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Evaluation Of Public Green Spaces In The North Zone Of The City Of Cuiabá-MT

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Abstract:
Context: *This research aimed to analyze the quality of Urbananized Public Green Spaces (UPGSs), such as squares, gardens and urban parks, intended for leisure and recreation in the contemporary city.*
Materials and Methods: *As a spatial part of the study, the North Zone of the city of Cuiabá-MT was chosen. For the development of this qualitative research, methodological procedures were adopted that had as a logical basis an investigation divided into three phases: open or exploratory, data collection and analysis and systematic interpretation of data.*
Results: *As a result, a lack was found not only in the number of public spaces for leisure and recreation but also in the quality of these spaces, which denotes the absence of public policies aimed at the population with lower purchasing power.*
Conclusion: *When measuring the UPGSI, it was found that there is a need to implement new spaces, in compliance with the Land Subdivision Law, in order to improve the population's environmental quality.*
Key Word*: City of Cuiabá. Urbanized Public Green Areas. Public policy.*

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I. Introduction

The context of cities, particularly in Brazil, the lack of public spaces for leisure and recreation, assumes the debate in several areas of knowledge. Urbanized Public Green Spaces - UPGSs are well known for their environmental benefits, such as: combating air pollution; regulation of air humidity and temperature; contribution to soil permeability, fertility and moisture, protecting against erosion processes; reduction of noise levels serving as a noise buffer in cities, among others. In summary, they contribute to the environmental comfort of the places where they are located. Add to these functions the beautification of the city, as well as the function of leisure, where man can remove the anguish of the concrete city, allowing the individual to integrate with nature.

Given the importance of the proposed theme, it was decided to carry out this qualitative analysis of the UPGSs, having as a spatial cut the North Zone of the city of Cuiabá-MT, which is justified by the environmental aspects of the site, as well as the lack of public spaces intended for leisure and recreation for the population.

II. State of the art

To present the state of the art on the subject, it is assumed that urban green spaces can be integrated into the category of open spaces in the city, with characteristics aimed at the recomposition of natural elements, regardless of the size of the vegetation (MILANO, 1993). In the same sense, Cavalheiro *et al.* (1999) state that a green space is "a special type of free space where the fundamental element of composition is vegetation". Under this approach, Lima *et al.* (1994, p. 549) weave a complementation, in which the green space is a category of free space, provided that there is a predominance of arboreal vegetation, such as "squares, public gardens and urban parks".

In turn, Nucci (2008, p.120) when discussing the issue addresses the importance of the functions performed by vegetated spaces, considering that, for an area to be identified as a green space, there must be a "predominance of planted areas and that it must comply with three functions (aesthetic, ecological and leisure)", in addition to presenting a vegetation cover and "permeable soil (without slab) that must occupy at least 70% of the area".

Regardless of their framework in terms of title, whether public or privately owned green areas, in either of the two categories they must present some type of vegetation (not just trees) with a significant vertical

dimension, it becomes relevant that they are used for social, ecological, scientific or cultural purposes (NOGUEIRA; WANTUELFER, 2002).

Therefore, within the scope of this research, the content expressed in the concept is considered a public green space, for which:

[...] every open space (green/leisure area) that has been affected as being for common use and that has some type of vegetation (spontaneous or planted), which can contribute in environmental terms (photosynthesis, evapotranspiration, shading, permeability, conservation biodiversity and mitigate the effects of noise and atmospheric pollution) and that is also used for social, ecological, scientific or cultural purposes. (BENINI, 2009, p. 71).

As these spaces are for common use by the people, they impose on the Municipal Administration, as well as on the "collectivity (society as a whole) the duty to defend and preserve such spaces (public green spaces), since they can contribute to the healthy quality of life and, consequently, for environmental quality" (BENINI, 2009).

The studies prepared by Nucci (2008, p. 109) emphasize the comfort conditions provided by green spaces, where it is common to find a pleasant environment, removing the "anguish" of the city, allowing the individual to interact with nature.

