



Urban sprawl: segregation of social housing in Catanduva’s City

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SUMMARY

Urban sprawl is a phenomenon intrinsically linked to the fragmented expansion process of urban areas. This fact has gained increasing relevance in the contemporary urban context, as cities continue to grow and develop. This sprawl often results in increased car use, infrastructure expansion, consumption of natural resources, and significant environmental impacts. Furthermore, it may have implications for the quality of life of urban dwellers, accessibility to services, infrastructure costs and urban mobility. Therefore, the study of urban sprawl is fundamental to understanding and addressing the challenges associated with urban planning, sustainable development and quality of life in cities. Objective: This article aims to investigate urban expansion and the implementation of housing complexes in the city of Catanduva, located in the northwest of the State of São Paulo. Materials and methods: The methodological aspects for the conception of this study consisted of 3 axes: i) Bibliographic review, ii) Data collection, iii) Development of products for analysis. Results: Based on the collected data, it was found that most of the studied projects present socio-spatial segregation, thus resulting in design guidelines to minimize such aspects.

KEYWORDS: Social Housing, Peripheralization, Urban Sprawl.

1 INTRODUCTION

Urban sprawl is a phenomenon characterized by the expansion of land occupation in peripheral areas. This issue has been intensified in Brazil over the last few decades, which is the greater number the result of an unsuccessful attempt to resolve another pressing issue: the country's absence of housing. To face Brazil's housing deficit, estimated at 5.87 million homes (FUNDAÇÃO JOÃO PINHEIRO, 2019), The Executive Branch often adopts an approach that prioritizes the large-scale production of housing units, with the goal of serving as many people as possible. However, this approach often neglects the issue of housing quality, which encompasses factors such as housing construction methods, cultural standards and location.

Until the end of the 1960s, cities in Brazil expanded continuously, forming an urban stain that extended towards rural areas (OJIMA; MONTEIRO; NASCIMENTO, 2015). However, as of 1970, the Brazilian scenario began to be marked by land occupation of a fragmented nature.

Regarding to housing production in Brazil, according to Bonduki (1994), there weren't relevant actions by public bodies in the old republic (1889-1930), privileging, in this way, production through the private initiative. In the same way, it is worth mentioning that in 1920, in the City of São Paulo, 81% of the buildings were inhabited by tenants, therefore, notice that the predominance of rent as access to housing at the time (BONDUKI, 1994).

In 1942, the populist government instituted the tenancy law, promoting the freezing of rental values, a fact that collapsed rental income. As a result, there was a shortage in the supply of rentals, whereas, entrepreneurs stopped building housing that answered to this need, at a time when the migratory flow from rural areas to cities grew intensely.

Only in 1946 it was conceived the first Brazilian federal body relating to housing, during the administration of President Eurico Gaspar Dutra, the Fundação Casa Popular, precursor of the Banco Nacional da Habitação (BNH), created in 1964. Despite your setback, the creation of the aforementioned Foundation represented, on the part of the State, the recognition of the lack of housing in the country, in addition to initiate the large-scale production of housing complexes by the State of São Paulo. For Maricato (2001), despite the

BNH being one of the most important housing policy programs ever undertaken in Brazil, did not reverse the growth trend of favelas and urban peripheralization.

Despite several attempts, it was only in 1967 that the Companhia Estadual de Casas Populares (CECAP), São Paulo State Government program created in 1949, promoted an effective intervention in relation to social housing, producing housing for the low-income population. Posteriorly, the program was renamed and became to be called Companhia de Desenvolvimento Habitacional e Urbano do Estado de São Paulo (CDHU), currently active, and which moves close to 1.5 billion reais per year, selling housing units across the State (CDHU SÃO PAULO), 2023).

In 2000, the right to housing was included in article 6 of the Constitution of the Federative Republic of Brazil. In 2001, the law 10.257/2001 was enacted, the City Statute, which established guidelines for execution of the country's public housing policies. Influenced by such milestones, it was created in 2009 the program Minha Casa Minha Vida, whose purpose was to encourage the acquisition of new housing units for families with incomes of up to R\$4,650.00.

The aforementioned housing program, which sought to implement a solution to the as mentioned deficit, was responsible for the delivery of 5,115,034 units, in the period from 2009 to September 2020, allowing thousands of people the access to a property, according to the Program Evaluation Report Minha Casa Minha Vida, prepared by the Ministry of Economy in 2020 (MINISTÉRIO DA ECONOMIA, 2021). Although, one of the problems generated was the choice of the locations of the enterprises, guided by the interests of developers, real estate owners and contractors. Therefore, reinforced the movement of spreading of the human mesh generated by other housing programs, as soon causing an overcharge in infrastructure costs (water network, sewage, electricity, public equipment), apart from contributing to urban voids in the city.

In Brazil, the dispersed urbanization can be seen as a continuous and growing process (REIS, 2006), therefore, in this scenario, the purpose of the article is to understand the process of housing formation of social interest in Catanduva city, analyzing the characteristics of the areas' locations in which the housing enterprises were implemented.

2 OBJECTIVE AND JUSTIFICATION

This article aims to perform an analysis of the urban expansion process and the subsequent peripheralization of housing complexes in Catanduva city, located in the northwest region of São Paulo's State.

The dispersion and fragmentation of the human mesh are a phenomenon of extreme importance for urbanism and, despite occurring frequently in many cities, consists of a topic covered mainly in metropolitan areas in Brazil. Therefore, carry out such studies in small and medium-sized cities make it possible to expand recommendations and guidelines in these realities, in order to optimize and solve problems related to housing complexes and promote a more equitable distribution of urban resources and services.

It is worth highlighting that the products presented in this research are unprecedented, emphasizing its importance as a source of investigation for other researchers.

3 MATERIALS AND METHODS

The methodological aspects for the conception of this study were made up of 3 axes: i) Bibliograph review ii) Data collection iii) Development of products for analysis.

