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PROCESSOS URBANOS RELACIONADOS: PERIFERIZAÇÃO E PRODUÇÃO DE HABITAÇÃO SOCIAL NO NÚCLEO DA REGIÃO METROPOLITANA DE CURITIBA PELO PROGRAMA MINHA CASA MINHA VIDA

RELATED URBAN PROCESSES: PERIPHERALIZATION AND SOCIAL HOUSING PRODUCTION IN THE CORE OF THE METROPOLITAN REGION OF CURITIBA THROUGH THE MINHA CASA MINHA VIDA PROGRAM

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ABSTRACT

The article discusses the implementation of social housing by the My House, My Life (MCMV) program regarding the concept of housing and sustainability principles related to the periphery process. The text aims to identify urban and socio-environmental characteristics of existing cases in Metropolitan Region of Curitiba, to understand possibilities of future advances in the socio-environmental quality in these public policies. The methodological procedures included a quantitative and qualitative approach; use of the QGIS geoprocessing software. The analysis strategy applied Blue House Seal methodology, considered the most suitable system for assessing social housing in Brazil evaluating 53 sub-items: urban quality, design and comfort, energy efficiency, conservation of material resources, management water and social practices. The results showed that the MCMV does not apply the full concept of housing; assumes the financing of the enterprise, however, not its sustainability; passes on to other actors (city halls, businessmen, users) items such as the development of social action programs and projects; solution of eventual architectural and urban problems. This process amplifies the social periphery, a citizen due to the difficulties in

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accessing the residents to opportunities for educational, professional and individual fulfillment, relegating, finally, to the users, the sustainability of the buildings.

Key-word: Urban sprawl. Social housing. Sustainability. My House, My Life Program. Nucleus of the Metropolitan Region of Curitiba – NUC-RMC.

INTRODUCTION

The article addresses an aspect little discussed in relation to low-income housing complexes, as an action of federal public policy, questioning the sustainability conditions from the analysis of projects not only in the building, but in the urban context where they are implemented. This is a matter of the greatest urgency among public policies, in the context of the problem of the Brazilian housing deficit, which is in 7.9 million homes or 14.9% of the total number of households in the country, according to IPEA (João Pinheiro Foundation, 2021). Housing is a fundamental item for quality of life, a right guaranteed by the 1988 Federal Constitution, which the text assumes in its objective of identifying and debating characteristics of a housing complex of the My House, My Life Program (Minha Casa Minha Vida – MCMV) (CEF, 2012).

Accordingly, the research problem derives from the following question: from the process of metropolization and peripheralization of the urban agglomeration of Curitiba, how are the socio-environmental risks and vulnerabilities manifested in Curitiba and at the NUC – RMC? How is sustainability perceived in architectural projects of social interest housing financed by the federal government's Minha Casa, Minha Vida (MCMV) program? The question arises in a scenario of resettlement of populations that inhabited areas at risk of urban flooding in the Central Urban Center of the Metropolitan Region of Curitiba (Núcleo Urbano Central da Região Metropolitana de Curitiba "NUC – RMC").

Thus, this analysis aims to understand how a program as comprehensive as the MCMV is enabling better conditions for urban sustainability, from the projected settlements for the low-income population. On the other hand, the analysis aims to correlate the program's intentions with results in the projects to be implemented, as a reference for future interventions, aimed at a more sustainable urbanization, ecologically and socially. With quantitative and qualitative procedures, through the methodology of the *Casa Azul* Seal (a socio-environmental classification instrument aimed at proposals for housing projects that adopt efficient solutions in the design, execution, use, occupation and maintenance of buildings) by Caixa Econômica Federal - CEF in 53 sub-items (JOHN;

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PRADO, 2010), in addition to the use of geoprocessing resources, the study addresses the process of metropolitan peripheralization, as, according to Cymbalista (2020, p. 2886) "não há alternativas para a baixa renda nas áreas centrais das grandes cidades[4]".

The central hypothesis of this research is that the architectural projects of social interest housing aimed at the resettlement of populations that inhabited areas at risk of urban floods located in the NUC - RMC, financed by the MCMV, will not present an equivalent degree of sustainability, according to the methodology of the *Casa Azul* Seal CEF. It is assumed that the projects carried out at the center of the metropolis will present higher scores in terms of sustainability in the built environment, according to this methodology, compared to the housing complex carried out on the outskirts of the NUC – RMC. It is believed that the differences in sustainability in the resettlement architectural projects, found in the two case studies will be directly related to the requirements of the municipal legislation for the use and occupation of urban land, building regulations or code of constructions and their complementary laws.

For this purpose, a study clipping is adopted consisting of two large housing complexes, representative of the outskirts of the city of Curitiba - known for its urban planning process (Pinderhughes, 2004) and another on the outskirts of one of the cities with the highest population growth rate in the RMC, which is called Fazenda Rio Grande, dismembered in 1993 due to an accelerated dynamic of urbanization and political pressures (ROMANO, 2013). The article exposes a precarious situation in which housing projects are implemented, with little infrastructure and few connections with consolidated urban areas, where essential equipment for the population's daily life is located, such as businesses of basic necessities, school, health center, public transport, leisure and recreation places (ROMANO et. al., 2019, SILVA, 2018;

The housing deficit in the country mentioned above (apud Fundação João Pinheiro, 2021) points to the utmost urgency of optimizing public housing policies for the population – especially the low-income ones. This urgency comprises a complete understanding of the concept of housing, beyond the house as a building, but as a place in the social and functional space (access to services and equipment) and also within the scope of the Right to the City, as an item provided for in the Brazilian Federal Constitution of respect for life and human dignity, in order to enable access to possibilities of full development (FERNANDES, ALFONSÍN, 2006.)