These environments should be pleasant and aesthetic, with a variety of accommodations and facilities to facilitate individual choice. They must be free from monotony and exempt from the difficulties of space and the anguish of urban agglomerations. Especially for children, it is fundamental that the open space provides the possibility to experience sounds, smells, textures, taste of nature; walking barefoot through sand, grass; having contact with animals such as birds, small mammals and insects, etc. (NUCCI, 2008, p. 109)

Gomes (2005, p. 57) complements Nucci's statement (2008, p. 109), pointing out that green spaces, "from a psychological and social point of view, influence the state of mind of mass individuals with the disorder of large cities". The author also states that vegetation offers environmental benefits such as, for example: combating air pollution[1] through photosynthesis[2]; "regulates the humidity and temperature of the air; maintains the permeability, fertility and moisture of the soil and protects it against erosion and; reduces noise levels by serving as a buffer against the noise of cities".

Troppmair and Galina (2003) add, emphasizing the advantages of green spaces:

a) Creation of a milder microclimate that acts as a center of high pressure and has a marked impact on the dynamics of the heat island [...];
b) Depollution of air from solid and gaseous particles, depending on the leaf apparatus, bark roughness, size and age of the tree species;
c) Reduction of noise pollution, especially by aciculiformes species (pine trees) that can show a reduction of 6 to 8 decibels;
d) Air purification by reducing microorganisms. 50 microorganisms were measured per cubic meter of forest air and up to 4,000,000 per cubic meter in shopping malls;
e) Reduction of the intensity of channeled wind on avenues surrounded by buildings;
f) Vegetation as a frame and composition of the landscape next to monuments and historic buildings.

In this analytical context, Loboda and Angelis (2005) state that urban green spaces contribute to improving the quality of life in cities. According to Gomes (2005, p. 115) green spaces can provide thermal comfort[3], as these green surfaces interfere with the formation of microclimates[4]. Spirn (1995, p. 68-69) explains that green areas differ from the concrete landscape, for its ability to disperse solar radiation through evaporation and transpiration.

[1] "Poisonous gases suspended in the air above the street and toxic dust cover the carriageway and sidewalks. Cars, buses and trucks jam the streets, accelerating and braking, emitting torrents of carbon monoxide, nitrogen oxides and lead particles and of unburned fuel. The back-and-forth of traffic, characteristic of a busy street, produces more pollutants than traffic flowing smoothly at a constant speed along a highway, because the concentration of exhaust fumes is higher, at an irregular rate of combustion. Oil droplets from engines turn into a fine aerosol; asbestos is released from brakes; street paving literally grinds tire rubber into a fine dust" (SPIRN, 1995, p. 71).

[2] "Photosynthesis helps humidify the air, resulting in evaporative cooling" (BARBIRATO; SOUZA; TORRES, 2007, p.113-114).

[3] "Thermal comfort – Encompasses the thermodynamic components that, in their relations, are expressed through heat, ventilation and humidity in the basic references to this notion. It is a very significant perceptual filter, as it affects everyone permanently. It constitutes, whether in medical climatology or in housing technology, a research subject of increasing importance" (MONTEIRO, 2003, P. 2 4). "The sensation of thermal comfort is associated with the rate of heat exchange between the body and the environment, therefore, human performance during any activity can be optimized, as long as the environment provides comfortable conditions and it is possible to avoid unpleasant sensations such as: difficulty eliminating excess heat produced by the organism; exaggerated loss of heat by the body and temperature inequality between the different parts of the body" (BARBIRATO; SOUZA; TORRES, 2007, p.144).

[4] "Each city is composed of a mosaic of radically different microclimates, which are created by the same processes that operate at the overall city scale. The same phenomena that characterize the urban mesoclimate exist in miniature throughout the city – small heat islands, microinversions, pockets of severe atmospheric pollution and local differences in wind behavior" (SPIRN, 1995, p. 71).

