Reasoning on urban open spaces' relevance and their appropriation by the population: study carried out in Teresina City, Piauí State, Brazil

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ABSTRACT

Population distribution in Brazil is mostly urban and the number of people seeking urban centers keeps on growing. Therefore, the demand for areas designed to meet the basic needs of this human contingent also grows, like the case of spaces built for housing, commercial, industrial and service activities, as well as unbuilt open spaces accountable for articulating the spaces forming the urban fabric. Open spaces are highly accountable for shaping cities' cultural identity, besides being important environmental improvement elements, in addition to being leisure places for the population. The current article provides an analysis of open spaces' distribution in some city areas and the appropriation of an urban square. Southern Teresina City, Piauí State, Brazil, is the present object of study. A survey was carried out to quantify and map the existing squares in this site. Graphic records, photographic documentation and visual assessment were made to analyze the current situation of the existing equipment in the selected square. The space's perceptual analysis was carried out and it focused on how the population uses this space. Neighborhoods *Saci, Parque Piauí, Bela Vista* and *Promorar* presented a larger number of squares due to the implementation of older and more consolidated housing complexes. Yet, *Praça da Integração* is widely used by the surrounding populations, although its equipment is not subjected to proper maintenance.

KEYWORDS: Open spaces. Quality of urban life**.** Leisure. Green areas.

1 INTRODUCTION

The urban densification process, deprivation of relationships, public environment restriction and proper planning of open spaces become increasingly necessary factors as cities grow.

According to Magnoli (2006, p. 179), "open space is any space that is not occupied by buildings (ground space, water space, light space around buildings people have access to)".

As for Alvares and Dias (2008, p. 128), open spaces account for several functions that often overlap one another, among them "urban circulation, urban drainage, leisure activities, imaginary and urban memory, environmental comfort, conservation and environmental requalification, and public coexistence". Therefore, their environmental and cultural relevance, as well as their value as recreational and coexistence spaces, is reinforced.

Among the goals of public open spaces, Matos (2010, p. 18) highlights leisure and states that, "public spaces ordering, mainly leisure spaces, is currently one of the vital aspects for the revitalization of, and quality of life in, urban areas".

Based on Queiroga and Benfatti (2007, p. 81), open spaces have been an "important element for the city life since the beginning of cities. Streets, squares, courtyards, backyards, private and public gardens, parks and avenues are among the most common open space types and they form the open spaces system in each city", which can help improving the quality of urban life.

Valentini, Facco and Conde (2020, p. 52) highlighted "the necessary integration between landscape studies and urban public open spaces' systems for city planning", because it reinforces the relevance of conducting studies on this topic.

Magnoli (2006, p. 182) stated that the "public open space is the space for community life, *per se*", and it highlights the need of analyzing open spaces' conditions in cities. It is done by observing how these sites aim at allowing encounters and hosting the dynamism of cities, so that they can help improving the quality of urban life.

According to Aliprandi and Tângari (2020, p. 6), "as part of the urban landscape, free spaces change along with it [the urban landscape] and follow the evolution of the city", by transforming their functions and shapes in order to adapt to each society. Therefore, it is important developing studies to assess the people/public open spaces interaction by taking into consideration their use and appropriation by users in order to subsidize new projects and squares' renovations, among others. Therefore, they can duly work to meet the wishes and demands of the population.

Therefore, the aim of the present article was to analyze how squares' distribution takes place in urban spaces, as well as the use and appropriation of urban squares in Southern Teresina City, Piauí State, Brazil.

2 OPEN SPACES' RELEVANCE, USE AND APPROPRIATION

Martínez Valdés, Silva Rivera and González Gaudiano (2020, p. 69, our translation) stated that public open spaces refer to "places such as central squares, streets, sports and cultural centers, among others, which represent an important element in cities' configuration". Oliveira and Mascaró (2007, p. 60) highlighted that open spaces allow "the occurrence of social practices, leisure moments, outdoor encounters, and urban and community life manifestations".

'Space' is, then, seen as social instance, just like the economy, culture and politics. Open space system research goes far beyond assessing green areas, vegetated and public spaces, since it encompasses all open spaces. If one assumes that every city has an open spaces' system under constant transformation to adapt to cities' new demands and pressures, "systems can be conceptualized as elements and relationships that organize and set the bases of all free spaces in a given urban area, from intra-urban to regional scales" (QUEIROGA, 2011, p. 27).

Jacobs (2014, p. 57) classifies public space as essential stage for unplanned casual contact where one interacts with unknown people, but who form an interaction network "an exuberant public life can flourish in the city." Thus, these spaces emerge as essential places for the quality of urban life.

Queiroga (2011, p. 28) emphasizes the relevance of open spaces by stating that, in addition to areas with vegetation, which are essential for "urban drainage, for more pleasant microclimates, for biodiversity and as urban beautification factors", it is also essential pointing out the use "of non-vegetated spaces for countless cultural-relevance practices: from fairs to popular festivals, from political demonstrations to the valorization of certain landscapes and cultural heritage".

The outstanding role of green areas in cities is reinforced by Londe and Mendes (2014, p. 269), who stated that urban green areas, "in addition to adding improvements to the environment and to environmental balance, help social development and bring benefits to the well-being, physical and mental health of the population [...]", a fact that shows the need for these spaces in cities.

Accordingly, Szeremeta and Zannin (2013, p. 182) highlighted the relevance of urban parks by stating that "it is possible observing the important benefits to physical and mental health. It makes these spaces' implementation essential to help improving collective health and well-being", because they enable the population to coexist with vegetated areas, as well as to regularly exercise.