Therefore, advancing in housing policies at the national level is a matter of interest to everyone, as it encompasses safer, ethical, economic, social, political and technological development conditions that are consistent with the stage of contemporary society. Thus, the expectation for the

[4] there are no alternatives for the low-income in the central areas of big cities. (Free translation)

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goal of this article is to provide the reader with data and information on the debate about the proposal and details of the MCMV as a reference on the socio-environmental issues surrounding the housing matter. In order to develop the theme, the text goes on to address the peripheral context of the process of implementation of housing complexes, its theoretical bases and characteristics of the government programs that govern it, in order to identify the correlations that may indicate a reorientation of the sectorial policy, based on the study clipping placed in the Central Urban Center of the Metropolitan Region of Curitiba (NUC – RMC).

1 PERIFERIZATION IN THE METROPOLITAN REGION OF CURITIBA AS A PROCESS

The peripherization in the Metropolitan Region of Curitiba began in 1949, through an intense process of subdivision of land in rural areas, covering several municipalities in the RMC, more specifically those that directly border Curitiba, as demonstrated by Lima (2000, 2001, 2004). This process of occupation in areas without urban infrastructure was consolidated in the following decades, in contrast to the 1978 metropolitan plan PDI putting at risk the public water supply sources in the region (LIMA, 2000, 2001). Silva (2012) defended the need for an effective integration between urban-metropolitan planning and the management of the dynamics of the social production of space, taking as a case study the high number of existing subdivisions in areas lacking infrastructure, which would form the outskirts of Curitiba.

The subdivisions in the municipalities around the capital were not treated with technical planning and management instruments that would adjust them to the guidelines of the metropolitan plan – PDI – approved in 1978, despite the fact that these subdivisions already showed crucial disparities with the specific strategies for the development of the different growth vectors in the metropolitan region since the 1980s (COMEC, 1978). In the case of parcel over priority water source areas for the capital and neighboring municipalities – located in the East vector – there was no respect for the preservation guideline and a great number of subdivisions was approved by the city halls and implemented, both legally (registered according to the guidelines of the city halls) or illegally, in the form of invasion, clandestine allotments or other configurations (LIMA, 2000, 2001, 2004).

Part of these subdivisions had been approved in the 1950s and was not fully implemented (with the opening of streets and installation of infrastructure). Another part was precariously implemented with demarcated plots of land and streets, but with no basic infrastructure in place (water and energy networks, paving, school and health facilities, etc.). A periphery lacking functional

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needs, mobility options, equipment and public services was formed around Curitiba. This picture would partially change with the implementation of the PDI metropolitan plan (COMEC, 1978), from the 1980s onwards, when the state technical body began to advise municipalities for the preparation of their municipal master plans. And it is these fourteen municipalities, which made up the first configuration of the RMC, which currently make up the NUC, and where, in most cases, the old allotments were incorporated into the planned urban fabric in the 1980s and 1990s. However, to this day, areas with a representative amount of population persist (such as the Guarituba subdivision, located in the rural area of the municipality of Piraquara, among other cases) without equitable spatial and functional integration in terms of infrastructure, services and equipment (LIMA, 2000, 2001, 2004).

This source of extensive areas of unplanned urbanization disconnected from municipal urban centers existing before 1950, indicates the weakness of territory management, planning and management of an urbanization process that has become vigorous, with intense dynamism and speed since the second part of the 20th century, configuring an unavoidable need to settle a significant portion of the population because, from the 1996 Population Count, the population amount of the municipalities of the current NUC began to exceed that of the hub city, Curitiba (IBGE, 1997), evidencing the need for assistance by public policies.

The problem of this peripheral occupation – that in large part occurred before metropolitan planning[5] and the planning of the municipalities of the NUC – is due to their physical and environmental characteristics (especially hydro-geomorphological) that expose the population to vulnerability and risk, as they are located in floodable areas, of peatland, in addition to the lack of infrastructure, services or urban equipment in the necessary scale and conditions, which also adds socio-environmental injustice to the situation at hand (LIMA, 2000, 2001; ROMANO et al., 2019). This peripheral area where the low-income population settles is also pointed out by Silva (2012, p. 35) when he indicates: "...a extensão da mancha de ocupação urbana e a constituição de uma periferia pobre no entorno de Curitiba, formadas pela consolidação de uma urbanização precária e incompleta derivada da produção de loteamentos populares[6]". In this context of dynamism and precariousness of urban occupation, the city of Curitiba stands out, center of this conurbated nucleus formed by fourteen municipalities, entitled NUC (COMEC, 2006).

[5] The Metropolitan Region of Curitiba was created by federal law in 1973, and the first metropolitan plan was approved in 1978 (COMEC, 1978).
[6] the extension of the urban occupation patch and the constitution of a poor periphery around Curitiba, formed by the consolidation of a precarious and incomplete urbanization derived from the production of popular subdivisions. (Free translation)

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Curitiba has a large number of slums, mostly located on the edges of the city. Some more central slums were object of urbanization, with popular housing programs and land tenure regularization, linked to social programs to generate employment, as is the case of Vila Torres and Vila Guaira. However, most of the slums located in central areas, more valued in the city's real state, were removed in past times, which resulted in a peripheralization of poverty and a "socioeconomic cleansing" of the more central areas (SOUZA, 2016, p . 85 and 103; SOUZA, 2002, p. 515).