In the city, concrete, stone, brick and asphalt replace the natural vegetation cover of the countryside. These materials absorb heat faster and hold it in greater amounts than plants, soil, and water. [...] Throughout the day, the pavement, walls and roofs absorb and conserve the heat of solar radiation. Although water and plants also absorb solar radiation, most of that energy is spent on evaporation and transpiration – resulting in more heat being lost than absorbed. [...] The city cools down more slowly: it has absorbed more heat, and the radiation of that heat to the night sky is inhibited by the walls of buildings. (SPIRN, 1995, p. 68-9).

Likewise, Danni-Oliveira (2003, p. 157) based on studies of urban climatology, states that residential areas, when "flanked by green spaces", receive "incidence of solar radiation", through "exchanges of flows of heat and humidity, as well as the dispersion of pollutants".

In a broader context, the relevance of public green areas present in the urban fabric, reiterates the need to incorporate the principles of preservation and conservation, from which the concept of urban sustainability emerges, which can favorably interfere not only in improving environmental quality, but mainly in the quality of urban life.

The provision of public spaces is one of the requirements for the realization of the right to the city, since these places add "visual or landscape values, recreational values and environmental values" in the urban environment and that "a good quality of public space can provide the permanence in a calm spatiality, the development of social activities and, consequently, urban vitality" (BARBIRATO; SOUZA; TORRES, 2007, p.144).

In this context, public green spaces, that is, gardens[5] and urban parks[6] come to "play an important role in the identity of places, often highlighting the physical characteristics of the urban site" (PISSOL, 2006, p. 2). The implementation of an urban garden or park contributes to the humanization of the city.

Parks and Gardens – The most beautiful achievements of mankind are products of the ideal. It is enough to remember the wonderful parks, gardens and surviving monuments of all the great civilizations, to understand the creative force of a far-reaching vision, capable of giving shape and beauty to the most diverse elements, in order to bequeath them to posterity. (LOUREIRO, 1979, p. 24)

The creation, production and reproduction of these spaces in time add urbanistic values, essential to the spatial arrangement of the urban site. Loureiro (1979, p. 33) states that the city must be designed and produced, considering public green spaces as a basic requirement for urban quality. For Robba and Macedo (2003, p. 44-45), this urban quality is implicit in the environmental, functional, aesthetic and symbolic values of these spaces.

III. Metodology

For the delimitation of the universe to be studied, a qualitative research was chosen, in which the procedures had a logical basis that consisted of the investigation divided into three phases: "open or exploratory", "data collection" and "analysis and interpretation systematic data" (LÜDKE; ANDRÉ, 1986, p. 21).

The first phase of the research, known as open or exploratory, consisted of examining the literature related to books, theses, dissertations, articles, etc. on the theme, with constant repetition of the same bibliographic references, without presenting new propositions that would broaden the theoretical discussion.

The second phase of the research consisted of collecting data in loco (carried out in 2019 and tabulation in 2020), based on the work of Angelis, Castro and Angelis Neto (2004), Santiago, Santiago and Soares (2016) and NBR 9050/ 2015, for the definition of the necessary methodological procedures. In this phase, the cartographic base of the City Hall of Cuiabá and data from IBGE (2010) were used.

The third phase consisted of inserting the research object within a framework of theoretical references, concomitantly with the empirical construction, which allowed obtaining the products of this research.

IV. UPGSs evaluation procedures

Once the implementation of the UPGSs in the neighborhood was verified, the following requirements were considered for analysis: accessibility, vegetation, quantity and quality of the implanted furniture and the offer of public services. For the construction of the empirical research, pre-established attributes and variables were considered, as shown below:

a) To assess the quality of accessibility in the UPGSs, the state of conservation of the floor, the existence and dimensioning of circulation routes, natural barriers that could compromise accessibility, the provision of a ramp and tactile floor for warning and direction were considered, as well as the parking offer, including for the elderly (Chart 1):

[5] A public garden comprises those whose maintenance is the responsibility of public authorities and are intended for the use and enjoyment of the population in general, with the limitations necessary for their function [...] (NIEMEYER, 2005, p.10).

