

# Study of the green spaces of the southern area of the city of Chihuahua, Chihuahua, Mexico

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## ABSTRACT

**Objective:** To diagnose the maintenance of green spaces in the southern zone of the city of Chihuahua, Chihuahua, México.

**Design/Methodology/Approach:** An analytical-synthetic and historical methodology was used to evaluate the state of green spaces, mainly in the southern part of the city. Likewise, bibliographic techniques were used to study the importance of green spaces, their conceptualization, and the challenges that they face.

**Results:** Providing maintenance and participating in proper management is essential for the improvement of green spaces and for the creation of an enhanced environment that provides better development for these areas in the city of Chihuahua and changes territorial development.

**Study Limitations/Implications:** Green spaces are part of the basic public amenities of any municipality and therefore the Municipal Council is in charge of these areas; however, the ability to achieve goals is determined by individual and collective productivity or rather the lack thereof.

**Findings/Conclusions:** Developing good management practices can provide well-kept and adequately maintained green spaces for the inhabitants of Chihuahua.

**Keywords:** improvement, quality, green spaces, management.

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## INTRODUCTION

The purpose of green spaces (particularly parks) is to preserve nature in a highly transformed context (a city). Green spaces are part of the landscape and improve the quality of the urban environment components (Corona, 2001) (Table 1).

The urban revolution that began in the 19th century had an influence on the planning of green spaces in terms of their function and composition. The population increase and its resulting pressure gave rise to a feeling of “need for green spaces”, involving recreation for citizens and the environmental improvement of the cities themselves. Likewise, the first International Congresses on Hygiene and Urban Planning Problems held in Europe recommended allocating at least 15% of urban areas to parks and gardens and having a forest reserve not less than ten kilometers away from the city (López, 1991). Urban

**Table 1.** Purposes of green areas (parks) in an urban environment.

Value	Functions
Ecological	<ul style="list-style-type: none"> <li>• Aquifer recharge</li> <li>• Control in the emission of particles</li> <li>• Habitat of flora and fauna</li> <li>• Biodiversity</li> <li>• They absorb noise</li> <li>• Microclimate</li> </ul>
Architectural Landscape	<ul style="list-style-type: none"> <li>• Road control visual breakdown</li> <li>• Reduce glare and reflection from the sun</li> <li>• Elements harmonize teas and transition</li> <li>• Improve the physiognomy of the place</li> </ul>
Socioeconomic	<ul style="list-style-type: none"> <li>• Develops sports and cultural activities</li> <li>• Allow environmental education</li> <li>• Provides mental comfort</li> <li>• Pleasant in your moments of rest</li> <li>• Moderate stress offers physical/mental health</li> <li>• Provide employment</li> <li>• Provides material goods</li> <li>• Promotes community coexistence</li> <li>• Increases the price of property</li> </ul>

Source: Corona, 2001.

vegetation characterizes and gives its name to green spaces in the city. This allows buildings and people to merge with nature through gardens and parks generating the cityscape: a landscape with an identity given by humans and their culture. Fortunately, many people have become aware of the need for green spaces in the urban environment; these spaces provide a set of essential functions for the well-being and quality of life (Meza and Moncada, 2010). Green spaces also help to regulate urban climate, absorb pollutants, dampen noise, and harvest rainwater, but above all, they create environmental balances in soil, water, and air that are essential for urban environments (Procuraduría Ambiental y del Ordenamiento Territorial, 2003). However, a correct comprehensive analysis that takes into account the territory characteristics and development planning is required to fulfill that purpose (Anchondo and Piñón, 2021). The objective of this article was to diagnose the implementation and maintenance of green spaces in the southern part of the city of Chihuahua, Mexico, in order to determine the perception that the population and community have about them, as well as to establish their concerns, needs, conflicts, and the improvements that they deem necessary.

## MATERIALS AND METHODS

To know and establish the bases for a diagnosis of green spaces with poor conditions and subsequently involve the population of the city of Chihuahua, a qualitative survey was carried out using questionnaires in the Rosario, Gustavo Díaz Ordaz, Ampliación Díaz Ordaz, and Dale-UP neighborhoods in the southern area of the said city. This questionnaire was administered to a total of 100 people and the Statistical Package for Social Sciences version program was used for analyzing the resulting data.

## RESULTS AND DISCUSSIONS

The results obtained are shown below and each question is subject to an individual analysis to determine the trend or magnitude.