2 PERIPHERALIZATION, RIGHT TO THE CITY AND SUSTAINABILITY

The peripherization process read by the subdivision and agrarian structure evidences the adequacy of the urban territory to the interests of capital production and reproduction, as demonstrated in the Metropolitan Region of Curitiba – RMC (LIMA, 2000, 2001). The state policy of promoting industrialization in the RMC intensified land occupation and interconnected economic activities that placed the region in third place in the country in the field of automobile production (IPEA, 2013). This dynamic attracts a population whose part of it is not absorbed by new jobs, accentuating inequality in the region, according to Moura and Rodrigues (2009). In the core municipality, Curitiba, the ten neighborhoods that showed the greatest growth between 2000 and 2010 are located in the periphery, where there is less quantity and quality of infrastructure and equipment (IPEA, 2013).

Accordingly, there is an interest in understanding how the guiding principle of the MCMV is implemented, which proposes to guarantee the conditions of urban, social and environmental sustainability for housing of social interest. Thinking about sustainability in the built environment necessarily implies thinking about sustainability in cities (Acselrad, 2009). This is the view, even spread by the United Nations Human Settlements Program - UN-HABITAT (2009), one of the most significant organizations in the world on the treatment of the housing issue.

According to the reflections of the researched authors – citing Kunzig (2012), Ascher (2010), Acselrad (2009), Newman and Jennings (2008), Freitag (2006), Pinderhughes (2004) – urban sustainability, in short, depends of technical and social contribution, sustainable and equitable inputs, in terms of urban infrastructure (capture, treatment and supply of water, collection and treatment of sewage and solid waste, use of clean energy), public services (water, sewage, lighting, waste, transport, etc.) and community facilities (in education, health, public safety, leisure, culture, etc.), mobility and integration of urban networks; in addition to a growing exercise of governance and urban management, with the participation of society in a democratic manner (public-private

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partnerships, administrative decentralization, polycentrism), encouraging social actors to use creativity and innovation to overcome old socio-environmental problems in cities, combining flexibility from urban management to community action, reducing social inequalities and achieving more urbanity.

3 METHODOLOGICAL PROCEDURES

The methodological procedures used in this article can be divided into two fundamental stages: thematic discussions, evaluating aspects of the literature, research, primary and secondary data collection on the NUC - RMC and the two case studies of selected social housing, carried out with the resources of the MCMV; and treatment and analysis of these data using the geoprocessing strategy and methodology of the *Casa Azul* Seal by CEF.

As for the delimitation of the case study, the NUC - RMC was established as a spatial cutout, where the housing issue emerges as one of the biggest challenges for the government, both due to the large number of irregular occupations and existing housing deficit, as well as the population contingent which shelters in risky areas, mainly of urban floods. The scenario for the two cases to be studied is shown in Table 1 below:

CHART 1 – COMPARISON BETWEEN CURITIBA AND FAZENDA RIO GRANDE AS TO IRREGULAR OCCUPATIONS AND URBAN FLOODING RISK AREAS

CURITIBA	FAZENDA RIO GRANDE
397 ocupações irregulares com 62.601 moradias, que concentram em torno de 214.000 pessoas (15% da população do município), (IPPUC/COHAB-CT,2007)	42 ocupações irregulares com 2.529 moradias (1.820 passíveis de regularização e 709 situadas em áreas de risco), que concentram em torno de 8.300 pessoas (10% da população do município), (PMFRG, 2010)
38% das ocupações irregulares encontram-se em áreas de risco de inundações urbanas (IPPUC/COHAB-CT,2007)	**28% das ocupações irregulares encontram-se em áreas de risco de inundações urbanas** (PMFRG, 2010), com redução para 18% com a construção do conjunto habitacional Jardim Europa (PMFRG, 2012)

Source: IPPUC/COHAB-CT (2007); PMFRG (2012, 2010)

The selected case studies are financed by the MCMV, both being social housing projects aimed at the resettlement of populations that inhabited areas at risk of urban flooding in the NUC – RMC. Case study 1, the Parque Iguaçu I, II and III residential complexes, are located at the core city of the metropolis; case study 2, the Jardim Europa complex, is located on the outskirts of the NUC, in the municipality of Fazenda Rio Grande, one of the municipalities with the highest population growth

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rate in the entire NUC-RMC. This characteristic allows a relevant comparison of them, since they show and allow to assess the implications of the peripheralization process.

The Parque Iguaçu I, II and III residential complexes are an example of the housing management of one of the main institutions in the state and, mainly, in the capital – COHAB-CT (Figure 1). They follow the main architectural typologies standardized by COHAB-CT: the two-story houses and ground-floor houses adapted from the MCMV – used systematically in all resettlement projects of the institution, as also happens with the Jardim Europa complex in Fazenda Rio Grande; and the apartment blocks, also standard with 16 apartments: 4 2-bedroom apartments per floor divided into a four-story building.

Although only the Parque Iguaçu III residential complex receives families from resettlements, the option to include the analysis of the Parque Iguaçu I and II in the research comes from the fact that they were conceived together, both in design and execution, as part of the same tract of land that was first unified, transformed into another type of zoning and then subdivided to receive these housing developments. In addition, all the urban insertion and changes in the adjacent urban infrastructure – paving, new urban equipment, etc. – was designed for the three sets simultaneously.