The bibliograph review it’s an essential method in academic and scientific research, as it allows collection, analysis and synthesis of relevant information available in the literature. This method is fundamental to theoretically support research, providing a solid foundation of knowledge and contextualization for the study in question. In this study, were used themes about housing (BONDUKI, 1994), urban sprawl (REIS, 2006), peripheral urbanism (MARICATO, 1996), urban voids (SOLÀ-MORALES, 1996), urban formation (GHIRARDELLO, 2020) and history of Catanduva (LEITE, 2007).

According to Moreira (2005), the document analysis must extract an objective reflection of the original source. Therefore, the data collection occurred in the planning department (Figure 1), sector belonging to the City Hall of Catanduva, due to the analysis of architectural projects, subdivision maps, certificates and master plan maps, besides the search the collection in Padre Albino Museum, among them: the newspaper “O Século”, “A Cidade”, and others that contained advertisements about sale of lots; besides visits to two property registry offices in the city, library and other spaces that contained available primary documentation.

Figure 1 - List of neighborhoods with years of approval and names of developers.

The figure shows three columns of handwritten data. Each entry typically includes a number, a neighborhood name, a year, and a developer's name. The data is organized into columns, with some entries spanning across them. The handwriting is in blue ink on a white background.

Source: Prepared by the authors (2023) with data from Catanduva City Hall.

From the data collection it was possible to develop important products for analysis, such as: i) quantification of social housing by decades, ii) identification of property developers, iii) typologies used, iv) expansion of human mesh in a chronological way, v) deployment of sets in a chronological way, vi) temporal and metric quantification of housing complexes and vii) locational verification as of public facilities.

In this way, were drawn up vector maps of human mesh evolution of Catanduva by decades, as well as the location of housing complexes. From such maps it was possible to analyze the expansion axes and the emergence of barriers and human voids. Another important question was the analysis of the location of the sets in relation to the radius of coverage, obtained by an average from the authors Pitz (2004) and Castello (2008), besides Argentina’s document (2019).

4 THE HOUSING COMPLEXES AND THE URBAN SPRAWL IN CATANDUVA CITY

Catanduva is located in the northwest region of the State of São Paulo (Figure 2) and is classified, according to Instituto Brasileiro de Geografia e Estatística (IBGE), as a medium-sized city (has 112,820 inhabitants occupying the position of 60th in the ranking of the most populous cities in the State). With a population density of 388.24 inhabitants/km², has the average salary of the population between 2.4 minimum wages in force (IBGE, 2010).

Currently, the city's economy is based on trade, services provision, industries and agriculture. In 2016, according to the Índice Firjan de Desenvolvimento Municipal, published in 2018, Catanduva was 79° most developed city in the country and the 48° in São Paulo State (ABRANTES, 2018).

Figure 2 – Location of Catanduva in São Paulo State.



Source: Raphael Lorenzeto de Abreu, 2006 (license CC BY 2.5)

According to Ghirardello (2002, p. 128), many of the cities established in the State of São Paulo over the 19th century have their origin linked to religious patrimony, frequently referred to as chapels. This characteristic also applies to Catanduva which was founded in 1911 having as its central benchmark the São Domingos chapels. Ghirardello (2020, p. 17) adds that “around 1911, the coffee cultivation was in a rapid growing in São Paulo, closely monitored by railway companies responsible for its transports”. In Catanduva the arrival of railway line followed this pattern and during the peak of coffee plantations, the presence of the railway represented a promising perspective for the local farmers. Thanks to this new means of transport, they were able to expand their business by having access to a wider market and to potential buyers interested in your products.

Coffee plantations advanced towards the interior of the state of São Paulo. The nature of this expansion, required investments in the workforce and many Italian immigrants were hired. A large number of them ventured through the hinterland, looking for, besides work, an opportunity to become a landowner. For some people, the dream came true. At the beginning of the 20th century, in 1908, the first 40,000 coffee trees were planted in Vila Adolfo, region of Oeste Pioneiro, what would later, in 1918, would become the municipality of Catanduva (LEITE, 2007, p.35).

With the end of the First World War, immigrants arrived in the region, among them Italians, Portuguese, Japanese and Arabs, who worked together and contributed to local development. An attraction for the rapid land clearing was the price at which they were put up for sale, considered low, taking into account the financial difficulties experienced at the time. The extensive coffee plantations, main agriculture in the region, surrounded the mansions built on the farms and, therefore, with rural economic development, and consequent implementation of the railway line there was a great evolution in the urban area of Catanduva.

The urban progress, at the beginning of the Municipality’s history, it was extremely fast, owing an economic development to the fertile countryside. The coffee cultivation and the railway insertion together with medical-hospital and educational assistance that flourished in the city, constituted decisive factors for the evolution of the urban area and, consequently, of Catanduva.

Just in 1968 construction of social housing began in the city, when it was established the first house complex denominated Prefeito José Antonio Borelli, popularly known as CECAP 1 (figure 3). This enterprise was allotted by the State Government, under the administration of then the Governor Roberto Abreu Sodré (Arena). The complex comprised 120 residential units ready for occupation and was located in the area designated for social housing from de Jardim Soto neighborhood, which was also allotted in 1968 by Sociedade Imobiliária Soto Ltda. It is important to mention that, according to the 1970 census, the Catanduva’s population in that year it totaled 58,251 inhabitants, according to IBGE data (1970).

Figure 3 - Aerial photograph of the José Antonio Borelli Housing Complex in 1968.



Source: Collection of Padre Albino’s Museum, 2023.

The research carried out resulted in the investigation of 157 enterprises with license from the city hall. Of these, 31 were destined to social housing, in other words, 19,7% (Chart 1), comprehended from 1968 to 2023, been executed by several different organizations, public and private, as: Federal, State and Municipal Governments, cooperatives, companies, among others.