As an example of public open spaces, Silva, Lopes and Lopes (2011, p. 198) highlighted squares as example of public open spaces. They "are places of social interaction and coexistence with nature, which can help forming and aggregating society, and represent areas important for cultural, social and political manifestations". Therefore, all neighborhoods in cities must have public open spaces intended for community interaction and leisure.

According to Queiroga (2011, p. 28), "public open spaces are public property, with different accessibility and appropriation degrees", and squares, parks and beaches are considered "common use assets for the people". According to Lamas (2004), squares present an intentional design and incorporate urban design as public space of great significance because it distinguishes public spaces from other voids in the city.

Ortiz and Macedo (2004) have stated that open spaces have three essential features substantiating their assessment: environmental, recreational-functional and circulation (or landscaping), which coexist with each other. According to Lay and Reis (2002, p. 25), "[...] collective open spaces should be the common place where residents have the opportunity to carry out recreational and functional activities that provide links to the community", but, from a physical and social viewpoint, they have been forgotten. Each society has its own features, and they change over time, in order to respond to demands of each reality. Therefore, it is important to assess existing open spaces in cities to analyze their current conditions and to better understand the reasons why they may, or may not, enable these spaces' emergence and permanence.

According to Queiroga (2011, p. 31), it is possible observing significant decline in public life due to greater appreciation of the private-life sphere. This scenario highlights the outstanding need of developing studies on, and increasing investments by public managers in, the design and maintenance of public open spaces by taking into account that,

> If private and social life have their greatest support in built spaces, public life has its greatest physical and material support to occur in open spaces, mainly in public open spaces; they are the spaces with the greatest accessibility, with the highest ability to host diversity, plurality and the unexpected, [which are] features of a richer public sphere.

Oftentimes, open spaces' planning and management in metropolitan areas are no longer part of the urban infrastructure status and it makes landscape treatment almost null in most of these locations, except for downtown areas and upper-class neighborhoods. This problem echoes on cities' landscapes, which seem fragmented. Furthermore, private spaces end up being heavily defended, whereas public spaces lack structural improvements. Therefore, public open spaces "become trivial or relegated to oblivion, and embody a function

totally different from the planned one, such as parking lots, public transport terminals, street vending spots, among others" (ROSANELI et al., 2016, p. 363).

Mendonça (2007, p. 129) stated that, "when public spaces remain as environments desired by the population and claimed by it to the public authorities; it is worth acknowledging that they coexist with this desire, [...] a series of controversial situations related to the fear/security binomial". It is so, because dwellers do not feel safe going to their squares and parks in many neighborhoods in cities.

Lemos and Marx (2019) recalled that public open spaces are important social activators that must be implemented to make active and comprehensive encounters, as well as integration between different realities and cultural heritages, easier. Therefore, they must be designed to assist groups holding diverse profiles, as well as adjusted to society's new demands.

According to Mendonça (2007, p. 128), lack of public spaces' appropriation by cities' residents somehow derive from "fear associated with urban violence". Furthermore, "entertainment proliferation in closed environments is controlled by the security apparatus and, consequently, select and exclusive environments have been changing customs and it leads to changes in social relationships associated with public spaces", a fact that reduces their use. New activities could be developed in public spaces as an attempt to reverse this situation by making them more welcoming and attractive to users who could make these places lively and safer.

Silva and Carmo (2017, p. 96) assessed a square in Colíder City, Mato Grosso State, Brazil, and identified the population's desire for more attractions in it. They stated that "spaces' humanization requires investment in the cultural sector, because the Capital separates people from social contact between them, rather than just from places. Therefore, it is essential developing cultural activities in public spaces to enable interaction between individuals". The aforementioned authors also mention activities related to reading, to training young people, to dance, music, capoeira presentation workshops, Zumba classes, fairs and cultural events, as examples of youth qualification, among others.

3 METHODOLOGY

A bibliographic survey was carried out in books, theses, dissertations and journals to make an in-depth analysis of theoretical-conceptual aspects linked to open spaces' relevance, use and appropriation in Southern Teresina City, Piauí State, Brazil. Data provided by IBGE (2022) were used as secondary data source, as well as data provided by departments from Teresina municipality, such as the Southern Superintendence of Decentralized Actions (SAAD Sul).

Praça da Integração was chosen among the squares located in Southern Teresina City - *Parque Piauí* neighborhood – for the analysis. It was chosen because it presents a whole diversity of uses and is located in a well-populated neighborhood. The study site was visited by the researcher to take measurements and to graphically record the square's layout in order to

identify the access to it, its equipment, furniture and existing vegetated areas. The square/surrounding areas connection was identified and it features the existing use types and how the space is used by *Parque Piauí* residents, as well as by other neighborhoods in Southern Teresina City.

4 OPEN SPACES IN SOUTHERN TERESINA CITY

Teresina, is the capital of Piauí State, Mid-Northern region of Northeastern Brazil. According to the 2022 census, the city houses 866,300 inhabitants (IBGE, 2022). Teresina City emerged from the need of transferring the former state capital, Oeiras City, to Poti Village region, back in 1852. The capital transfer was conceived and defended by Councilor José Antonio Saraiva, who was president of Piauí Province, between 1850 and 1853. The city was carefully planned with public areas symmetrically arranged in parallel lines, starting from Parnaíba River towards Poti River (TERESINA, 1993).

According to Lima (2010, p. 30), Teresina was designed "based on a strict checkerboard format, with parallel streets starting from Parnaíba River, to the West, towards Poti River, its urban space is delimited by eighteen blocks heading North-South and twelve [blocks] heading East-West". As stated by Lima and according to Lopes and Façanha (2019, p.3-4), Teresina City, although being initially planned "did not present expansion forecasts, density suggestions or templates, as it is currently observed. Population growth and the need of more space forced the extrapolation of the urban occupation layout proposed by Saraiva", due to the city's spontaneous growth up to 1969, when its first urban plan was elaborated, the so-called 'Integrated Local Master Plan', also known as PDLI.