The choice of Fazenda Rio Grande and the Jardim Europa housing complex as representative of the social interest housing production on the outskirts of the NUC-RMC comes from some relevant factors. The first option concerns the constructional feature of this research, focused on two years of interdisciplinary work with the PPGMADE research group on urban crisis, where doctoral students and professors from different areas of expertise – architecture and urbanism, geography, economics, communication, sociology and engineering – selected the municipality of Fazenda Rio Grande as the focus of study, as it concentrated the main socio-environmental problems found in the RMC, after analyzing the socio-environmental complexity existing in that metropolitan region.

Thus, the Jardim Europa housing complex emerges as the protagonist of the housing issue in Fazenda Rio Grande (Figure 2), as it is the municipal government's biggest commitment to mitigating the problems of families living in irregular areas within the municipality, especially those subject to urban flooding, already cataloged by the municipal Civil Defense and included in the Local Social Interest Housing Plan (*Plano Local de Habitação de Interesse Social* – PLHIS), (PMFRG, 2010).

The temporal scale of both sets was also considered, which allows for an analysis closer to reality regarding the factors of insertion in the urban fabric, such as the promise and creation of community facilities by the government, among other urban infrastructures.

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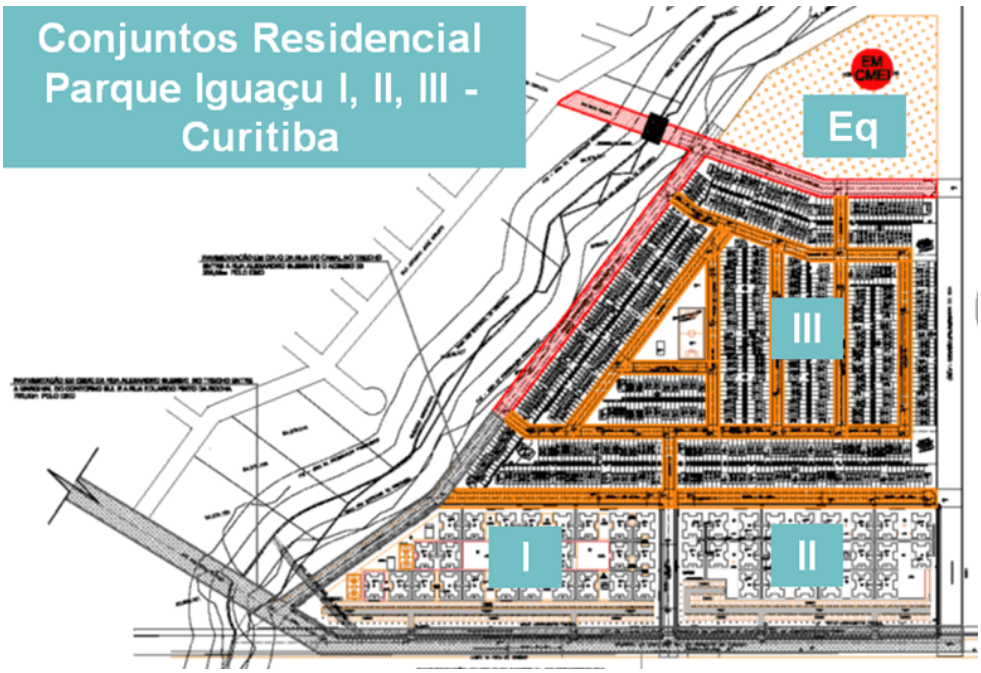
FIGURE 1 – PHOTOS AND IMPLEMENTATION OF RESIDENTIAL DEVELOPMENT PQ. IGUAÇU I, II, III



SOURCE: Implantation - COHAB-CT (2012) and Fortunato photos (2014)

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FIGURE 2 – PHOTOS AND IMPLEMENTATION OF THE RESIDENTIAL DEVELOPMENT JARDIM EUROPA

SOURCE: Implementation – PMFRG (2012) and Fortunato photos (2014)

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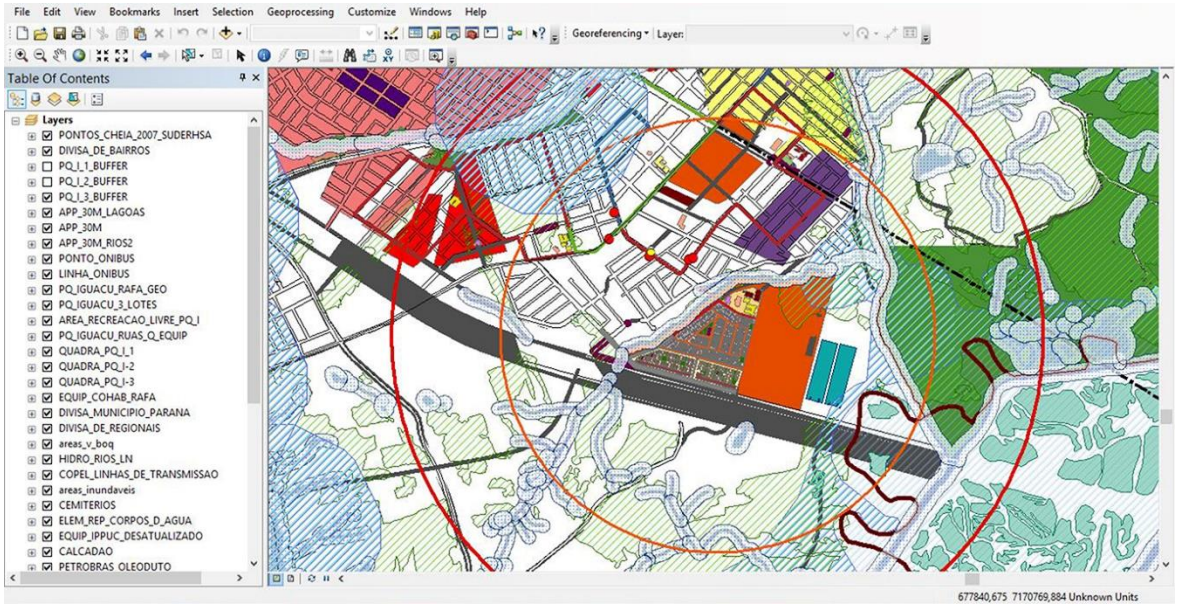
It is important to emphasize that the analysis was carried out through data collection from digital bases of the selected studied space, in addition to analog bases that had to be digitized to compose the database. These databases were made available by: the IBGE, from the 2010 Demographic Census, with detailed spreadsheets of the census sectors and mapping with free access on the official website of the agency; IPPUC, spatial data on physical aspects and urban infrastructure of the Ganchinho neighborhood and surroundings, requested by letter, the vast majority of which updated in 2012, in addition to other freely accessible data on the agency's official website; COMEC, spatial data related to the 2006 PDI, which had to be digitized, whose sources vary in time from 2000 to 2005; ÁGUAS PARANÁ, spatial data relating to the Alto Iguaçu Basin Plan and Alto Ribeira Tributaries, which had to be digitized, and whose sources are from 2007; COHAB-CT, data referring to housing lots and units, both in Jardim Europa (2011) and Parque Iguaçu I, II and III (2012) housing projects, in addition to the COHAB-CT data on housing production in the Ganchinho neighborhood and surroundings (MCMV and PAC 1), which had to be digitized; and PMFRG, with spatial data on the municipality's subdivisions (2012), aerial photography, in addition to other data on physical aspects and urban infrastructure of the municipality, which mostly had to be digitized.