Table 1 - Catanduva Housing Programs

Sequence	Enterprise	Year	Maker
Period from 1960 to 1969			
1	Conjunto Habitacional Prefeito José Antonio Borelli - CECAP 1	1968	Governo do Estado de São Paulo
Period from 1970 to 1979			
2	Conjunto Habitacional Euclides Figueiredo 1	1979	CECAP - Caixa Estadual de Casas para o Povo
3	Conjunto Habitacional Euclides Figueiredo 2	1979	CECAP - Caixa Estadual de Casas para o Povo
Period from 1980 to 1989			
4	Conjunto Habitacional Julia Busnardo Caparroz - Nosso Teto 1	1980	HABICAT - Empresa Pública Municipal de Habitação de Catanduva
5	Residencial Maria Luiza Perez de Faria	1980	Cooperativa Habitacional de São José do Rio Preto
6	Edifício Prefeito Duarte Nogueira	1980	COHAB - Companhia de Habitação Popular
7	Vila Dona Engrácia Agudo Romão	1982	COHAB - Companhia de Habitação Popular
8	Conjunto Habitacional Gabriel Hernandez - Nosso Teto 2	1982	HABICAT - Empresa Pública Municipal de Habitação de Catanduva
9	Nosso Teto 2 - Orlando Facci	1982	HABICAT - Empresa Pública Municipal de Habitação de Catanduva
10	Boa Esperança (Antigo Pedregal/ Zé Povão)	1985	Prefeitura Municipal de Catanduva
11	Conjunto Habitacional Carlos Alberto Magalhães	1986	Prefeitura Municipal de Catanduva
12	Conjunto Habitacional Prefeito João Righini	1987	HABICAT - Empresa Pública Municipal de Habitação de Catanduva
13	Conjunto Habitacional Jornalista Onélio de Freitas	1987	HABICAT - Empresa Pública Municipal de Habitação de Catanduva
14	Conjunto Habitacional Prefeito Pedro Nechar	1989	FIESP - Cooperativa Habitacional
Period from 1990 to 1999			
15	Conjunto Habitacional Professor Giordano Mestrinelli	1990	COHAB - Companhia de Habitação Popular
16	Conjunto Habitacional Ângelo Gavioli	1990	COHAB - Companhia de Habitação Popular
17	Loteamento Solo Sagrado	1990	Prefeitura Municipal de Catanduva
18	Loteamento Bom Pastor	1991	Prefeitura Municipal de Catanduva
19	Conjunto Habitacional Antônio Zaccaro	1991	Cooperativa Habitacional Araras
20	Edifício Manoel Pires Barbosa	1993	CDHU - Companhia de Desenvolvimento Habitacional e Urbano do Estado de São Paulo
21	Residencial Vasco Cappi Caetano da Rocha	1995	COOPERCHAMMA - Cooperativa Habitacional de Mutuários dos Municípios da Araraquense
22	Conjunto Residencial Anuar Pachá	1997	COOPERCHAMMA - Cooperativa Habitacional de Mutuários dos Municípios da Araraquense
23	Edifício Residencial Esplanada	1997	CDHU - Companhia de Desenvolvimento Habitacional e Urbano do Estado de São Paulo
24	Conjunto Habitacional Residencial Theodoro Rosa Filho	1997	Sindicato dos Trabalhadores nas Indústrias Metalúrgicas de Catanduva
25	Jardim São Domingos	1998	Programa Carta de Crédito Associativa João Aluisio
26	Conjunto Habitacional Giuseppe Spina	1999	COOPERCHAMMA - Cooperativa Habitacional de Mutuários dos Municípios da Araraquense
Period from 2000 to 2019			
27	Conjunto Habitacional Manoel Rodrigues	2000	Sindicato dos Empregados em

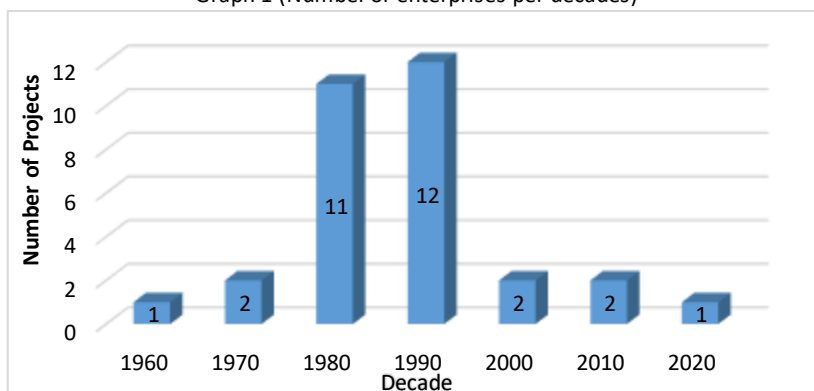
	Villarinho		Estabelecimentos da Saúde de Catanduva
28	Jardim Eldorado	2002	Prefeitura Municipal de Catanduva
29	Residencial José Olympio Gonçalves - Nova Catanduva 1	2015	Governo Federal - Minha Casa Minha Vida
30	Residencial Julio Ramos - Nova Catanduva 2	2018	Governo Federal - Minha Casa Minha Vida
Period from 2020 to 2023			
31	Vida Nova Conquista - Nova Catanduva 3	2023	Governo Federal - Minha Casa Minha Vida

Source: Prepared by the authors, 2023.

It is possible to observe that, from the first housing enterprise developed in Catanduva in 1968, there was a significant increase in the construction of social housing, especially in the 1980s and 1990s (Graph 1). However, from the year 2000, there was a decrease in the launch of these enterprises, totaling just five new projects.

During the entire period examined, Catanduva City Hall and the HABCAT (Municipal Public Housing Company of Catanduva), both under the leadership of the head of the executive, in other words, the then Municipal Mayor, were responsible for carrying out a total of 10 housing enterprises of their own design and execution, consolidating as the main entities in this aspect. Then, the COHAB (Popular Housing Company) contributed to the construction of four enterprises. From the year 2000, the implementation of housing programs was largely driven by the Federal Government, through the Minha Casa Minha Vida financing program.

Graph 1 (Number of enterprises per decades)



Source: Prepared by the authors, 2023.

Housing programs were developed in three typologies: i) houses ready for habitation, ii) apartments ready for habitation and iii) allotments (land so that the user could build his unit the way he wanted). It is possible to check, according to table 2, that most of the implementations in the city, 83,9%, comprehend the typologies of horizontal residences.

