Periódico Eletrônico
Fórum Ambiental da Alta Paulista
ISSN 1980-0827 – Volume 19, número 2, 2023

Green Infrastructure and Healthy Cities: proposal for a Linear Park for the city of Itapuranga, Goiás (Brazil)

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ISSN 1980-0827 – Volume 19, número 2, 2023

SUMMARY

The instrument called Parque Linear must be, a priori, understood as an important sustainable measure for the use and occupation of urban green areas, in the environmental, social, economic and cultural spheres. These areas, within the Brazilian jurisdiction, are considered by the environmental legislation as Areas of Permanent Preservation (APP), that is, there are a series of prohibitions of constructions and so on. But they are characterized as residual spaces of the remaining natural landscape (when existing) and are, for the most part, invaded and degraded by the urbanization model adopted until today. Due to these problems, many cities in the world and in Brazil have sought to insert this type of park as a measure to mitigate the degraded state in which water courses in urban areas are found, with the aim of improving the quality of life of the population. Thus, this work aims to discuss and demonstrate the relevance of this theme, based on the proposition of Parque Linear in the urban area of Itapuranga, Goiás (Brazil), in the light of the movement for the construction of Healthy Cities, which aims to improve the quality of urban life. As a methodology, bibliographical research, cartographic production, field visit and dialogue with city residents were carried out. The results showed the possibility of installing a linear park adjacent to the GO-230 highway, which cuts through the urban area of the city (urbanized highway), taking advantage of the green areas already present in the stretch, which surround the Tamborim river. In addition, they provided demonstration of the importance of installing this type of instrument to promote the quality of urban life.

KEYWORDS: Green Infrastructure. Healthy Cities. Linear Park.

INTRODUCTION

Currently, more than half of the world's population lives in cities. In Brazil, more than eighty percent of people live in urban areas (UN, 2010). Such an intense process of urbanization, experienced in recent decades, has generated and continues to generate impacts on the urban environment that go far beyond the geographical limits of cities and can be measured through their ecological footprint, which is the environmental mark left by each urban being. when consuming the most varied types of products (BEATLEY, 2000). In order to reduce the ecological footprint of cities, many authors (BONDUKI; FERREIRA, 2006; NEWMAN; JENNINGS, 2008; BOUTAUD; GONDRAN, 2009) have recommended the construction of green infrastructures in urban spaces.

Green infrastructures play an extremely important role in mitigating environmental impacts, through alternatives that consume less energy, do not emit greenhouse gases, capture carbon, prevent the sedimentation of bodies of water, protect and increase biodiversity, provide services ecosystem services for the place, prevent or reduce water, air and soil pollution, among other benefits (ELMQVIST, 2010). Among these green structures, linear parks can be highlighted. These are characterized as being urbanistic interventions associated with watercourses, of the urban fabric, and whose main objectives are: to protect and recover the riverside ecosystem; control floods; and provide areas for cultural and leisure activities, through the connection between green areas and public spaces (SOUZA, 2020).

Seeking to contribute and demonstrate the importance of linear parks, this work aimed to propose a linear park for the city of Itapuranga, located in the state of Goiás (Brazil) (Figure 1), in the light of the important movement called Healthy Cities, created by since the 1970s, which seeks to improve the quality of the population in urban areas. It is located in the Mesoregion of Centro Goiano and in the Microregion of Ceres, has an area of 1,277 km², and a population of 26,639 inhabitants, according to IBGE data (2021).