[6] "A park is considered to be any space for public use intended for mass recreation, whatever its type, capable of incorporating conservation intentions and whose morphological structure is self-sufficient, that is, its configuration is not directly influenced by any structure built around it" (MACEDO; SAKATA, 2002, p. 14).

Chart 1 – Assigning weight (value) to accessibility in the UPGS

ATTRIBUTE	VARIABLES	SITUATION	WEIGHT
Acessibility	State of conservation of the floor in space (UPGS)	good	2
		fair	1
		bad	0
	Circulation routes are less than 1.20 meters	yes	0
		no	2
	Existence of at least one in-space accessible route (UPGS)	yes	2
		no	0
	Vegetation from space (UPGS) interrupts the accessible route	yes	0
		no	2
	It has an access ramp	yes	2
		no	0
	It has tactile warning and directional floor	yes	2
		no	0
	Around the space (UPGS) there are spaces reserved for people with disabilities	yes	2
		no	0
	Around the square (UPGS) there are spaces reserved for seniors	yes	2
		no	0
	Parking	yes	2
		no	0

Source: BENINI, 2020.

b) The quality of the "vegetation" attribute was measured, considering criteria such as the supply of wooded spaces and undergrowth, the landscaping treatment, as well as the percentage of permeability in the UPGSs (Chart 2):

Chart 2 – Assignment of weight (value) to vegetation in the UPGS

ATTRIBUTE	VARIABLES	SITUATION	WEIGHT
Vegetation	The space is wooded	yes	3
		no	0
	The space has undergrowth vegetation	yes	3
		no	0
	The space is landscaped	yes	3
		no	0
	Permeabilidade (%)	greater than 75%	3
		from 50 to 75%	2
		from 25 to 49%	1
		less than 25%	0

Source: BENINI, 2020.

c) To assess the quality of furniture intended for recreation, consideration was given to the provision of a playground, exercise equipment (outdoor gym), gym equipment for the elderly, as well as whether the UPGSs had a sports court (Chart 3).

Chart 3 – Assignment of weight (value) to furniture intended for recreation at UPGS

ATTRIBUTE	VARIABLES	SITUATION	WEIGHT
Furniture intended for recreation	Playground	yes	3
		no	0
	Exercise equipment – Outdoor gym	yes	3
		no	0
	Gym equipment for seniors	yes	3
		no	0
	Sports court	yes	3
		no	0

Source: BENINI, 2020.

d) Among the assessed attributes, in the cultural issue, the installation of a stage for artistic presentations, fountain and water mirror and exhibition of works of art, such as sculptures, busts, among others, were considered (Chart 4):

Chart 4 – Assignment of weight (value) to furniture intended for culture at UPGS

ATTRIBUTE	VARIABLES	SITUATION	WEIGHT
Culture	Stage	yes	2
		no	0
	Work of art	yes	2
		no	0
	Fountain / water mirror	yes	2
		no	0

Source: BENINI, 2020.

e) The quality of the furniture in general, considering the value/weight attributed to each variable in Table 5, in order to allow a systematic analysis of the UPGSs:

Chart 5 – Assignment of weight (value) to furniture in general at UPGS

ATTRIBUTE	VARIABLES	SITUATION	WEIGHT
Furniture in general	Benches	yes	3
		no	0
	Drinking fountain	yes	3
		no	0
	High lighting	yes	3
		no	0
	Low lighting	yes	3
		no	0
	Bin	yes	3
		no	0
	Restroom	yes	2
		no	0
	Bus stop	yes	1
		no	0
	taxi rank	yes	1
		no	0
	Newsstand	yes	1
		no	0
	Public phone	yes	1
		no	0
	Kiosk	yes	1
		no	0

Source: BENINI, 2020.

f) In addition, the research included the evaluation of the public services offered in the UPGSs, such as conservation and cleaning of the space. At this stage, the provision of security (watchman) on site was also considered (Chart 6):

Chart 6 – Assignment of weight (value) to the public service offer in the UPGS

ATTRIBUTE	VARIABLES	SITUATION	WEIGHT
Public service	Space conservation	good	2
		fair	1
		bad	0
	Cleaning in space	good	2
		fair	1
		bad	0
	There is security (watchman) on site	yes	1
		no	0

Source: BENINI, 2020.