These files, following the recommendations of Yin (2001), were stored in a database called “BASE_GIS”, organized separately into folders. All these data were subjected to previous processing before composing the mappings of this research, transforming raw data into geoprocessed data. These procedures were performed using two main software: CAD-type software — Computer Aided Design, which worked as support for drawing, georeferencing and unification of the different digital bases used; and QGIS, geoprocessing software – Geographic Information System (GIS), which enabled the intelligent crossing of different special data and their quantitative and qualitative attributes (Figures 3 and 4).

FIGURE 3 – PROJECT IN QGIS RELATED TO THE ANALYSIS OF HOUSING DEVELOPMENTS IGUAÇU PARK I, II AND III



SOURCE: Prepared by the authors (2021)

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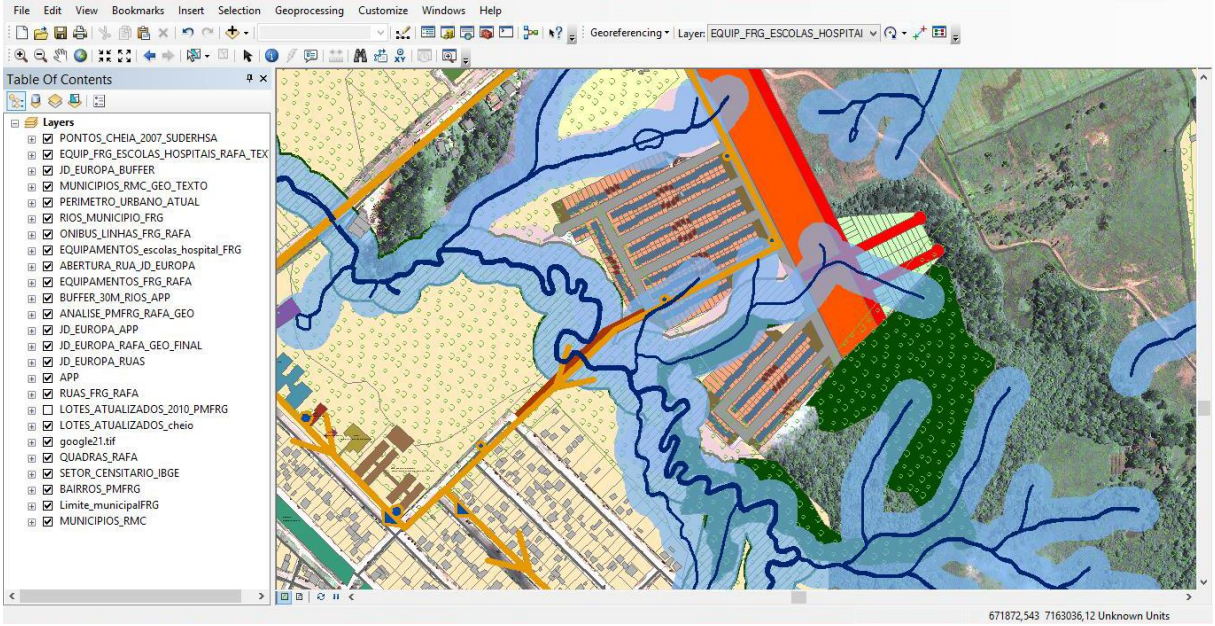
FIGURE 4 – PROJECT IN QGIS 2010 RELATED TO THE ANALYSIS OF THE JARDIM EUROPA HOUSING DEVELOPMENT



SOURCE: Prepared by the authors (2021)

To validate the geoprocessed data, observation of the urban environment around the housing complexes was also carried out, in addition to a more detailed analysis of the complexes themselves, on the architectural design and the way in which they were implemented. Subsequently, it was possible to verify the coherence of the mappings made available by public agencies, digitalized or not, as well as the most relevant changes that are not in these mappings. The on-site visits made it possible to correct aspects related to updating the databases. Unfortunately, the databases of the various public bodies are outdated, but this factor was mitigated by field observation, photographs, sketches of the study area, which allowed updates to the digital and analog databases obtained from institutions such as IBGE, IPPUC, COMEC, among others.