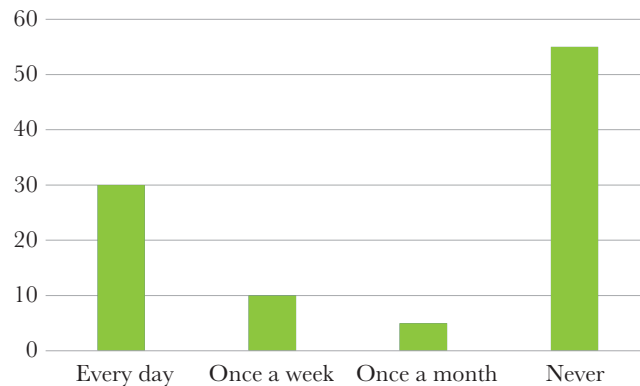
Figure 1 shows that 55% of the participants of the survey does not frequent parks or green spaces, even though the population of the city of Chihuahua should visit these spaces with greater frequency.

Regarding the awareness of the population about the number of urban parks that exist in the southern area of the city, Figure 2 shows that most of the population (95%) surveyed does not know how many urban parks are located in that area.

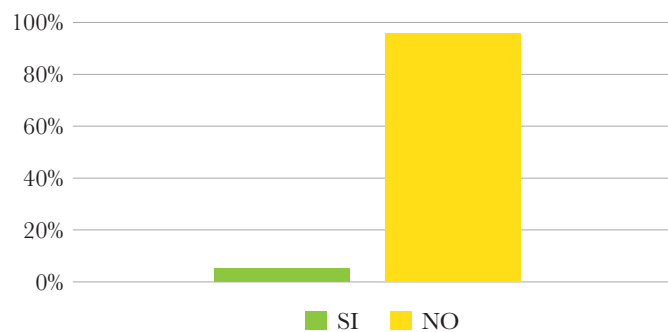
Figure 3 shows that 60% of the urban population considers that green spaces are very important; therefore, we can conclude that the population is aware of the importance of these green spaces for society. It is also worth mentioning that just a small part of the population thinks that these spaces are not of the highest importance: only 10% of the surveyed population answered, “very little” and 5% replied “not at all”.

Figure 4 shows that 80% of respondents mentioned that, according to their experience, urban parks are currently in very poor condition, which points towards a great area of opportunity within the city.

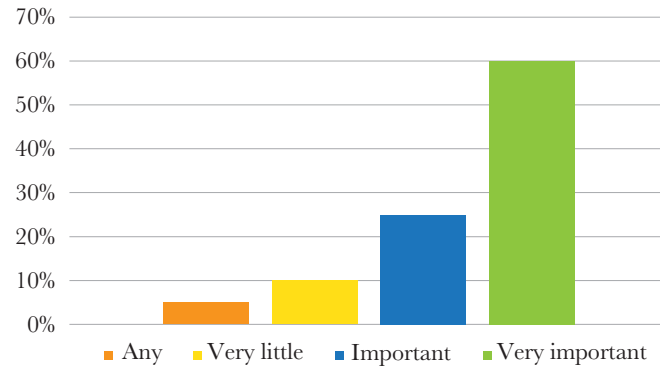
Regarding perception of cleanliness, maintenance, and facilities —as well as area lacking in the urban parks—, Figure 5 shows that 60% of the population surveyed answered



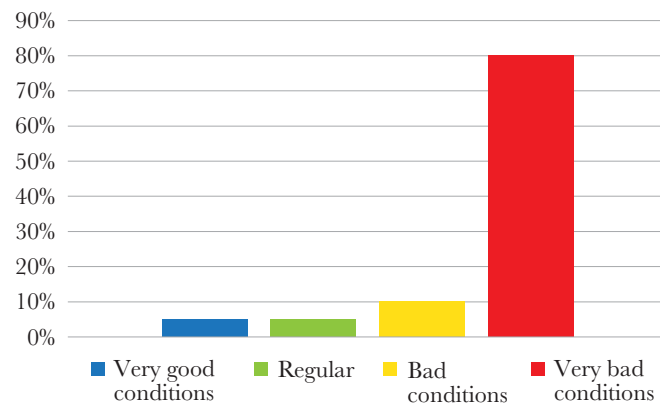
**Figure 1.** Frequency of visits to parks or green spaces. Source: table developed by the authors.