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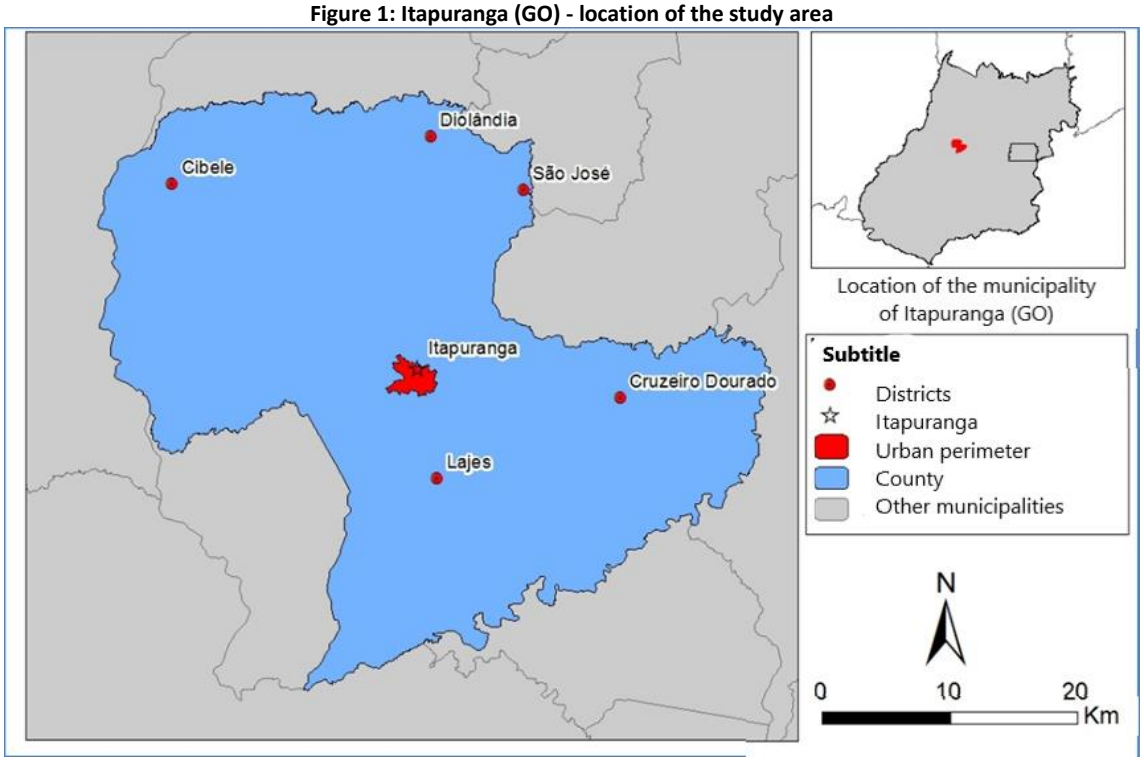
Figure 1: Itapuranga (GO) - location of the study area



Source: Authors, 2016.

To fulfill the objective of this research, a bibliographical survey was carried out using as a basis the main studies published at international and national level on the themes of green infrastructure, healthy cities and linear parks. A field visit was also carried out to identify the conditions of the analyzed area and to survey existing/non-existent public facilities. At that moment, a dialogue was also held with the residents to understand their vision regarding the installation of a linear park in the area. In addition, cartographic production was carried out using ArcGis 10.2 software with a cartographic base produced by the authors from satellite images available in Google Earth software. Based on this set of actions, the park was divided into three sections – A, B and C, and proposed public facilities for each of these areas.

HEALTHY CITIES AND THE GREEN INFRASTRUCTURES OF LINEAR PARKS

In Brazil, from the 1950s onwards, the process of Brazilian urbanization intensified. Industrialization attracted part of the rural population to cities in search of jobs and better living conditions. Thus, the rural exodus contributed to the population swelling, and with the precarious urban planning, there was a worsening in the life expectancy of city dwellers, such as: the lack of access to basic quality services, education and health. According to a UN report (2010), more than 53 million people live in areas unsuitable for healthy housing, which makes a healthy way of life in cities (SOUZA, SOARES, 2017) to be (re)thought. To improve the quality of life, territorial planning and management policies are necessary, with emphasis on those related to improving the quality of the environment (environmental quality).

As Oliveira (1983) points out, environmental quality is a commonly used expression, but difficult to define. It is closely linked to the quality of life, as life and the environment are

inseparable, which does not mean that the environment determines the various forms and activities of life or that life determines the environment. There is an interaction and a balance between both that vary from scale to time and place (MINAKI, AMORIM, 2007). From this perspective, quality of life can be understood as a condition built over time, which permeates mainly education and health levels, but which is also associated with environmental quality and access to leisure in green areas (SOUZA, 2020).