Table 2 - Typologies and enterprises.

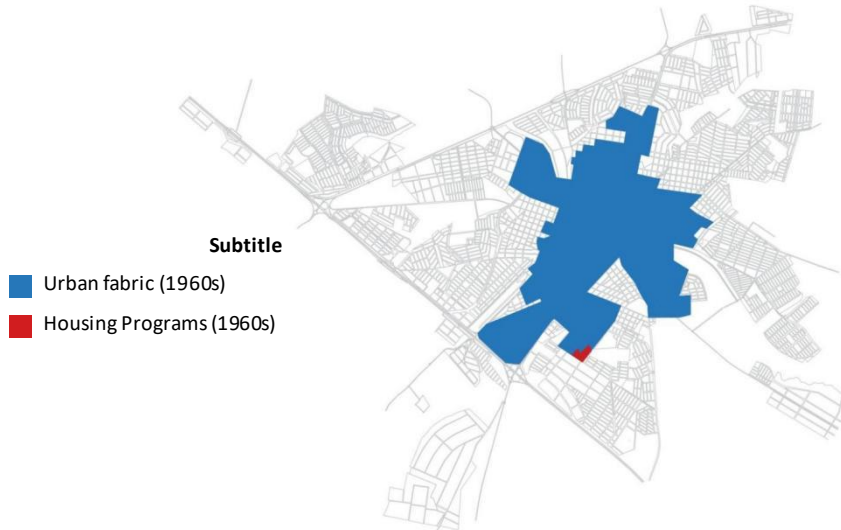
Typologies	Number of Projects
Houses ready for habitation	26
Apartments ready for habitation	3
Land allotment	2

Source: Prepared by the authors, 2023.

Based on the analysis of the urban expansion of Catanduva and the implementation of housing complexes it was possible to check standards in the implementation of housing complexes.

In the 1960s it is evident the peripheral location of the Prefeito José Antonio Borelli Housing Complex, located in the southern region of the city (Figure 4).

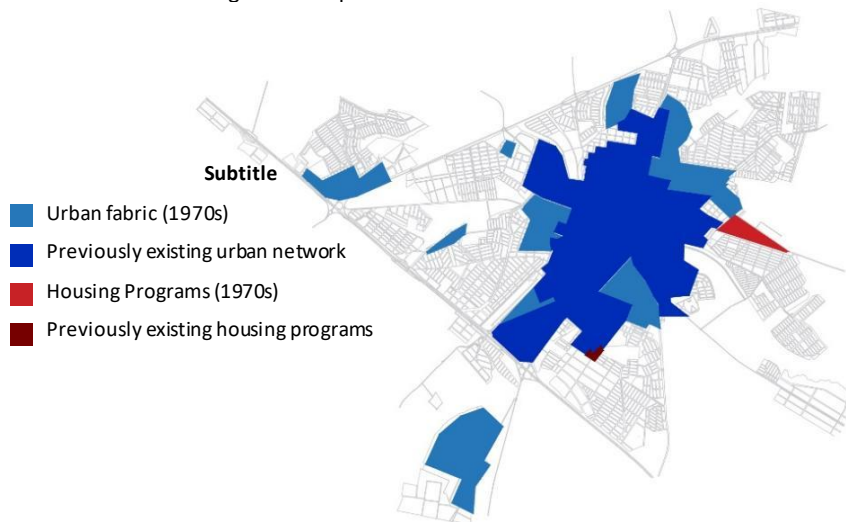
Figure 4 - Map of the urban evolution of Catanduva in the 1960s.



Source: Prepared by the authors, 2023.

The figure 5, in turn, allows us to observe the creation of housing neighborhoods for low-income families known as Euclides 1 and 2, which in the future, they integrated the largest population density region of Catanduva, the east zone. It is possible to notice a greater fragmentation in the city's urban expansion in this period, as well as the implementation of the housing complex.

Figure 5 - Map of the urban evolution of Catanduva in the 1970s.

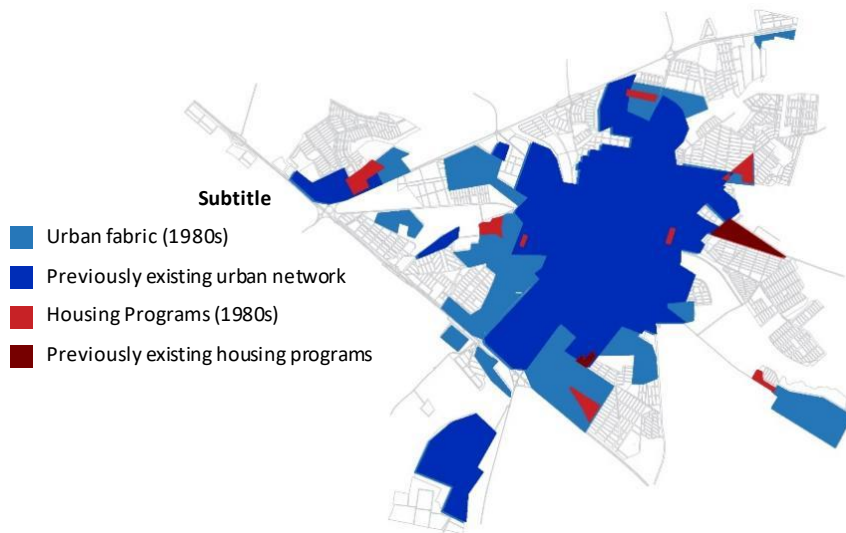


Source: Prepared by the authors, 2023.

The peripheralization of social housing programs continued in Catanduva in the 1980s, as listed in the figure 6, with the constitution of new neighborhoods in the north and west zones, with the exception of 2 programs implemented in the central region: the Edifício

Prefeito Duarte Nogueira (1980), situated in Vila Santo Antônio and the Jardim Boa Esperança (1985), which proceeded an irregular occupation in an institutional area between Jardim Santa Rosa and Vila Augusta, recently regularized through the Federal Government program, entitled as Cidade Legal (PREFEITURA DE CATANDUVA, 2020).¹

Figure 6- Map of the urban evolution of Catanduva in the 1980s.