The combination of these attributes presented, considering their variables, allowed the generation of some analysis products, such as tables and maps, which allowed to specialize the quality of the UPGSs.

Based on these data, the Urbanized Public Green Space Index (UPGSI) was calculated by neighborhood in the west zone of the city of Cuiabá, through the interpolation of data in the following formula:

UPGSI = Urbanized Public Green Space Index by neighborhood

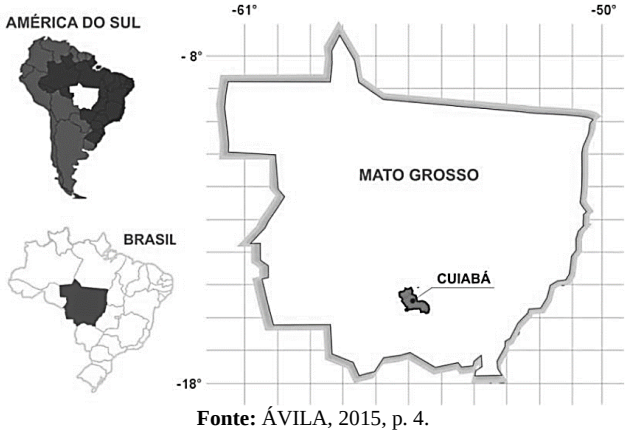
$\sum$ { Urbanized PGS: inhab } = UPGSI (m^2/inhab)

Thus, considering the methodology presented, it is also noteworthy that it can be replicated not only in other areas of the city of Cuiabá, but in any city in the Brazilian territory.

V. Case study

For the development of this work, the North Zone of the city of Cuiabá, State of Mato Grosso, which has an area of 3,538.17 Km2, corresponding to 254.57 Km2 in the urban area and 3,283.60 Km2 in the rural area, was chosen as the spatial area. . It borders the municipalities of Acorizal, Rosário Oeste, Chapada dos Guimarães, Santo Antônio do Leverger and Várzea Grande (Figure 1).

Figure 1 – Location of Cuiaba-MT.



Fonte: ÁVILA, 2015, p. 4.

The city of Cuiabá is located in Baixada Cuiabana, where, according to Ávila (2015, p. 4), the region has a predominance of a "Tropical Continental climate, without maritime influence, where the interference of urban land use in the occurrence of heat islands has already been detected", the region "has a low frequency and average wind speed, which makes the influence of built space on air temperature more noticeable, since thermal exchanges by convection are minimized", thus there is a predominance of high temperatures, with rain in the summer and dry winter.

According to data from the IBGE Census (2010), 36, 41% of the population in the North Zone of the city of Cuiabá is in the range of 0 to 19 years (children and adolescents), data that denote the need to implement public policies to services for this public (Table 1).

Table 1 - Population (Children and Adolescents) of the North Zone of the City of Cuiabá-MT

Cd.	NORTH ZONE NEIGHBORHOOD	POPULATION (1)	AGE GROUPS (%)			
			0 - 4 years old	5 - 9 years old	10 - 14 years old	16 - 19 years old
25	JARDIM FLORIANÓPOLIS	4.824	9,12	8,46	10,84	11,40
26	JARDIM VITÓRIA	8.966	9,21	8,20	10,86	11,97
27	PARAÍSO	5.655	9,07	10,45	10,75	10,80
28	NOVA CONQUISTA	855	8,77	7,37	10,18	10,53
29	PRIMEIRO DE MARÇO	7.457	8,65	9,59	10,57	11,30
30	TRÊS BARRAS	9.926	9,96	9,30	10,36	10,71
31	MORADA DA SERRA	56.066	6,50	6,38	7,43	8,62
32	MORADA DO OURO	5.824	5,25	6,06	6,71	8,46
33	CENTRO POLÍTICO ADMINISTRATIVO	5.434	9,83	9,49	9,60	10,09
34	PAIAGUÁS	4.743	7,72	7,97	8,24	8,67
117	ÁREA DE EXPANSÃO URBANA	11.164	9,57	9,16	9,04	7,32

1 - Population according to data collected by the IBGE Census, 2010
Source: IBGE, 2010 – Organized by the Authors

By observing the economic data, it was found that the average income of the population in the region is low, thus compromising the quality of life of its residents. This fact, which reinforces the importance of offering public spaces for these residents, intended for leisure and recreation, considering that many do not have access to clubs, shopping, gyms, etc.