Teresina's Southern zone occupation resulted from a land use mostly focused on urban constructions. Its location between the Poti and Parnaíba rivers, and the few natural barriers in this region, were considered favorable factors for implementing the necessary infrastructure to its expansion. These rivers' limits were seen as the city's constructive limits; in other words, the city's Northern zone growth was firstly seen as limited, since the Southern zone held the best chances of expansion (FAÇANHA, 1998).

According to Lima (2010, p. 33), urbanization growth in Teresina City started in the 1950s due to "changes seen in the economy at national and regional level, therefore, by redefining the functions and activities of the local productive structure, [these changes] caused significant transformations in the urban context", which expanded the service sector and increased the city's population.

Teresina experienced fast urbanization and urban growth process, and it favored urban sprawl and fragmentation, mainly in cities' farthest regions. According to Medeiros (2014, p. 561), "the patchwork-like pattern of our urban fabric is the element most decisively contributing to the construction of fragmented spaces. [...] Therefore, spatial segregation and derivative spaces, distance between the rich and the poor, displacement difficulties, income concentration, low productivity, among others, are aggravating situations."
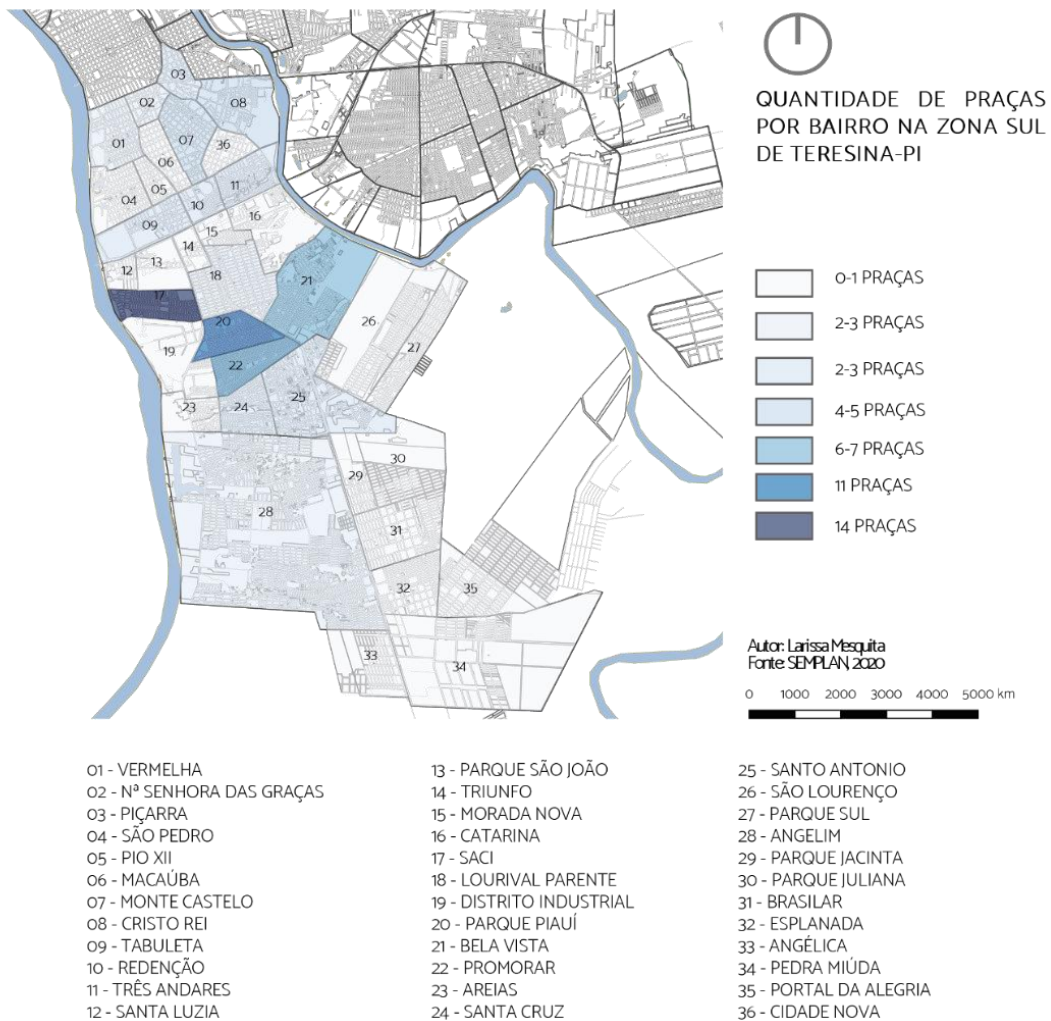
Lima (2010, p. 59) stated that some cities in Northeastern Brazil grew from the 1960s onwards, just as it happened with Teresina City, whose growth was "driven by the service sector, notably in activities linked to commerce and state bureaucracy. Such growth favored the expansion of the tertiary sector, which, along with other factors, such as more job opportunities [...]", helped increasing the migratory flow from the countryside to the capital, and the consequent irregular settlement of populations in its Southern Zone. Thus, the urbanization process in Teresina City did not take place through industrialization, as observed in the country's Southern region.

Large urban voids were progressively occupied and it led to deep social contradictions. According to Lima (2010, p. 59), the city's expansion to its Southern Zone, back in the 1960s, resulted from a housing policy aimed at building Housing Complexes for low-income populations. The construction of *Maranhão* and *Henry Wall de Carvalho* avenues made such expansion feasible, because they connected the growing region to the downtown area. It was on the outskirts of Southern Teresina City that "the first large housing project was implemented in – *Parque Piauí*, built in 1967", which was financed by the National Housing Bank (*Banco Nacional de Habitação* - BNH).