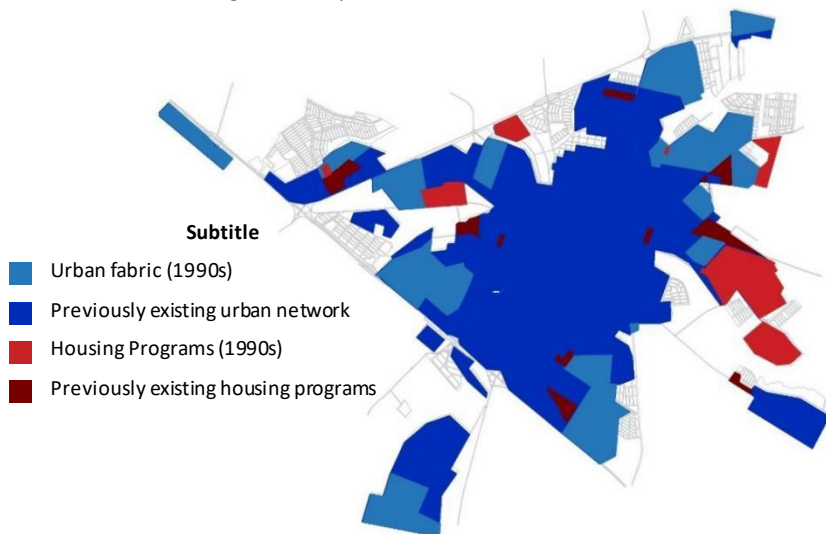


Source: Prepared by the authors, 2023.

In the 90s, despite the implementation of 2 neighborhoods in the northeast zone and 2 in the west zone, the urban expansion caused the expanded of the mesh for the most part to the east zone, with the appearance of Bom Pastor, Antônio Zaccaro e Solo Sagrado neighborhoods, with the last one executed under the direction of the then Municipal Mayor Warley Agudo Romão, after the failed attempt to install a new airport for the city at the local. It is possible to note that the perimeters of housing complexes in this decade were also more extensive.

¹ In 2020, the State Department of Housing, through the Cidade Legal program, regularized properties located in the Jardim Boa Esperança neighborhood, popularly known as “Zé Povão I”, in the City of Catanduva, thus formalizing legal ownership of such properties (CATANDUVA CITY HALL, 2020)

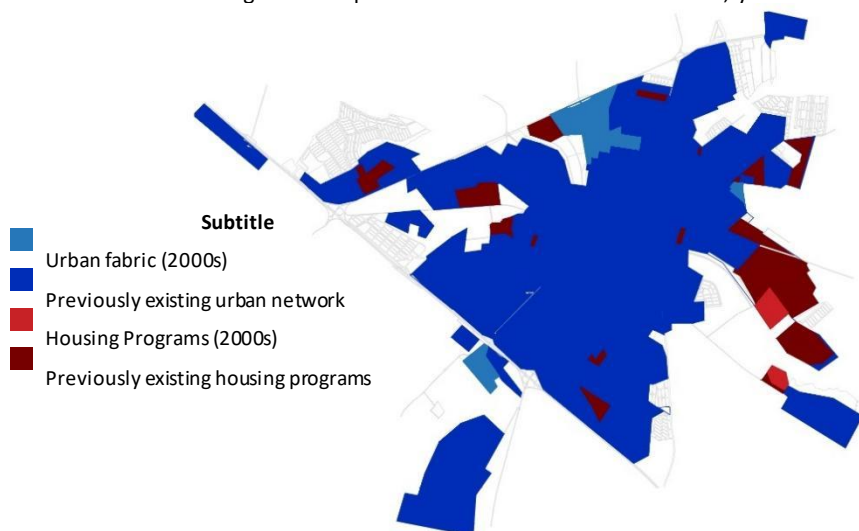
Figure 7 - Map of the urban evolution of Catanduva, 1990s.



Source: Prepared by the authors, 2023.

The years 2000 to 2010 were the most unproductive in terms of producing popular housing in Catanduva, with the emergence of only 2 enterprises (figure 8), the Manoel Rodrigues Villarinho neighborhood, carried out by Sindicato dos Empregados em Estabelecimentos da Saúde for its associates and o Jardim Eldorado, implemented by the City Hall, that being a neighborhood made up of residences to house the residents of the inactive favela that was located in the Parque Iracema neighborhood.

Figure 8 - Map of the urban evolution of Catanduva, year 2000.

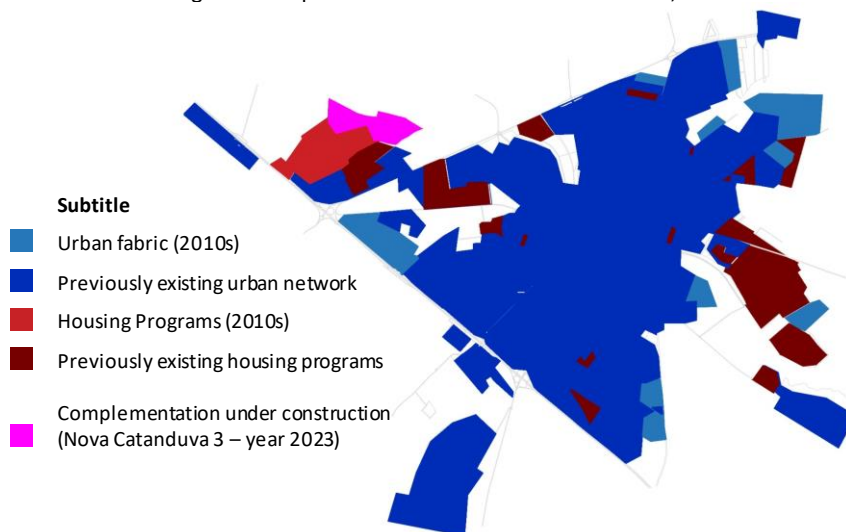


Source: Prepared by the authors, 2023.