Two main visit routes were defined: the first to the Parque Iguaçu I, II and III housing projects, including the Ganchinho neighborhood and surroundings, and the second to the Jardim Europa housing complex, including the Eucaliptos neighborhood and surroundings. The routes were taken by car, to move between more distant urban facilities and on foot, within the complexes themselves and also in the evaluation of community facilities, access roads and nearest bus stops. The following were used as support material: note cards, printed maps of the study area, the architectural projects of the developments and a digital camera.

All data collected and previously analyzed were submitted to the Casa Azul Seal methodology of Caixa Econômica Federal, considered the most adequate system for evaluating social housing in the country, weighing 53 sub-items, divided into 6 main analytical categories: urban

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quality, design and comfort, energy efficiency, conservation of material resources, water management and social practices. The Casa Azul Seal has both a qualitative and quantitative approach to the analysis, since several sub-items evaluated qualitatively depend on observations about the urban context, the project, social practices and the relationships between these factors, while other sub-items require calculations. on aspects related to the architectural project.

These categories can be related to the authors' recommendations previously mentioned in the theoretical reflections on urban sustainability, with Categories 1 and 6 of the CEF Casa Azul Seal, respectively, urban quality and social practices in their entirety, and partially Category 2, project and comfort (items 2.3, 2.4, 2.5 and 2.6), dedicated to confronting the urban crisis, mainly to land issues and the right to housing, as well as resettlement and other implications of a socio-environmental nature. Categories 2, 3, 4 and 5, respectively, design and comfort (except items 2.3, 2.4, 2.5 and 2.6), energy efficiency, conservation of material resources and water management refer to the application of more sustainable practices directly in the housing.

Thus, the use of the Casa Azul Seal in the analysis of the case studies allowed the measurement of aspects related to their sustainability, as will be shown in this work.

4 THE METROPOLIZATION AND PERIPHERALIZATION PROCESS IN CURITIBA AND AT NUC - RMC

According to data from the last Census, the RMC consists of 29 municipalities, being the eighth most populous metropolitan region in Brazil, with 3,493,742 inhabitants, concentrating 33.45% of the total population of the State (urban and rural) and 35.90% of the entire urban population of Paraná (IBGE, 2010). The RMC is also the second largest metropolitan region in the country in extension, with 16,581.21 km² (COMEC, 2020).

The initial configuration of the RMC dates back to 1973 and comprised 14 municipalities: Curitiba, Almirante Tamandaré, Araucária, Balsa Nova, Bocaiúva do Sul, Campina Grande do Sul, Campo Largo, Colombo, Contenda, Mandirituba, Piraquara, Quatro Barras, Rio Branco do Sul and São José dos Pinhais. This configuration was maintained until the 1990s, when the first dismemberment of metropolitan municipalities began to occur, including the municipalities of Fazenda Rio Grande, Tunas do Paraná and Itaperuçu, in 1990; in addition to Pinhais, in 1992.

However, the metropolitan territory only had its limits expanded in 1994, with the inclusion of the municipalities of Cerro Azul, Doutor Ulysses, Quitandinha and Tijucas do Sul. Also in the 1990s, the insertion of the municipalities of Adrianópolis, Campo Magro and Agudos do Sul took place. This territorial configuration of 25 municipalities was maintained until the insertion of Lapa, in 2002. And