Later on, more housing complexes were built in this region, such as *Bela Vista (1977), Saci (1978)* and *Promorar (1982).* This last one was an attempt to solve the problem of Teresina's slums (LIMA, 2010).

The Southern Zone comprises 36 neighborhoods (Figure 1) that, altogether, correspond to 28.5% of the total existing neighborhoods in Teresina. It houses 273,059 residents: 30.9% of the city's population (TERESINA, 2019).

Figure 1 - Neighborhoods in Southern Teresina City and number of squares

QUANTIDADE DE PRAÇAS POR BAIRRO NA ZONA SUL DE TERESINA-PI

- 0-1 PRAÇAS
- 2-3 PRAÇAS
- 2-3 PRAÇAS
- 4-5 PRAÇAS
- 6-7 PRAÇAS
- 11 PRAÇAS
- 14 PRAÇAS

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Fonte: SEMPLAN, 2020

0   1000   2000   3000   4000   5000 km

01 - VERMELHA
02 - Nª SENHORA DAS GRAÇAS
03 - PIÇARRA
04 - SÃO PEDRO
05 - PIO XII
06 - MACAÚBA
07 - MONTE CASTELO
08 - CRISTO REI
09 - TABULETA
10 - REDENÇÃO
11 - TRÊS ANDARES
12 - SANTA LUZIA
13 - PARQUE SÃO JOÃO
14 - TRIUNFO
15 - MORADA NOVA
16 - CATARINA
17 - SACI
18 - LOURIVAL PARENTE
19 - DISTRITO INDUSTRIAL
20 - PARQUE PIAUÍ
21 - BELA VISTA
22 - PROMORAR
23 - AREIAS
24 - SANTA CRUZ
25 - SANTO ANTONIO
26 - SÃO LOURENÇO
27 - PARQUE SUL
28 - ANGELIM
29 - PARQUE JACINTA
30 - PARQUE JULIANA
31 - BRASILAR
32 - ESPLANADA
33 - ANGÉLICA
34 - PEDRA MIÚDA
35 - PORTAL DA ALEGRIA
36 - CIDADE NOVA

Source: Teresina (2019), modified by Larissa Mesquita

Saci, Parque Piauí, Bela Vista and Promorar neighborhoods accounted for the largest number of squares; yet, they triggered the occupation process in the Southern Zone after the housing complexes were implemented based on older and more consolidated housing programs. It is also worth highlighting the little, or no, presence of squares in low-income neighborhoods, such as São Lourenço, Santo Antônio and Areias.

Chart 1 introduces the list of neighborhoods in Southern Teresina City, the population in each neighborhood, mean income per house, demographic density per neighborhood, and number of squares and parks in a given area.

Chart 1 - Neighborhoods in the Southern Teresina City, number of squares, population and income

N	NEIGHBORHOOD	SQUARES	AREA	DEMOGRAP. DENSITY (Inhab/ha)	POPULATION (Inhab)	INCOME
1	Angélica	0	1.13 km²	*	*	*
2	Angelim	2	14.10 km²	196.8	27,743	800
3	Areias	1	0.95 km²	31.8	3,024	734
4	Bela Vista	7	3.47 km²	37.5	12,999	1368
5	Brasilar	0	2.13 km²	12.9	2,742	1020
6	Catarina	1	1.95 km²	9.1	1,771	950
7	Cidade Nova	1	0.67 km²	49.3	3,336	1850
8	Cristo Rei	4	1.79 km²	47.3	8,474	2400
9	Distrito Industrial	0	1.97 km²	24.26	4,780	800
10	Esplanada	1	1.5 km²	122.62	18,393	1000
11	Lourival Parente	2	2.17 km²	68	14,753	1530
12	Macaúba	0	0.75 km²	79	5,925	2110
13	Monte Castelo	4	1.34 km²	81.9	10,981	1600
14	Morada Nova	1	0.54 km²	113	6,104	1800
15	Nossa Sra. Graças	2	0.52 km²	76.2	3,964	2010
16	Parque Jacinta	0	0.93 km²	12.06	1,122	720
17	Parque Juliana	0	2.5 km²	0.356	89	1145
18	Parque Piauí	11	1.10 km²	102.8	11,307	1720
19	Parque São João	1	0.95 km²	29.1	2,765	1300
20	Parque Sul	0	1.49 km²	*	*	*
21	Pedra Miúda	0	7.38 km²	*	*	*
22	Piçarra	3	0.65 km²	56.3	3,662	1900
23	Pio XII	0	0.47 km²	51	2,395	1350
24	Portal da Alegria	0	1.77 km²	*	*	*
25	Promorar	8	1.10 km²	172.6	18,988	1040
26	Redenção	3	0.60 km²	54.1	3,248	800
27	Saci	14	1.18 km²	69.4	8,190	2760
28	Santa Cruz	3	1.10 km²	92.6	10,181	1020
29	Santa Luzia	0	0.48 km²	15.3	734	1020
30	Santo Antonio	3	3.11 km²	70.4	21,879	836
31	São Lourenço	0	4.19 km²	1.13	474	510
32	São Pedro	1	1.31 km²	67	8,780	1310
33	Tabuleta	3	1.41 km²	23.2	3,271	1310
34	Três Andares	3	1.10 km²	115.8	12,739	1090
35	Triunfo	0	0.46km²	5.4	249	3510
36	Vermelha	2	1.27 km²	44.6	5,659	2000

* Unavailable information after the 2010 census
Source: Teresina (2019)

The way these squares are distributed is closely related to the demographic density in these neighborhoods; neighborhoods with low density have few, or no, squares. This low density reflects the construction of housing complexes in inappropriate places for urban infrastructure, such as public transportation, hospitals, schools, basic sanitation and leisure (squares). Furthermore, these complexes lay on isolated locations, very far from central areas, a fact that makes it even more difficult to consolidate public life in them; yet, insecurity and violence are constant threats in these neighborhoods.