From 2010, analyzing the figure 9, notice it the west zone expansion, consisting of several housing programs, the last three being implemented by the Federal Government Program “Minha Casa Minha Vida”, making this region the second largest in the city, with agglomerated housing programs. It is worth highlighting that, in 2015, the launch of the José Olympio Gonçalves Residencial which had 1200 houses, an investment of 100 million reais,

carried out by the Federal Government program “Minha Casa Minha Vida”, then there was the elaboration of Julio Ramos Residencial – (Nova Catanduva 2) and, posteriorly, the Vida Nova Conquista residencial (Nova Catanduva 3), the last one is still under construction.² Considering the large housing deficit existing in Brazil, the numbers at first moment delight the readers’ eyes, however, dissatisfaction is created when realizing that the neighborhood is 5241 meters away from the center. In addition, the neighborhood is separated from the rest of the city by an important physical barrier, the Comendador Pedro Monteleone Highway, counting on with only one access passage to the urban center.

Figure 9 - Map of the urban evolution of Catanduva, from 2010 to 2020.

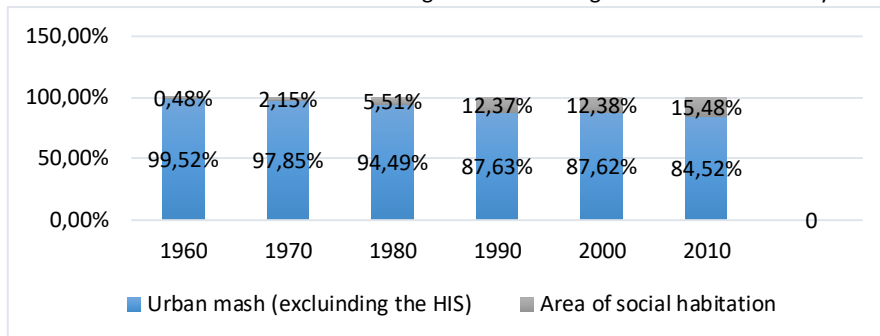


Source: Prepared by the authors, 2023

From graph 2, which displays the relation between the area of the urban mesh, and the territorial area occupied by social housing complexes, it is noted that the HIS areas in relation to the total area of the municipality increased gradually, decades after decades. In 1968, the total urban mesh of Catanduva totaled 884ha (hectares), while the city's only housing program represented 4.2ha (just 0.48% of the total). The HIS areas reached the highest values from the 2010s onwards, when Catanduva was formed by 3850ha, and the HIS represented 15.48% (595ha), significant number compared to the first decade.

² The Nova Catanduva 3 subdivision under construction, which will be completed by the end of 2023, will have 1338 houses with 43.85 m² of built area, a total investment of R\$ 212.5 million (GUILHERME GANDINI, 2023)

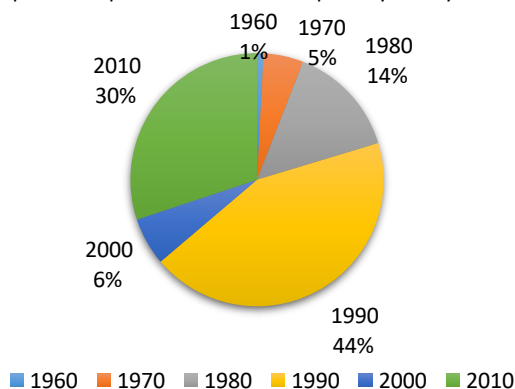
Graph 2 – Relation of area of the urban mesh referring to social housing and the rest of the City for each decade.



Source: Prepared by the authors, 2023

Catanduva has 595 hectares of urban mesh represented only by HIS. In analysis of graph 3, which represents the percentages of territorial occupation implemented per decade, it can be assessed that the decade with the largest amount of social housing area implemented was 1990, with 44%, (261ha), in other words, almost half of the area was executed in just 10 years, followed by the period from 2010 to 2023, with 30%. As in the 1960s, 1970s and 1980, as well as in the period from 2010 to 2023, the implemented areas had lower percentages, with 14% in the 1980s and 1% in 1960, the lowest.

Graph 3 – Proportion of areas occupied by HIS by decade.

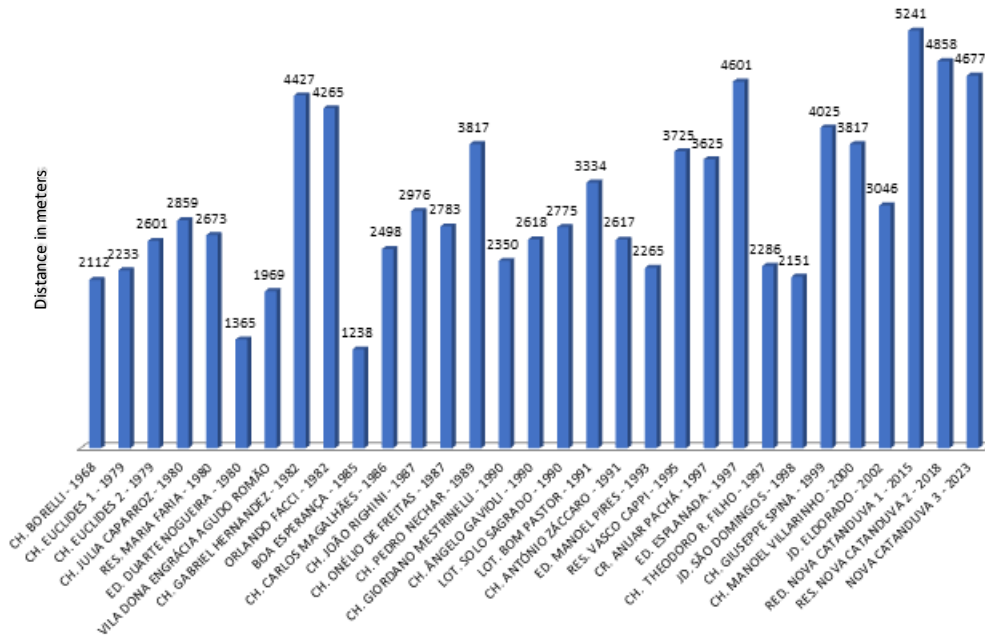


Source: Prepared by the authors, 2023.

