforts are primarily focused on completing housing projects at the expense of public space.

5.1.6. Problems Experienced and Proposals Made by the Respondents

The inadequacies observed within the park include remoteness (13.39%), insecurity (30.71%), incivility (19.69%), lack of accompanying spaces (1.57%), absence of street furniture, playgrounds, and parking areas (22.05%), dissatisfaction with the existing green spaces (11.02%), and lack of hygiene (1.57%), among others. In response to these issues, some users have suggested the following solutions:

- Strengthening security within the park (e.g., security guards),
- Establishing multi-service facilities (restaurants, creameries, etc.),
- Creating shaded areas with seating,

- Developing designated areas for different age groups (children, teenagers, adults, elderly, etc.),
- Introducing sports activities for family use.

5.2. Actors Responsible for Park Management

Djebel El-Ouahch Park is legally classified as State property and is part of the State's forest heritage. Currently, its management is entrusted to the wilaya (department) in collaboration with various relevant departments, as shown in Table 2.

The results of the investigation reveal that in May 2017, the organizations responsible for managing this state property launched an auction for the site of the former leisure park, in which five companies participated. The site was awarded in concession to the Enterprise of Road Works, Hydraulics, and Buildings (ETRHB Blikaz) for a period of 33 years, renewable only once, in exchange for an annual payment of more than 42 million dinars, made to the Inspection of the Domains. This concession was subject to monitoring by a commission responsible for ensuring compliance with the specifications. In addition, to accelerate the reopening of the park to the general public and the resumption of activities, local authorities allocated 50 million Algerian dinars (approximately 339,991.75 US\$) to ETRHB for the rehabilitation of internal structures. Unfortunately, the company failed to fulfill the assigned tasks, apart from the demolition of 15 facilities in the park in 2018. Due to the continued degradation of this biological reserve, the contract with ETRHB Blikaz was ultimately terminated. In 2022, as part of a local policy to enhance Constantine's natural heritage and tourism, a contract was awarded to a private investor following a national tender launched by the Wilaya. This contract includes the development of more than 30 facilities, including recreational and commercial spaces, as well as the rehabilitation of the tourist site.

Table 2. Different Actors Responsible for the Management of the Park

Actors	Role
Forest Conservation	It ensures the conservation of the forest reserve and the protection of species. It is responsible for security within the forest and its management. Its role is to preserve forest cover and oversee afforestation efforts. In the event of a fire, it intervenes by preparing equipment and clearing the road for firefighters.
Communal Popular Assembly (CPA)	It is responsible for maintenance and waste collection.
Wilaya Popular Assembly (WPA)	It is responsible for the management of the leisure park
Directorate of domains	It is a delegated directorate of the wilaya responsible for preparing and supervising calls for tender and specifications.
EURL BLIKEZ	A private company is responsible for the construction of the amusement park, providing the necessary materials, workforce, and resources to address delays, present a completion schedule, and deliver the project within the shortest possible time. However, the company has suspended work since 2017.

Source: Field survey, 2020

This initiative also aims to develop the financial resources of local authorities and create several jobs. The work initiated after the signing of the contract includes the rehabilitation of the park's internal structures and the development of 33 service facilities, including commercial spaces, recreational areas, and relaxation zones (L'Algérie Aujourd'hui, 2022).

5.3. Orientation of Legal Instruments and Definition of Issues

In order to identify the main issues of the park, it is essential to review the land use planning instruments to determine the key orientations of the NSPS (National Spatial Planning Scheme), the SPSTP (Spatial Planning Scheme of Territorial Programming) (e.g., Regional Spatial Planning Scheme (RSPS)), and the WDP (Wilaya Development Plan), as well as the various objectives of the MPDUP (Master Plan for Development and Urban Planning) of Constantine. This review allowed us to identify the orientations that could support the development of the Djebel El-Ouahch theme park.

The National Spatial Planning Scheme (NSPS) recommends preserving biodiversity and natural capital, protecting and enhancing ecosystems, and preventing major risks (Law no. 10-02, 2010). Similarly, the Spatial Planning Scheme of Territorial Programming (SPSTP) prescribes the preservation and conservation of biodiverse environments, as well as the establishment of an urban system that ensures territorial development and a sustainable urban-rural balance. Likewise, the Wilaya Development Plan (WDP) prioritizes the safeguarding of the environment and the surrounding natural areas, including forests, scrublands, and rangelands.