Densely populated neighborhoods, such as *Angelim, Esplanada* and *Morada Nova,* stand out in this region, but they do not have a sufficient number of squares to meet the population's demand for leisure spaces. Unfortunately, a large fraction of the few existing squares is not well maintained or do not have the appropriate structures to be properly appropriated by residents in their neighborhoods, although they should be intended for the population's leisure.

Furthermore, older neighborhoods, such as *Parque Piauí* (1969), present clear difference in the number of open spaces available, as well as in how these places are appropriated by neighborhood residents and the effects of it on these residents' quality of life. Thus, there was great concern with squares' distribution throughout the physical spaces in the neighborhood.

According to Peregrino, Brito and Silveira (2017), public open spaces have the potential to be articulated as a quite beneficial and democratic system whenever they are properly physically connected to the urban fabric.

Parque Piauí, which was launched in 1967 through *Conjunto Parque Piauí,* is among neighborhoods in Southern Teresina City, with 2,294 housing units. This complex "was expanded in 1977, and became *Parque Piauí* neighborhood, the most populous one in the city" (Cruz, Espindola and Carneiro, 2016, p. 8). *Parque Piauí* covers 1.10 km^2, and houses 11,307 inhabitants (Teresina, 2019); it has 11 squares spread throughout the neighborhood. *Praça da Integração* stands out among the open spaces in *Parque Piauí*, and it is the current object of study.

5 USE AND APPROPRIATION OF PRAÇA INTEGRAÇÃO, IN *PARQUE PIAUÍ*

Praça da Integração is located in *Parque Piauí.* It presents rectangular and regular shape, is located close to the busiest region in the neighborhood and is surrounded by *Parque Piauí* Urban Social Center, by the Investigative Center to Fight Feminicide, by *Cícero Portela Nunes* School and by *Parque Piauí* Hospital (Figure 2).
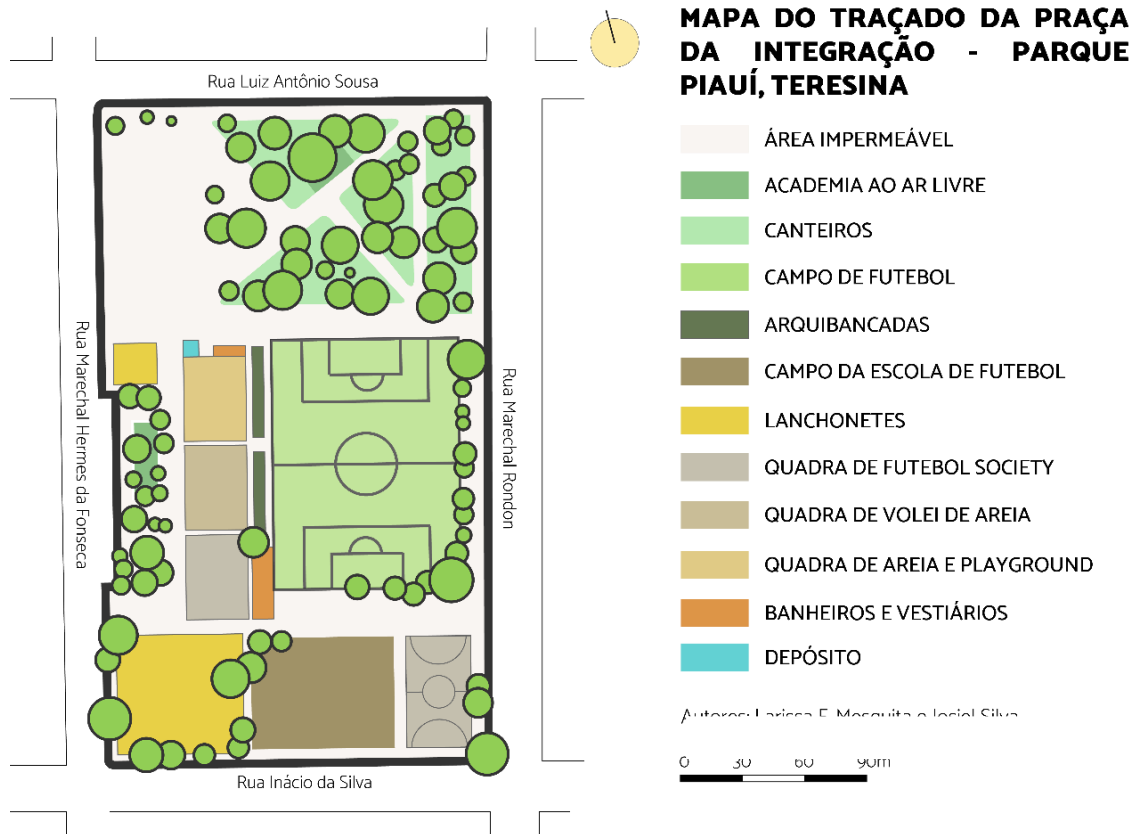
Figure 2 - Use of areas around *Praça da Integração*
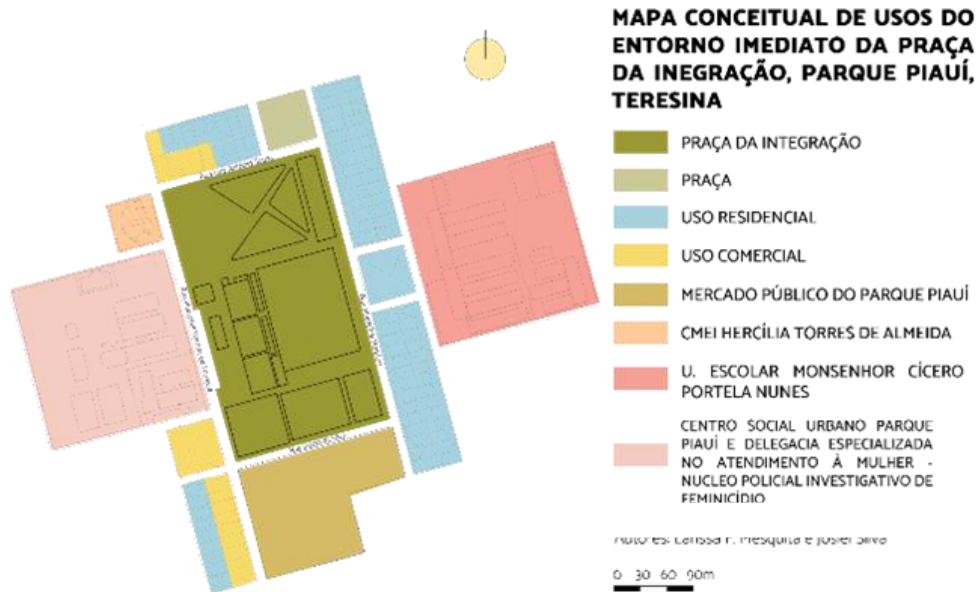
Source: Teresina (2019), modified by Larissa Mesquita.