As it is understood that in the urban panorama presented, the search for the quality of urban life (and consequently environmental) is urgent, over the last decades there have been movements of researchers that aim to study urban spaces and propose strategies to improve people's conditions. Among them, the search for Healthy Cities stands out, in which, as pointed out by one of the pioneering researchers, Westphal (2000), this movement is a model to be achieved through the implementation of policies and technologies aimed at improving of urban indicators.

After the 1970s, the movement to build Healthy Cities became an important strategy, first in Europe, then in the United States, and more recently in Brazil. For Westphal (1997), the healthy cities movement has arduous proposals for the improvement of living conditions for the population, considering that its objective is that the entire urban population has quality of life. Such a strategy becomes even more arduous when one looks at the reality of Brazilian cities.

Among the strategies for promoting Healthy Cities, the promotion of green areas stands out, considering that they provide recreation and leisure for city dwellers, fundamental issues for quality of life. One of the types of urban green areas are the so-called linear parks, which have been used in Europe since the 19th century. These are fundamental spaces, because in addition to being spaces for the preservation of water resources, they also provide leisure and recreation environments (CARDOSO; CARNIATTO, 2010).

According to Scalise (2002) linear parks were created mainly for recreational use. The surroundings of linear parks value their surroundings and improve the quality of life of the population by concentrating sports, cultural and leisure activities. Furthermore, as pointed out by Ramos et al. (2019, p. 131):

> It is an easily accessible and democratic space as it does not only benefit one area within the city, and for that reason some points must be taken into account when designing these spaces: a) connection with local neighborhoods and other places of interest to the population ; b) safety, avoiding dangers based on the permeability and continuity of its form, and c) inspection, carried out by authorities and their users.

It is also worth highlighting the environmental role of linear parks. These are also permeable and vegetated spaces, becoming important areas of environmental preservation (QUEIROGA, 2012). These are therefore important areas from different points of view, which make proposals for the creation of urban parks increasingly motivated by academia and presented to public management.

LINEAR PARK PROPOSAL FOR THE CITY OF ITAPURANGA

The proposal for the linear park of Itapuranga emerged from the observation made by the researchers who wrote this work (who are part of the movement for the construction of Healthy Cities), considering the years of contact with the spatial area presented here and with the population that resides there. It is, therefore, a result arising from the aspirations of the population, to improve the environmental quality of areas of the city that are degraded.

According to the proposal presented, the linear park of Itapuranga would be implemented adjacent to the GO-230 highway, which cuts through the urban area of the city (urbanized highway), taking advantage of the green areas already present in the stretch, which surround the Tamborim river. Figure 2 demonstrates the current state of the mentioned area.

For the proposal, the area was divided into three sections – A, B and C, for detailing the facilities so that the entire population has easy access to the park. The continuity of the park would be given by a lane with a bike path and a pedestrian area (4 km long), which would connect the three sections. In addition, the proposal considered the most peripheral neighborhoods, through the construction of bicycle paths between these neighborhoods and the park.

Section A (Figure 3) is located near the dam, which is already used by city residents as a green leisure area. It is the only existing green public space, despite the lack of infrastructure for recreational practices, in which the absence of benches, precarious pedestrian walkways, poorly maintained vegetation, etc. For this stretch, in addition to the need for maintenance, it is proposed to build a walking track, install benches, build a playground for children, as well as a tree-lined community center for adults.