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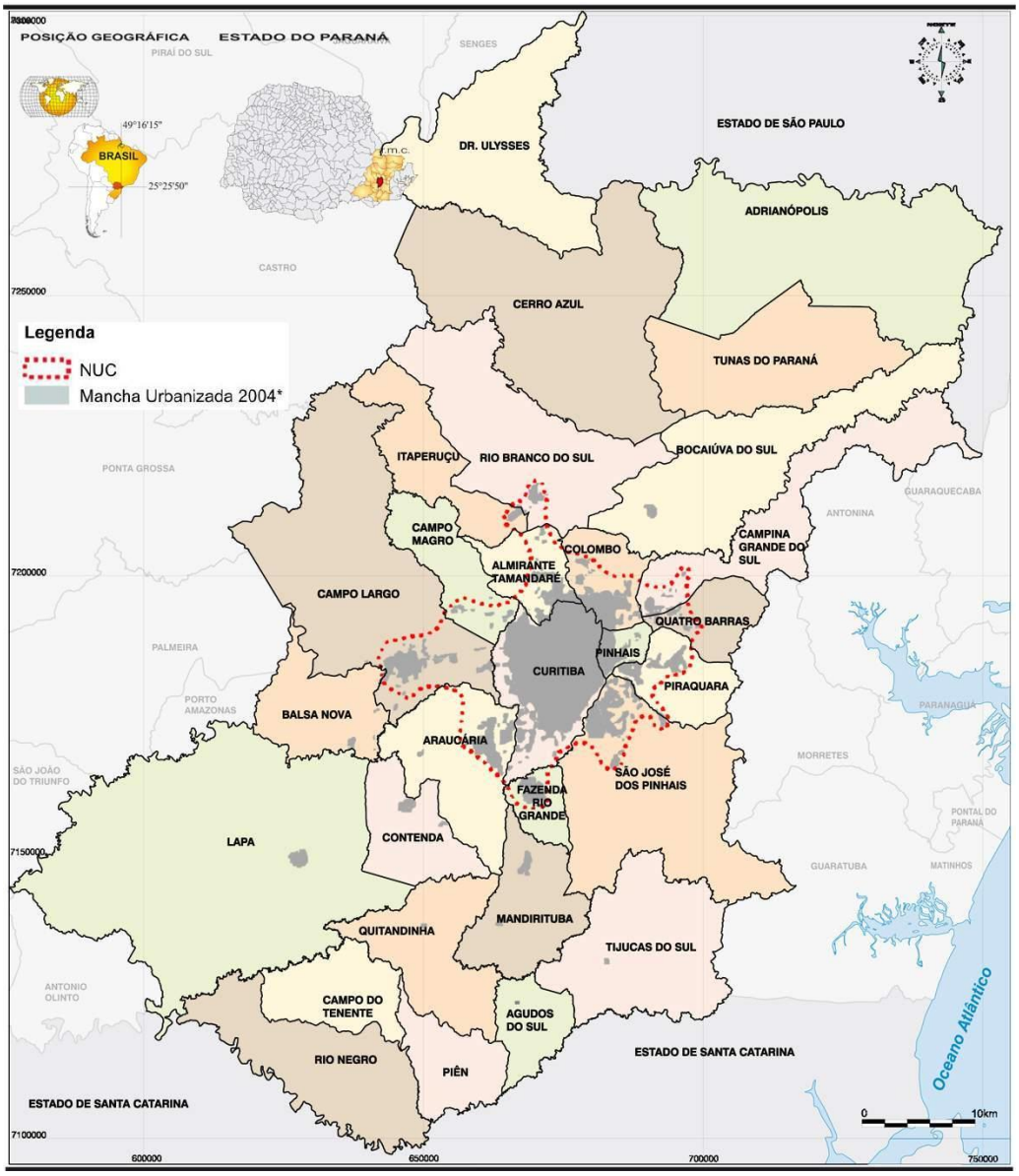
Campo do Tenente, Piên and Rio Negro, in 2011, when the RMC comprised 29 municipalities (COMEC, 2020).

However, for COMEC (2006), the true metropolization occurred in the so-called Central Urban Center (NUC), which forms the conurbated urban area of the greater Curitiba, comprising 14 municipalities that have a similar pattern of occupation and more intense regional dynamics. The municipalities that make up the Central Urban Center (NUC) are: Almirante Tamandaré, Araucária, Campina Grande do Sul, Campo Largo, Campo Magro, Colombo, Curitiba, Fazenda Rio Grande, Itaperuçu, Pinhais, Piraquara, Quatro Barras, Rio Branco do Sul and São José dos Pinhais. The map on the next page (Figure 5) shows this configuration of the RMC (COMEC, 2020).

FIGURE 5 - CURRENT POLITICAL MAP OF THE RMC, WITH THE NUC - RMC HIGHLIGHTED



SOURCE: Fortunato (2014) based on data from COMEC (2020)

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The entire metropolization process in Curitiba is also characterized by a peripherization process, as demonstrated by Mendonça et. al. (2019), fostering aspects such as city marketing, which from the mid-1970s produced a proliferation of peripheral neighborhoods alongside a considerable amount of irregular occupation of public and/or private areas for housing in the RMC. Accordingly, the municipality of Fazenda Rio Grande stands out, which has shown accelerated growth in recent decades, accentuating social and environmental problems, such as: garbage and open sewers; urban floods and flash floods; occupation of permanent preservation areas (APP); siltation of rivers; collapse in the transportation system; rapid multiplication of subnormal housing in restricted areas and consequently, social problems related to the loss of values, unemployment and violence.

Among all these factors, the analysis chooses to highlight socio-spatial segregation and irregular occupations in the NUC-RMC. According to the Paraná State Plan for Social Interest Housing (Plano Estadual de Habitação de Interesse Social do Paraná: PEHIS-PR, 2019), with data collected by COHAPAR in April 2019, Curitiba has: 359 slums, with a total of 42,990 households located in slums and 94 irregular and/or clandestine subdivisions, with 7,509 buildings. On the other hand, housing production and/or land regularization met about 20% of the demand in the period from 2016 to 2019, in which 3,036 housing units were built by the municipality in the period from 2016 to 2019, in addition to 6,791 units included in land regularization projects by the municipality in the same period.

For the other municipalities of the NUC, the data in the COHAPAR system is not updated. However, the data from the IBGE information system (2020) can be used as it was updated in December 2019 for subnormal agglomerates, which are known as irregular occupations with a set of at least 30 houses, characterized by an irregular urban pattern, lack of essential public services and location in areas with restricted occupation. This data shows that approximately 8% of the households in the NUC – RMC – 86,498 households – are illegally occupied. In Curitiba this percentage is 6.5%, while in Fazenda Rio Grande it is 1.7%. The lower value in Fazenda Rio Grande is largely related to the Jardim Europa housing project, object of this case study, responsible for the resettlement of more than 500 families living in subnormal settlements. Table 1 details the situation for the entire NUC – RMC.