The MPDUP of Constantine has recommended, for the tourism and attractiveness component, the improvement of transport infrastructure to enhance accessibility to various sites, the development of recreational forests with infrastructure for leisure and accommodation, and the enhancement of city entrances and routes. For the environmental component, the MPDUP has emphasized informing and educating the population on environmental issues and sustainable development, creating green spaces with pedestrian pathways, protecting forests and reforested areas, and reforesting degraded land with indigenous species that have economic value and help prevent erosion. The management component has also been addressed by the MPDUP, including the training of qualified personnel for the maintenance of environmental spaces. In addition, this component emphasizes citizen participation in forest management. It also highlights the importance of integrated environmental planning to prevent degradation and to fully and sustainably utilize forestry resources, particularly for tourism (URBACO, 2010).

In light of the analysis of the texts, it will be possible to define the main issues related to the improvement of the park and the enhancement of nature in the city of Constantine.

The main issues are categorized into four aspects: environmental, socio-economic, functional, and management.

5.3.1. Environmental Issues

- Protection of biodiversity through the development of an action strategy and the use of planning tools.
- Prevention of forest fires and pollution risks.
- Raising awareness by educating stakeholders about fauna, flora, and water quality in the lakes.

5.3.2. Socio-economic Issues

- Improvement of the park's well-being and quality through the provision of local services.
- Increase in job opportunities by expanding economic and commercial activities.
- Strengthening the park's distinctive character and fostering a sense of belonging through social activities.

5.3.3. Functional Issues

- Ensuring easy access while prohibiting motorized vehicles and promoting sustainable modes of transportation.
- Enhancing the park's image through rehabilitation.
- Introducing new functions, including the creation of meeting spaces and play areas for children.

5.3.4. Management Issues

- Protection of existing species.
- Establishing monitoring units to oversee park maintenance and preserve its aesthetic and functional aspects.
- Strengthening security to encourage a sense of ownership and safety within the site.

Through this study, we have sought to conduct fieldwork based on a participatory approach to revitalize Djebel El-Ouahch Park in Constantine and enhance its attractiveness. The adopted approach involves participatory collaboration in the development and implementation of public projects. This approach enables the mobilization of local actors by coordinating various stakeholders in a necessarily multisectoral project (Mebirouk and Mebirouk, 2022) and serves as a means of fostering civic engagement (Lardon and Piveteau, 2005; Safar Zitoun, 2020; Mebirouk and Hamma, 2023).

This approach has materialized through a concept closely linked to sustainable development: nature in the city. Considering nature, as well as the conditions and means of its integration as a key element in the functioning of the city (Arnould et al., 2011), is a fundamental challenge for a sustainable city.

The revitalization of Djebel El-Ouahch Urban Park involves a variety of actions that respect the environment and promote its preservation as a means of enhancing both the quality of life for citizens and the attractiveness of the territory. These actions should also consider the socio-economic framework to ensure both social cohesion and economic development. Additionally, the park's functionality is enhanced through mixed-use planning and the improvement of its management methods.

6. Conclusions

The concept of nature in the city, or its realization under the modern term biodiversity, holds undeniable value, as the presence of natural elements enhances quality of life and provides numerous socio-economic, environmental, and even health benefits. This issue is reflected in urban parks, which contribute to the implementation of socio-cultural services. Their primary functions range from providing spaces for social gatherings and relaxation to enabling nature exploration through recreational and sports activities. Despite their role in enhancing the city's image and identity, the urban parks of Constantine remain neglected, leading to their degradation and, consequently, their abandonment. Thus, our work aimed to identify strategic issues and anticipate various possible interventions to sustainably improve the quality and use of the city's parks. To achieve this, our research question focused on how to enhance the condition of the city's urban parks particularly Djebel El-Ouahch Park to promote the well-being of the population. Through this research, we confirmed that the park in question is a key structuring space due to its location at the city's entrance and its various components. However, it has lost its functionality and visitor appeal over the years due to poor management. This decline can be attributed to the inadequate role of public actors in development and maintenance, as well as a failing intervention strategy that has been unable to revitalize this space. The results of the field survey confirm this observation. Indeed, the park remains an attractive space for nearly the entire population due to its size and environmental quality, despite the lack of street furniture, which hinders its usability, and the limited transportation options to access it. Additionally, there is a prevalent feeling of insecurity and discomfort, as reported by the respondents.

Finally, we sought to understand the reality of urban parks in Constantine and explore possible solutions that public actors could implement to improve their use from a sustainable city perspective.

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