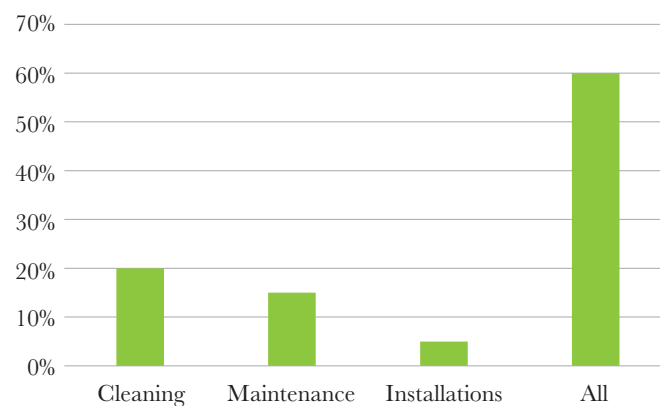
**Figure 2.** Number of urban parks in the southern zone of the city of Chihuahua. Source: table developed by the authors.



**Figure 3.** Importance of green spaces within the city. Source: table developed by the authors.



**Figure 4.** Conditions of the urban parks. Source: table developed by the authors.



**Figure 5.** Aspect lacking in urban parks. Source: table developed by the authors.

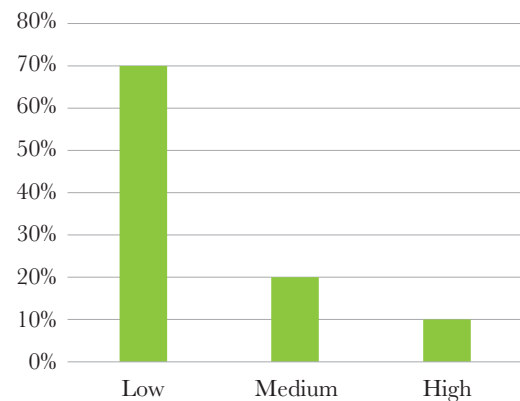
“all areas”, 20% “cleanliness”, 15% “maintenance” and 5% “facilities”. According to the said figure, people clearly feel that “all areas” of urban parks (cleanliness, maintenance, and facilities) require attention. Keeping urban parks clean is very important: the lack of maintenance and facilities results in dirty or damaged areas that will not be attractive to the inhabitants, who therefore will not have any interest in them whatsoever.

As can be seen in Figure 6, 70% of the population considered that the quality of most urban parks is low, while 20% considered that they have a medium level and only 10% considered that their quality is high. It should be highlighted that the population considered that high-quality green spaces include sports facilities and/or water bodies (dams).

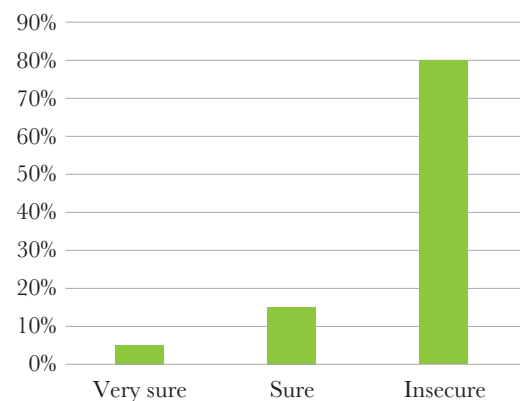
Figure 7 shows that 80% of the respondents consider that green spaces are unsafe. It should be mentioned that the majority of the population voiced their concerns about the very poor condition of public lighting in green spaces and the lack of surveillance by the authorities that make them unsafe spaces. Only 5% of the population considered green spaces to be very safe; however, those respondents live in areas with greater security surveillance (such as residential developments).

In relation to self-sustaining parks, Figure 8 shows that 92% of the population thinks that more self-sustaining areas and parks are required, while only 8% thought the opposite. It should be noted that the latter negative responses belong to people who do not use this kind of facilities (*e.g.*, urban parks, dams, and sports facilities).