Table 2 - Average Income of the Population in the North Zone of the City of Cuiabá-MT

Cd.	NEIGHBORHOOD	POPULATION (1)	AVERAGE INCOME (MW) (2)
25	JARDIM FLORIANÓPOLIS	4.824	2,25
26	JARDIM VITÓRIA	8.966	2,24
27	PARAÍSO	5.655	2,41
28	NOVA CONQUISTA	855	2,41
29	PRIMEIRO DE MARÇO	7.457	2,59
30	TRÊS BARRAS	9.926	2,41
31	MORADA DA SERRA	56.066	5,18
32	MORADA DO OURO	5.824	11,69
33	CENTRO POLÍTICO ADMINISTRATIVO	5.434	2,72
34	PAIAGUÁS	4.743	6,03
117	ÁREA DE EXPANSÃO URBANA	11.164	-

1 - Population according to data collected by the IBGE Census, 2010

2 - Average Income (MW) - as a basis for this work, data from the table "Average monthly nominal income value, value of median monthly nominal income of people with income, responsible for permanent private households, according to neighborhoods" of the Demographic Census 2000 (universe results), published by IBGE.

Source: IBGE, 2010 – Organized by the Authors

VI. Results

While carrying out this research, there was a lack of UPGSs in the North Zone of the City of Cuiabá, thus presenting a mismatch with the Land Installment Law (Law nº 6.766/1979), which determines in its article 22, which urban equipments (roads and squares, open spaces and areas intended for public buildings and other urban equipment) that, after registration of the allotment, become part of public domain assets.

It is known that Public Administrations have budget constraints to meet all urban demands (health, education, social services, among others), and for this reason, an insufficient amount of the budget ends up being allocated to the implementation of these spaces.

The results obtained by the qualitative analysis of the UPGSs, showed that the neighborhoods that obtained a high score, with the exception of the Administrative Political Center, are middle class neighborhoods according to the IBGE (2010), like Morada do Ouro and Bairro Paiaguais.

Table 3 - Summary of the Qualitative Assessment of the UPGS in the North Zone of the City of Cuiabá-MT.