Praça da Integração also presents a large area without vegetation and waterproof floor. This area overlooks *Marechal Hermes da Fonseca* Street (West Side), which is used for events, such as fairs, in addition to hosting amusement parks and circuses, at certain times of the year. The square's part facing *Marechal Rondon* Street (East Side) stands out for its exclusive residential use; it is well wooded and remains shaded for most of the day. This area is intensely used by residents who live in blocks close to the square. Residents gather at the square to talk or just to contemplate the landscape seat on its benches (Figure 3)

Figure 3 - Sketch of *Praça da Integração* with the existing equipment

MAPA DO TRAÇADO DA PRAÇA DA INTEGRAÇÃO - PARQUE PIAUÍ, TERESINA

- ÁREA IMPERMEÁVEL
- ACADEMIA AO AR LIVRE
- CANTEIROS
- CAMPO DE FUTEBOL
- ARQUIBANCADAS
- CAMPO DA ESCOLA DE FUTEBOL
- LANCHONETES
- QUADRA DE FUTEBOL SOCIETY
- QUADRA DE VOLEI DE AREIA
- QUADRA DE AREIA E PLAYGROUND
- BANHEIROS E VESTIÁRIOS
- DEPÓSITO

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0   30   60   90m

Source: Teresina (2019), modified by Larissa Mesquita.

The square is heavily used, mainly in the morning and in the evening, because of its special location in the neighborhood, in addition to having different equipment, such as dinners, and indoor soccer and sand courts used for informal training and physical activities, on a daily basis. Less intense use was observed in the afternoon; it was limited to people going for walks or walking their dogs, and to few outdoor gym users.

Food sales are among elements guaranteeing intense square appropriation due to its kiosks and dinners (Figure 4). These establishments attract users in the late afternoon and in the evening. Such an intense people flow ended up attracting other activities, such as toy-renting for children and street vendors (Figure 5).

Figure 4- Dinner at the square

Figure 5 – Toy-renting at the square

Source: Picture taken by Larissa Mesquita (2020)

The field visits allowed observing lack of toys in the square, although there are records of a small playground located in the sand court. However, during a recent visit to the square, it was possible observing that this equipment had been removed from the site, given its poor conservation state (Figure 6). However, children appropriate the square, even without having an appropriate space of their own. They even change the square's space by drawing a "hopscotch" game sketch on the floor (Figure 7).

Figure 6 – Damaged toy

Figure 7 – Hopscotch game drawn on the floor

Source: Pictures taken by Larissa Mesquita (2020)

Praça da Integração has two different sports court types, in addition to two soccer fields (one of them presenting official size) (Figure 8). This finding explains why the square always hosts so many users, some playing, and others, watching the games taking place on the courts (Figure 9).

Figure 8: Soccer field

Figure 9: Residents watching the game

Source: Pictures taken by Larissa Mesquita (2020)

When it comes to conservation state, the soccer field is well maintained, its grass is mowed on a daily basis, in addition to being irrigated different times a day. This scenario goes against the situation of the other courts in the square, whose structure is damaged or removed. This contrast is explained by the fact that the soccer field is maintained by *Liga Esportiva do Parque Piauí*, which finances its maintenance, whereas the other courts are maintained by Teresina City Hall.

It is important highlighting that this flow of users was observed before the COVID-19 pandemic. Toy rental workers did not go to the square during the social isolation period and dinners only operate with delivery systems, and it reduced the number of users in the afternoons and evenings. However, residents around the square kept on using it as meeting point or to exercise, even during quarantine. During the weekend, it was observed that visitations to the square significantly decreased on the weekends, when isolation measures were stricter due to the lockdown in Teresina (residents living around this space used to visit it) (Figure 10).

Figure 10 - Praça da Integração during the pandemic

Source: Pictures taken by Larissa Mesquita (2020)

Praça da Integração is widely used, despite the lack of proper maintenance of its equipment. This space's demand by, and social significance given by, its users, makes its appropriation by the population easier. The morning and the evening are the times of higher

people flow in the square, and the afternoon is calmer. However, the space is differently appropriated depending on the time of the day.