When analyzing graph 4 and Figure 10, It is noted that the neighborhood from the housing program closest to the center of Catanduva is Boa Esperança, located at just 1238 meters, and the last 3 launches, the Residencial José Olympio Gonçalves, Residencial Julio Ramos e Vida Nova Conquista neighborhood, launched in 2015, 2018 and 2023, respectively, are located more than 4600 meters from the central region. This difference in distance from the center is not an attempt to centralize the residences, but a location on the "edges" of the urban mesh in its different decades.

The most urbanized areas and best located in relation to the city center have always been reserved for the middle and upper classes, those segments whose power to enter the consumer market is high enough to acquire urbanized land. (MARICATO apud TRINDADE, 2012).

Graph 4 – Distance in meters of social housing programs in relation to the city center.



Source: Prepared by the authors, 2023.

Figure 10 - Map of the city with enterprises and their distances from the center.

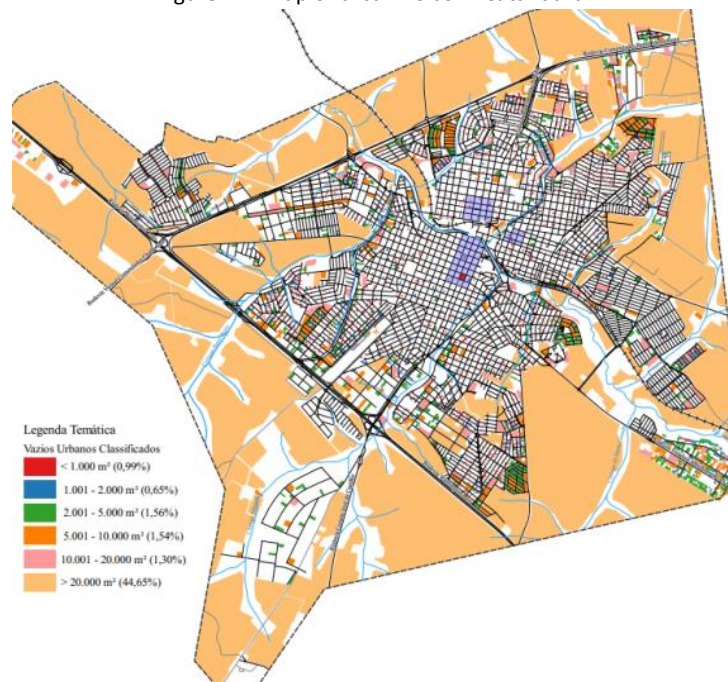


Source: Prepared by the authors, 2023.

Therefore, in the face of the insertion of the low-income population in peripheral areas, empty spaces appear in the city, belonging to regions inserted in the urban mesh, called urban voids, spaces defined by Solà-Morales by the French expression *terrain vague*: in which *vague* in the sense of free from activity, unproductive, without a future horizon, undefined (SOLÀ-MORALES, 1996).

The city of Catanduva has numerous urban voids (as evidenced in Figure 11), which, if chosen for the installation of these social enterprises, could provide a better quality of life for beneficiaries. This is due to the fact that some of these areas are integrated into the urban mesh, thus ensuring, facilitated access to services and infrastructure. Several factors play a fundamental role in ensuring that these urban voids are not taken advantage of. The main ones include the speculative interest of investors and owners, as well as the preference for acquiring cheaper peripheral land for social use.

Figure 11 - Map of urban voids in Catanduva.



Source: Catanduva City Hall, 2023.

Regarding the distance from HIS to public facilities, Catanduva also has some weaknesses. To analyze this issue, since Brazilian legislation does not have a specific determination, were used data for the following authors: Pitts (2004), Castello (2008) and Argentine legislation (2019). For insertion on the map, a grouping by themes was carried out and a simple arithmetic average to obtain the coverage radius (Table 3).

Table 3 – Radius of distance from equipment and services in relation to the location of housing.

ENTERPRISE		PITZ (2004)	CASTELLO (2008)	ARGENTINA (2019)	AVERAGE
EDUCATION	Children's	300m	400m	1000m	566m
	Elementary School	500m	400m	1000m	1116m
	High school	3000m	800m	1000m	
HEALTH	Hospital	Regional	-	2000m	2000m
	Health Center	1000m	800m	2000m	1266m
CULTURE	Cultural equipment	2500m	-	2000m	2250m

Source: PITZ (2004), CASTELLO (2008), ARGENTINA (2019), changed by the Authors, 2023.