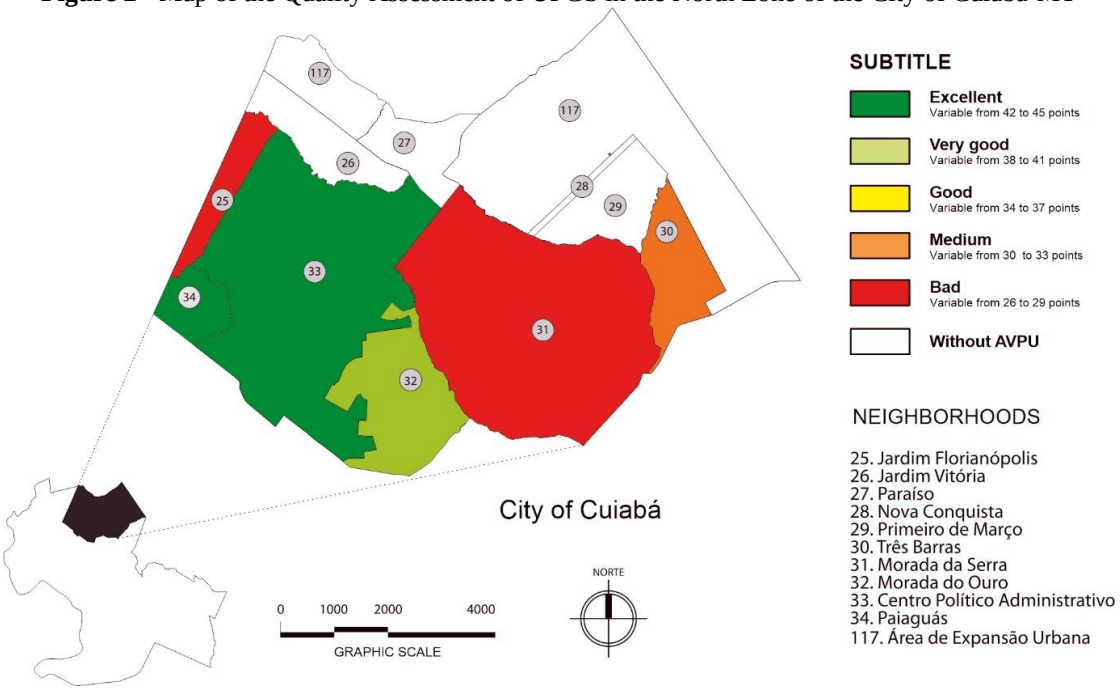
Cd.	NORTH ZONE NEIGHBORHOOD	URBANIZED PUBLIC GREEN SPACE	M2	QUALITY (1)	AVERAGE Q. (2)
25	JARDIM FLORIANÓPOLIS	PRAÇA ARQUITETO JÚLIO DE LAMONICA FREIRE	2.427,98	27	27
30	TRÊS BARRAS	PRAÇA RESIDENCIAL NOVA CANAÃ	3.049,35	39	26,6
		PRAÇA JARDIM UMURANA	1.980,32	20	
		PRAÇA TRÊS BARRAS	2.074,98	21	
31	MORADA DA SERRA	ESPAÇO SEM DENOMINAÇÃO	15.540,95	40	27,3
		PRAÇA DE ESPORTE E LAZER ERMES DO NASCIMENTO JUSTINO	4.995,49	31	
		PRAÇA DA CAIXA D'ÁGUA	1.982,70	31	
		ESPAÇO SEM DENOMINAÇÃO	2.1744,93	33	
		PRAÇA DO CPA I	2.340,16	11	
		PRAÇA DO GINÁSIO VERDINHO	9.337,54	35	
		ESPAÇO SEM DENOMINAÇÃO	3.124,49	20	
		PARQUE MUNICIPAL LAGOA ENCANTADA	3.519,00	18	
32	MORADA DO OURO	PRAÇA CULTURAL MORADA DO OURO	3.641,00	38	38
33	CENTRO POLÍTICO ADMINISTRATIVO	PRAÇA SEM. JONAS PINHEIRO	11.336,00	38	45
		PARQUE MASSAIRO OKAMURA	540.000,00	50	
		PRAÇA MONUMENTO ULISSES GUIMARÃES	8.148,00	33	
		PARQUE DAS ÁGUAS	270.000,00	59	
34	BAIRRO PAIAGUAIS	ESPAÇO SEM DENOMINAÇÃO	4094,95	43	43

1 - Quality of UPGS - Urbanized Public Green Space (squares, gardens and parks)

2 - Average quality measured by neighborhood
Source: Organized by the Authors

Figure 2 demonstrates the contradiction present in the implementation of public policies for leisure and recreation in the region, because where there is a population with lower income, the quality of UPGSs is low, or simply, they were not implemented, as in Jardim Vitória, Paraiso and New Conquest, March 1st.