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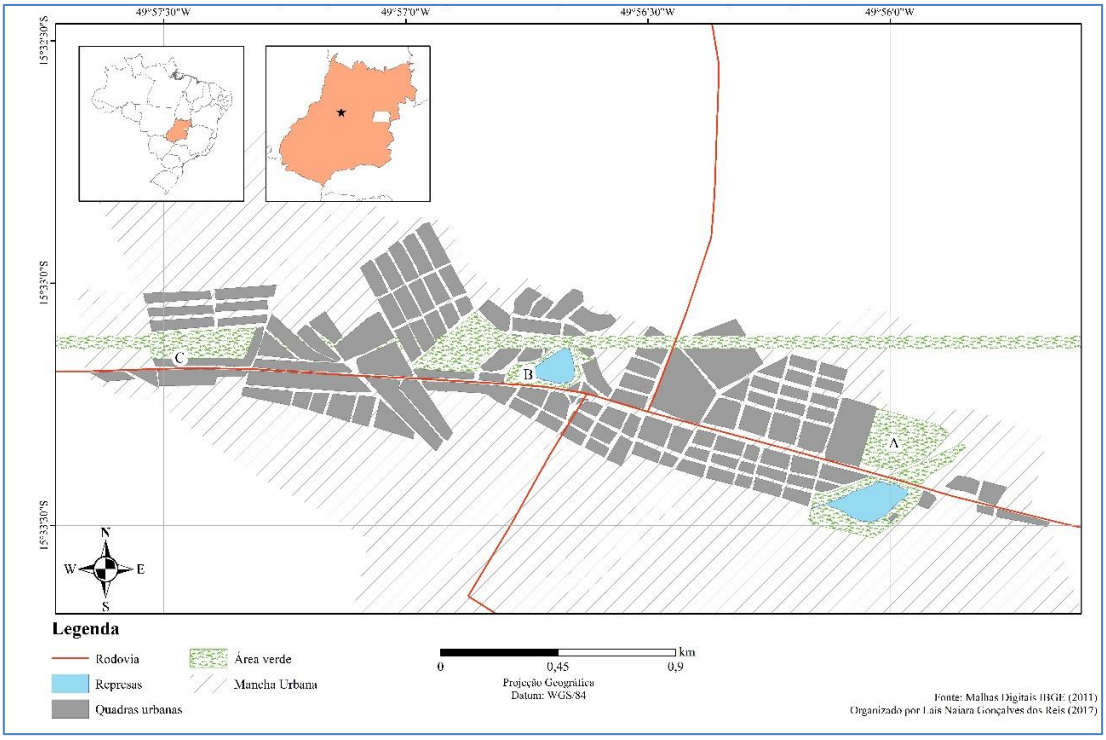
Figure 2: Itapuranga (GO) - Map of the proposed linear park section



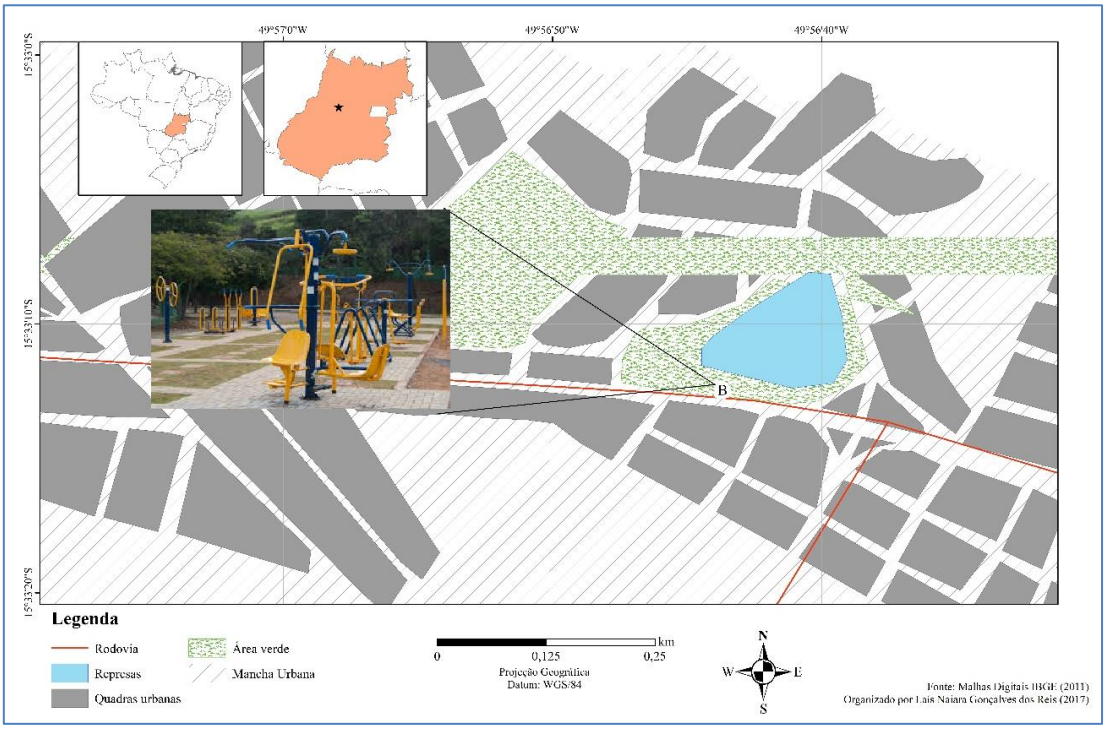
Source: Authors, 2016.