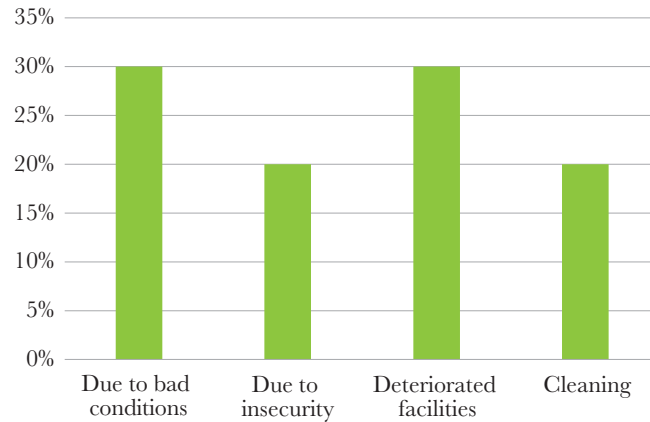
Based on the results obtained, Figure 9 shows the reasons why the population does not visit the different green spaces: 30% of the inhabitants mention poor conditions, while another 30% blames damaged facilities. Another noteworthy reasons maybe that even



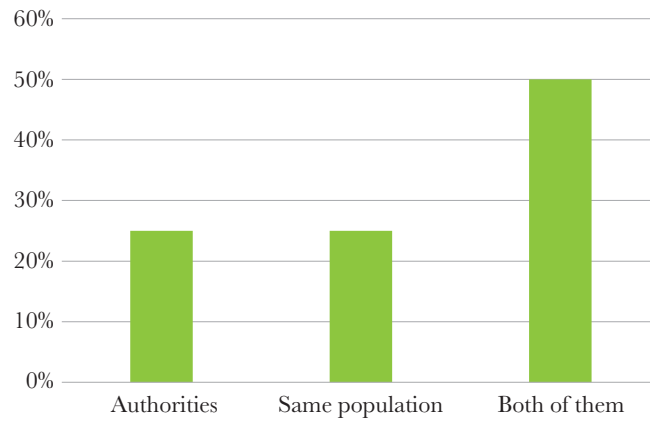
**Figure 6.** Quality of urban parks. Source: table developed by the authors.



**Figure 7.** Safety in green spaces. Source: table developed by the authors.



**Figure 8.** Reasons why the population does not visit green spaces. Source: table developed by the authors.



**Figure 9.** Responsibility for the carelessness of green spaces. Source: table developed by the authors.

parks in good condition can have very damaged and old facilities. Another major issue (mentioned by 20% of the respondents) is insecurity. Regarding cleanliness, 20% of the population considered that this is another very important reason why the inhabitants do not visit these areas.

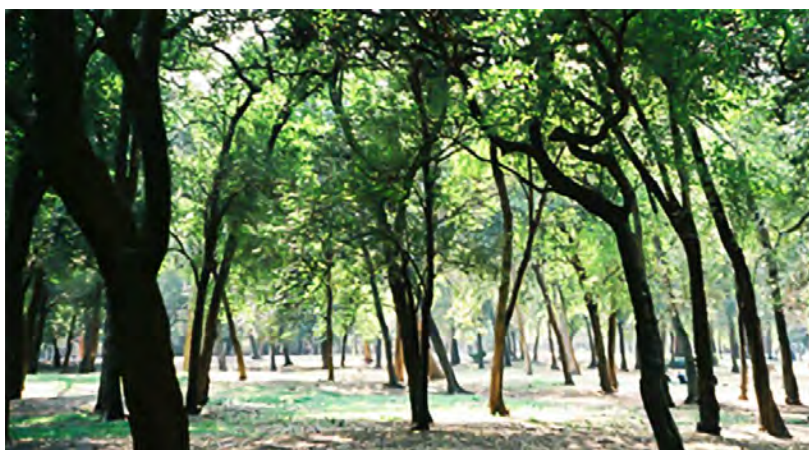
As can be seen in Figure 10, 50% of the population considered that both the authorities and the population itself are responsible for the carelessness and damage of these green



**Figure 10.** Park located in Ampliación Díaz Ordaz. Source: photo retrieved by the authors from Google Earth.



**Figure 11.** Park located in Gustavo Díaz Ordaz. Source: photo retrieved by the authors from Google Earth.



Picture of Bosque de Chapultepec. Source: Travel Report.

spaces, while 25% believed that its solely the responsibility of the authorities who oversee the maintenance of these green spaces. The remaining 25% believed that the population itself frequently causes the deterioration of these areas.

## CONCLUSIONS

This problem has been caused by the neglect of the green spaces of the city of Chihuahua. Currently, they are frequently seen in a significant level of abandonment, resulting in the deterioration of these facilities and the lack of interest among the population. The lack of services (*e.g.*, public lighting) has caused the population to refrain from visiting these areas, out of fear or as a result of the neglect or lack of cleanliness of these spaces. Public spaces must be rescued and created to make the city a place of social integration that offers better habitability, comfort, and equity.

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