Figure 2 - Map of the Quality Assessment of UPGS in the North Zone of the City of Cuiabá-MT



Source: Organized by the Authors

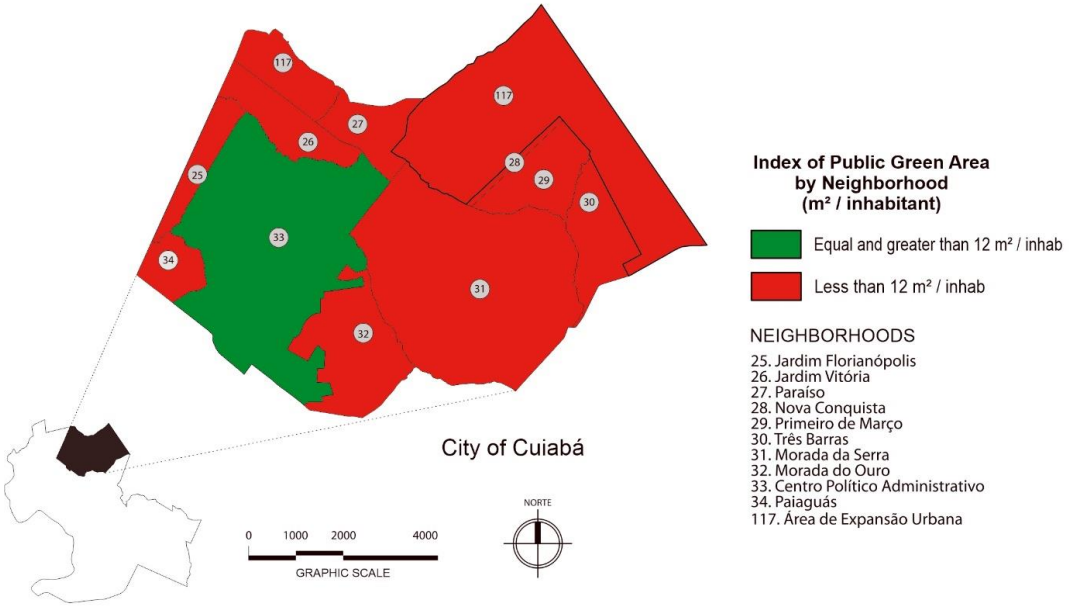
Table 4 presents the Urbanized Green Area Index – UPGSI, which is calculated based on the availability of UPGS for each inhabitant of the neighborhood. According to Troppmair and Galina (2003), the UN (United Nations) recommends the adoption of "12 square meters of green area per inhabitant so that there is a balance between the amount of oxygen and carbon dioxide".

Table 4 - UPGSI of the North Zone of the City of Cuiabá-MT

Cd.	NORTH ZONE NEIGHBORHOOD	POPULATION[1]	UPGS/M2[2]	UPGSI[3]
25	JARDIM FLORIANÓPOLIS	4.824	2.427,98	0,50
26	JARDIM VITÓRIA	8.966	0	0
27	PARAÍSO	5.655	0	0
28	NOVA CONQUISTA	855	0	0
29	PRIMEIRO DE MARÇO	7.457	0	0
30	TRÊS BARRAS	9.926	7.104,65	0,71
31	MORADA DA SERRA	56.066	62.585,26	1,11
32	MORADA DO OURO	5.824	3.641,00	0,62
33	CENTRO POLÍTICO ADMINISTRATIVO	5.434	829.484,00	152,64
34	PAIAGUÁS	4.743	4.094,95	0,86
117	ÁREA DE EXPANSÃO URBANA	11.164	0	0

1 - Population according to data collected by the IBGE Census, 2010
2 - UPGS/M2 - Urbanized Public Green Space per square meter
3 - UPGSI - Urbanized Public Green Space Index

Figure 3 - Map of the UPGSI by allotment in the North Zone of the City of Cuiabá-MT



Source: Organized by the Authors

The spatialization of the UPGSI of the North Zone of Cuiabá in Figure 3, allows verifying that despite the predominance of high temperatures in the region, which would demand the provision of more green spaces, most of the studied area presents an index below the ideal recommended by the UN

VII. Conclusion

The content presented in this article evidences that the North Zone of the city of Cuiabá presents a lack, not only in the amount of public spaces destined to leisure and recreation, as well as the quality of these spaces, which denotes the absence of public policies directed to the population of lower purchasing power.

When measuring the UPGS, it was verified that there is a need to implement new spaces, in compliance with the Law of Land Subdivision, in order to improve the environmental quality of the population.

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