Figure 3: Itapuranga (GO) - Section A of the Linear Park proposal

Source: Authors, 2016.

In stretch B (Figure 4), there is also the presence of a dam, of smaller dimensions, currently used to capture water for irrigation. In the linear park proposal for this stretch, in addition to the continuity of the walking track, the installation of benches, drinking fountains, among other necessary equipment in these areas, it is suggested the construction of a pitstop with a rest area and an area with gym equipment to open sky, to generate appreciation for physical activities and, consequently, a more active and healthy life.

Figure 4: Itapuranga (GO) - Section B of the linear park proposal



Source: Authors, 2016.

In stretch C (Figure 5), the green area in question would be reserved for the construction of a wider leisure area for children. Gym equipment, a skate and roller-skating rink, sports courts, among others, would also be installed. This proposition is due to the fact that this stretch is the one that concentrates the area with the lowest income levels in the city, and, consequently, endowed with the lowest existing urban infrastructure. Therefore, this space is considered important for reducing spatial segregation through integration with the rest of the city, via a linear park. Such a possibility would certainly increase the quality of life of these families, by bringing the possibility of leisure and recreation to an area with considerable socioeconomic problems.

It should be noted that, for the construction of Linear Parks, the Strategic Master Plan Bill (PDE) should establish the Urban Intervention Areas (AIU) as the main structure for the city's territorial organization. These areas are regulated by specific law, which refers to areas with potential for urban restructuring and transformation, which in the future will receive new forms of land use and occupation, with more quality and inclusion, combined and promoting economic development. For this, the proposal presented here was disclosed to the public managers of the

municipality, in a seminar held in 2021 at the State University of Goiás (UEG), Itapuranga campus.

Figure 5: Itapuranga (GO) - Section B of the linear park proposal

Source: Authors, 2016.

Thus, for the implementation of the linear park, in addition to financial resources, it would be necessary to compose a multidisciplinary team, formed by architects, civil engineers, geographers, among others, to analyze and propose the details of architectural, landscape, hydraulic, electrical, etc. It was up to this study to demonstrate the possibility of implementing a linear park, by indicating the areas and main elements that should constitute each of the listed stretches.

FINAL CONSIDERATIONS

It is defended that linear parks are urbanistic interventions that aim to recover citizens' awareness of the natural place in which they live, progressively expanding the green areas. They are, therefore, important means for improving the quality of urban life and, consequently, promoting Healthy Cities. In addition, they have the ability to become structuring objects of environmental programs in urban areas, being widely used as a planning and management tool for areas bordering watercourses, seeking to reconcile both the urban and environmental aspects present in these areas as well as the requirements of the legislation and the existing reality.

It is considered, therefore, that the idea of organizing space based on continuous free areas aimed at the development of human activities in the urban fabric is extremely relevant for the construction of healthier cities. These spaces allow leisure, recreation, socializing and sports

or physical practices, generating more health and a better quality of life. Thus, among the possible ways of finding a balance between the contemporary urbanization process and the preservation of the environment, these parks emerge with new cultural and aesthetic contours, remodeling degraded areas of cities.

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