Square use is concentrated in construction site areas and in the outdoor gym, near *Marechal Hermes da Fonseca* Street, in the morning, when users prefer more relaxing activities, such as light walks, walking pets or just enjoying the landscape. The number of square users in the afternoon decreases significantly and only counts on passers-by or residents living East to the square, near *Marechal Rondon* Street, a quite woody area. This finding is explained by the high temperatures, because the square does not have many shaded areas.

Square appropriation intensity and diversity in the evening increases considerably. Its users occupy the whole square, be it for going to a walk or for going jogging, for using the outdoor gyms, exercising in the sports courts, as well as for leisure, mainly residents living around the square.

According to Sousa et al. (2008), open space projects must be connected to the population's profile and their design must take into account factors, such as social, functional, environmental and aesthetic suitability, so that squares can perfectly match the profile of its target public and be properly appropriated by the community.

Accordingly, *Praça da Integração* is well suited to the population surrounding it because it allows diverse activities that favor different groups of users. However, there are flaws in its maintenance system, which requires closer attention.

6 CONCLUSION

Physical and social factors interfere with public open spaces' unequal distribution in Southern Teresina City and, consequently, help their deficient appropriation, mainly in more distant low-income neighborhoods.

There is association between neighborhoods and complexes' construction, and the number of squares in these places because older neighborhoods house a larger number of squares. New neighborhoods mainly formed by social housing complexes, in their turn, have few (or no) squares.

Disparity between population density and the area of each neighborhood is another factor related to open spaces' unequal distribution in Southern Teresina City, and it proves the large urban voids observed in this region. Neighborhoods accounting for large physical extensions, but also for low population density, have few (or no) squares. This profile helps increasing their residents' physical and spatial segregation since the communal use of open spaces makes the association between residents and quality of urban life improvements closer.

Praça da Integração, at *Parque Piauí* neighborhood, is an example of good appropriation of public places given its whole variety of uses by the population. This square has sports courts, dinners and areas for exercising, because of its location. It is located near an area accounting for significant people flow, which explains the large number of users in it. In

addition, it is mostly located in a residential area, which favors its continuous use by residents living close to the square and who see it as an extension of their own homes.

Therefore, *Praça da Integração* is widely used, despite the lack of adequate maintenance in its equipment. These spaces' demand and social meaning made their intense appropriation by users easier. The highest people flow in the square is observed in the morning and in the evening; it is less visited in the afternoon. The square's appropriation profile differs depending on the time of the day.

Thus, it is essential highlighting the need of proper maintenance and of creating more urban open spaces that are fundamental for the city population's well-being, from an environmental, social and recreational viewpoint, mainly for low-income residents who do not have leisure options, which points out their role in improving the quality of urban life.

REFERENCES

ALIPRANDI, Danielly Cozer, TÂNGARI, Vera Regina. O Sistema de Espaços Livres no Estudo da Forma Urbana: Análise de problemas e potencialidades m Campos dos Goytacazes (RJ, Brasil). **Oculum Ensaios**, Campinas, v. 19, n. e225280, 2022.
ALVARES, Lucia Capanema; DIAS, Paola Lisboa Codo**. Novos Cadernos NAEA**. v. 11, n. 2, p. 123-138, dez. 2008.

ARAGÃO, S. Entre o público e o privado: o uso dos espaços livres nas vilas e conjuntos de edifícios residenciais de classe média e de classe média alta implantados na cidade de São Paulo**. Pós. Revista do Programa de Pós-Graduação em Arquitetura e Urbanismo da FAUUSP**, n. 13, 44-59,

CRUZ, Izabel Cristina de Souza; ESPINDOLA, Giovana Mira de; CARNEIRO, Eduilson Lívio Neves da Costa. Três décadas de expansão urbana e concentração populacional em Teresina, Piauí, Brasil. **Espacios**. v. 37, n. 24, 2016.

FAÇANHA, Antônio Cardoso. **Evolução de Teresina: agentes, processos e formas espaciais da cidade**. 1998. Dissertação (Mestrado em Geografia) – Departamento de Geociência da UFPE. Universidade Federal de Pernambuco, Recife.

IBGE. Instituto Brasileiro de Geografia e Estatística. **Panorama: Teresina**. 2022. Disponível em: https://cidades.ibge.gov.br/brasil/pi/teresina/panorama. Acesso em: 08 fev. 2024.

JACOBS, Jane. **Morte e vida de grandes cidades**. 3. ed. São Paulo: WMF Martins Fontes, 2011.

LAY, M. C; Reis, A. T. O papel de espaços abertos comunais na avaliação de desempenho de conjuntos habitacionais. **Ambiente Construído**, Porto Alegre, v. 2, n. 3, p. 35-39, jul./set. 2002.
LEMOS, Isabela Sollero; MARX, Janaina. Espaços livres como ativadores comunitários. **Revista Nacional de Gerenciamento de Cidades**, Tupã, v. 7, n. 50, p. 111-129, 2019.

LIMA, Jesuíta. **Favela Cohebe**: uma história de luta por habitação popular. 2 ed. Teresina: EDUFPI: Recife: Bagaço, 2010.

LIMA, S. M. S. A.; LOPES, W. G. R.; FAÇANHA, A. C. (2019). Desafios do planejamento urbano na expansão das cidades: entre planos e realidade**. urbe. Revista Brasileira de Gestão Urbana**, 11, e20190037, 2019. https://doi.org/10.1590/2175-3369.011.e20180037

LONDE, Patrícia Ribeiro; MENDES, Paulo Cezar. A influência das áreas verdes na qualidade de vida urbana. **Hygeia.** v. 10, n. 18, p. 264-272, jun., 2014.

MACEDO, Silvio Soares. Espaços livres. **Paisagem e ambiente**, n. 7, p. 15-56, 1995.