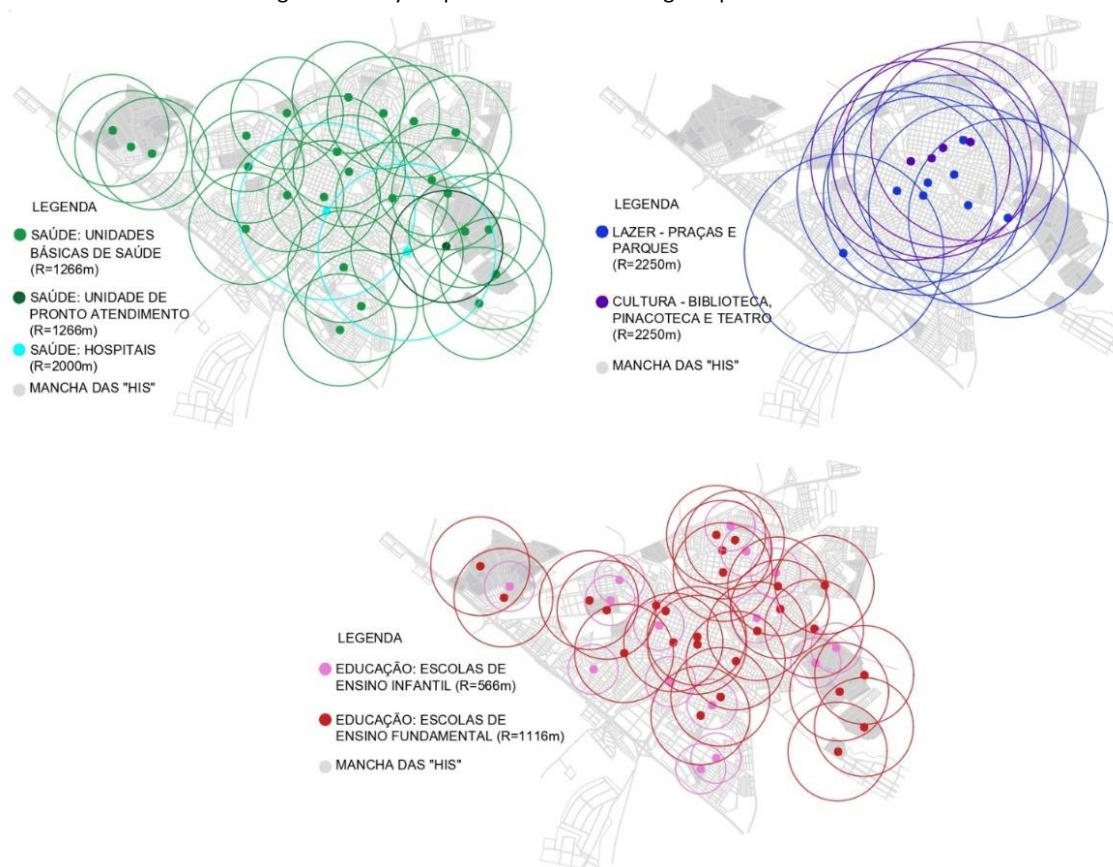
In this way, it is possible to understand how the inhabitants of each neighborhood of Catanduva are served in relation to public facilities (Figure 12).

Regarding health services, the basic health units (UBS), are well located and in sufficient numbers. The two hospitals do not cover the entire territory, leaving mainly the peripheral areas uncovered. It is also worth mentioning that Catanduva has a single Emergency Care Unit (UPA), a place that is the gateway to help with emergency health problems, and the same is located in the eastern region, and thus causing serious problems for residents throughout the rest of the city.

Cultural equipment is located more centrally, leaving all peripheral areas without libraries and theaters, thus making the distances to be covered by residents of the most remote areas long, east and west. In relation to leisure, the largest quantity is also in the central area, and the western peripheral zone is completely devoid of squares and parks.

Regarding educational equipment, preschools are fewer in number, leaving several areas uncovered. The elementary schools are spread throughout the territory, covering the city more homogeneously.

Figure 12 - City map with radius of coverage of public facilities



Source: Prepared by the authors, 2023.

5 FINAL CONSIDERATION

Social housing programs began in the 1960s, with a Housing Complex already installed peripherally. From 1970 onwards, the first neighborhoods which are part of the largest population density region of Catanduva were established, the east side. Although in the 80s, the housing programs with peripheral locations continued to be launched, with the exception of 2 enterprises located near the city center, been one of them preceded by an irregular occupation and regularized by the Cidade Legal program.

From 1990, the city's propensity continued to expand to the east zone, appearing populous neighborhoods. The 1960s, 1970s and 2000s decades, respectively, can be considered the most unproductive in the context of social housing, seeing that in the aforementioned periods were implementing low HIS areas. It was also noted that in 2010 there is a growth slope in the urban mesh in the west zone, thus constituting the second largest populated area in Catanduva.

It was found that most of the enterprises studied present socio-spatial segregation, besides the difficulties in getting around the central region of the city and accessing public facilities.

The process of urban dispersion and the consequent peripheralization result in urban voids and reduce the life quality of the people who live there, requiring longer travel times. This process causes harm in several spheres, among them the environment.

[...] many scientists and government agencies denounce urban sprawl as a harmful process for the promotion of collective use equipment, such as sanitation and infrastructure services, public transport, street lighting, leisure areas, among others. It has also been linked to the reduction in the preservation of natural resources and the destruction of agricultural areas and/or permanent protection areas (springs, humid areas, ciliary woods, hillsides, etc.) (AMARO, 2017, p.108)

In this way, based on the parameters obtained through the analysis of the tables and graphs, proposals for guidelines were made to improve the quality of life of individuals in social housing in Catanduva.

Regarding public facilities, when housing complexes are located far from the center, a coverage radius analysis must be carried out to overcome such deficiencies.

Regarding future HIS deployments, two alternatives are proposed in order to make the city more compact: i) new housing programs must be installed in urban voids close to the central area, and ii) underused central buildings must be rehabilitated for social housing.

In order to carry out this central rehabilitation, all land and buildings that can house such a program must be raised, and therefore, carry out a feasibility plan, in other words, project with descriptive memorials of the necessary reforms and values, so that it doesn't become a high-budget thing. Another issue is the creation of specific credit lines for this program, as Maricato explain (1996, p. 145)

As has already been pointed out, it is necessary to create specific lines of financing for the rehabilitation of central areas: for the purchasing used properties, renovation of collective housing, cooperative initiatives beyond traditional financing for private and public promotion (in 2000, the Central Bank is obstructing the possibility of indebted governments having access to the FGTS, which results in a surplus of resources destined for housing financing that remains unused)

Raising awareness among public managers and urban planners is an essential step for the evolution of social housing issues in Brazil, Maricato (2001) explains:

Nevertheless, in schools of architecture and urbanism, "architecture" is studied, "urbanism" and "urban planning" are studied and, in only a few gaps or special disciplines, depending on the sensitivity and commitment of one or other professor, "social housing" is studied. It is seen as something separate from great architecture and great urbanism.

However, only the awareness of public managers and urban planners and the improvement of projects and studies do not cover the relevant deficits, it is necessary to increase the number of investments in social housing, to expand access and work on new housing alternatives, such as social rents and cooperative models of assignment of use.

Finally, this article aims to contribute to new research in the field of social housing and future work inserted in the urban formation of other cities.

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