MAGNOLI, Miranda Martinelli. Espaço livre: objeto de trabalho**. Paisagem e Ambiente**: ensaios. São Paulo, n. 21, p. 175-198, 2006.

MARTÍNEZ-VALDÉS, Valentina; SILVA RIVERA, Evodia e GONZÁLEZ GAUDIANO, Edgar (2020). Parques urbanos: un enfoque para su estudio como espacio público. **Intersticios Sociales,** El Colegio de Jalisco, n. 19, marzo-agosto, 2020.

MATOS, Fátima Loureiro de. Espaços públicos e qualidade de vida nas cidades: o caso da cidade Porto. **Observatorium:** Revista Eletrônica de Geografia, v. 2, n. 4, p.17-33, jul. 2010.
MEDEIROS, Valério. **Urbis Brasilae**: o labirinto das cidades brasileiras. Brasília: Edu-UnB, 2014.

MENDONÇA, Eneida Maria Souza. Apropriações do espaço público: alguns conceitos**. Estudos e Pesquisas em Psicologia**. Rio de Janeiro, v. 7, n. 2, p. 296-306, ago., 2007.

OLIVEIRA, L. A.; MASCARÓ, J. J. Análise da Qualidade de Vida Urbana Sob a Ótica dos Espaços Públicos de Lazer. **Ambiente Construído**, Porto Alegre, v. 7, n. 2, p. 59-69, abr./jun. 2007.

ORTIZ, Sérgio Ricardo Lessa; MACEDO, S. S. Paisagem contemporânea: Os espaços livres da Barra da Tijuca. In: ENCONTRO NACIONAL DE PAISAGISMO EM ESCOLAS DE ARQUITETURA E URBANISMO NO BRASIL, 7, 2004. Minas Gerais. **Anais** [...], Belo Horizonte: FAUUFMG, 2004.

PEREGRINO, Y. R.; BRITO, A. L. R.; SILVEIRA, J. A. R. O espaço livre público como lócus de oportunidade e da integração socioespacial da cidade: o caso da favela Beira Molhada, em João Pessoa – PB, Brasil. **urbe. Revista Brasileira de Gestão Urbana**, v. 9, n. 3, p. 456-473, set./dez., 2017.

QUEIROGA, Eugênio Fernandes; BENFATTI, Denio Munia. Sistemas de espaços livre urbanos: construindo um referencial teórico. **Paisagem e Ambiente**, São Paulo, n. 24, p. 81-87, dez. 2007.

QUEIROGA, Eugênio Fernandes. Sistemas de Espaços Livres e Esfera Pública em Metrópoles Brasileiras. **Resgate:** artigos & ensaios. São Paulo. v. 19, n. 21, jan/jun, 2011.

ROSANELI, Alessandro Filla *et al*. Apropriação do espaço livre público na metrópole contemporânea: o caso da Praça Tiradentes em Curitiba/PR**. urbe. Revista Brasileira de Gestão Urbana**, v. 8, n. 3, p. 359-374, 2016.

SILVA, Denielle Fernandes da; CARMO, Judite de Azevedo do. Uso e apropriação da Praça Central de Colíder, Mato Grosso. **Geografia em Questão**, v. 10, n. 02, 2017.

SILVA, Guilhermina.; LOPES, Wilza Gomes Reis; LOPES, João Batista. Evolução, mudanças de uso e apropriação de espaços públicos em áreas centrais urbanas**. Ambiente Construído**, Porto Alegre, v. 11, n. 3, p. 197-212, jul./set., 2011.

SOUSA, Giuliana de Brito; LOPES, Wilza Gomes Reis; ALVES, Marta Raquel da Silva; MATOS, Karenina Cardoso. Uso e apropriação de Espaços Livres Públicos e seus Reflexos na Paisagem Cultural em Bairros Periféricos da Cidade de Teresina. In: TERRA, Carlos G.; ANDRADE, Rubens Oliveira**. Coleção Paisagens Culturais:** Materialização da Paisagem através das Manifestações Socioculturais. Rio de Janeiro: EBA Publicações, 2008, v. 1, p. 434-441.

SZEREMETA, Bani; ZANNIN, Paulo Henrique Trombetta. A importância dos parques urbanos e áreas verdes na promoção da qualidade de vida em cidades. **Revista Ra'e Ga**, Curitiba, v. 29, p.177-193, dez., 2013.
TERESINA. Prefeitura Municipal. **Lei n° 1.932 de 16 de agosto de 1988**. II Plano Estrutural de Teresina. Teresina: PMT, 1988.

TERESINA. Secretaria Municipal de Planejamento - SEMPLAM. **Aspectos e Características - Perfil 1993.** Teresina: Prefeitura Municipal de Teresina, 1993.

TERESINA. **Teresina Agenda 2015:** Plano de Desenvolvimento Sustentável - Síntese. Teresina: PMT, 2002a.

TERESINA. **Teresina Agenda 2015:** a cidade que queremos. Diagnósticos e cenários – Habitação. Teresina, 2002b.

TERESINA. **Teresina Agenda 2030**. PMT, 2015.

TERESINA. **Perímetro Urbano da cidade de Teresina, Piauí**. PMT, 2019.

TERESINA. **Secretaria Municipal de Planejamento e Coordenação Geral**. Perfil dos Bairros: Sdu/Sul. Teresina, 2018. Disponível em: https://semplan.teresina.pi.gov.br/sdu-sul/. Acesso em: 15 set. 2021.

VALENTINI, Daiane Regina; FACCO Janete; CONDE, Queila Rissi. A paisagem e o sistema de espaços livres públicos urbanos: uma integração necessária ao planejamento da região da EFAPI, Chapecó/SC, Brasil. **Boletim de Geografia,** Maringá, v. 38, n. 3, p. 34-55, 2020.