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TABLE 1 - HOUSEHOLDS IN SUBNORMAL AGGLOMERATIONS AT NUC - RMC IN 2019

MUNICÍPIOS DO NUC	POPULAÇÃO ESTIMADA EM 2019	DOMICÍLIOS TOTAIS (2019)	DOMICÍLIOS EM AGLOMERADOS SUBNORMAIS (2019)	PERCENTUAL DE DOMICÍLIOS EM AGLOMERADOS SUBNORMAIS (2019)
Almirante Tamandaré	118623	30889	7686	24,9%
Araucária	143843	44199 4399	10,0%	
Campina Grande do Sul	43288	12243	1759	14,4%
Campo Largo	132002	38354	3643	9,5%
Campo Magro	29318	6593	1276	19,4%
Colombo	243726	68471	6449	9,4%
Curitiba	1933105	670481	43525	6,5%
Fazenda Rio Grande	100209	44542	773	1,7%
Itaperuçu	28634	7454	1144	15,3%
Pinhais	132157	41352	517	1,3%
Piraquara	113036	34440	6205	18,0%
Quatro Barras	23559	6897	863	12,5%
Rio Branco do Sul	32397	9479	1925	20,3%
São José dos Pinhais	323340	104491	6334	6,1%
TOTAL - NUC - RMC	**3397237**	**1119885**	**86498**	**7,7%**

Source: IBGE (2020)

Socio-spatial segregation (ABRAMO, 2007; MARICATO, 2006) is evidenced by housing, with the production of a significant number of irregular occupations in the RMC. This immense social inequality is one of the great challenges of the NUC - RMC and has been highlighted for about over two decades by institutions such as IPARDES (2004), which identifies socio-spatial inequalities, the extremes of concentration of wealth and needs, the pressures of occupation and uses on the natural environment, and the insertion of groups of municipalities in common dynamics. The researches of several authors can also be highlighted, with an urban socio-environmental focus, such as the most recent studies by Lima (2020); Fortunato (2020); Mendonça et. al. (2019); Ribeiro (2019) and Alves (2019).

Available data from COMEC (2006) and SUDERHSA (2007) showed that in 2000 there were already 903 areas of irregular occupation in the RMC, covering more than 89.5 thousand households. These occupations represent 2.1% of the total urban areas of the metropolitan municipalities and a large part of them are located in areas of human or environmental risk, where houses do not have physical conditions and basic sanitation, adequate access and spaces and equipment for collective use.

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In two decades, considering the time frame from 2000 to 2020, with data from the different institutions already mentioned, it is clear that despite the construction of new units of housing of social interest, added to land regularization actions, the effects in the reduction of social and environmental inequalities and vulnerabilities of the populations of the NUC – RMC were little perceived, as will be evidenced in the detailed analysis of the selected case studies: Parque Iguaçu I, II and III in Curitiba; and Jardim Europa in Fazenda Rio Grande, both discussed in the following item.

5 SUSTAINABILITY IN SOCIAL INTEREST HOUSING FINANCED WITH FUNDS FROM THE MINHA CASA MINHA VIDA PROGRAM AT NUC-RMC

In his thesis, Fortunato (2014) evaluated the sustainability of social housing produced with resources from the Minha Casa, Minha Vida Program at NUC-RMC, through the analysis of two case studies, one located in the core city and the other in a peripheral municipality of the NUC-RMC. In case study 1, the Parque Iguaçu I, II and III residential complexes are located at the core of the metropolis; and in case study 2, the Jardim Europa complex is located on the outskirts of the NUC, in the municipality of Fazenda Rio Grande, one of the municipalities with the highest population growth rate in the entire NUC-RMC.

Another interesting factor is the fact that both bear resettlement situations and are financed by the same housing program, the federal government's MCMV, which implies thinking about very similar projects, since the transfer of resources and design requirements are the same. However, differences in the architectural design, execution and final areas of the complexes will also be found, due to the peculiarities of municipal legislations.

As an analysis strategy, we chose to use the CEF Casa Azul Seal methodology, as it is the most suitable for evaluating social housing in Brazil, compared to other environmental certification systems for the built environment. Thus, the research analysis strategy evaluated the two case studies in detail and comparatively, according to the CEF Casa Azul Seal methodology, comprising 53 analysis sub-items arranged in the following analytical categories: urban quality, design and comfort, energy efficiency, conservation of material resources, water management and social practices (JOHN; PRADO, 2010). The most relevant aspects of each of these categories will be commented below.

Analysis Category 1 - Urban quality - allowed us to verify how the selected housing estates were inserted into the urban fabric, whether the new houses were connected to the city's services and infrastructure, whether the project brought improvements to the population living in its

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surroundings, whether there was the recovery of former irregularly occupied areas, above all, APP areas, that is, whether the populations of these housing complexes managed to have democratic access to urban land or, on the contrary, continued to be segregated and even subjected to socio-environmental risks and vulnerabilities. A general analysis shows that none of the housing projects was able to fully meet any sub-item of this Category, getting a zero score, which implies the impossibility of these housing projects to be considered sustainable according to the Casa Azul CEF methodology, as two mandatory sub-items were not met.

In the case of housing projects located in the core city, Curitiba, there is a network of basic infrastructure installed throughout the surrounding area, with water, sewage, drainage, energy, telephone, better road connections and alternative transport systems, local businesses already consolidated and all the minimum equipment required by the Seal. There is an area reserved for new facilities (nursery, schools, etc.), with executive projects ready, that are yet to be bid and built.

As for the Jardim Europa housing complex, all the factors that need improvement are not limited, but generalized for the entire municipality, therefore, these are problems that are difficult to solve. The basic infrastructure (water, sewage, drainage, energy, telephone) was installed, however, frequent maintenance is not carried out, which causes, for example, blockages in the drainage network, which can result in flooding points within the housing development (PROGRAMA NOSSA CIDADE, 2012).

Field observations demonstrate that the road system, sidewalks and public transport need numerous investments and expansion throughout the city. The lack of paved streets and paved sidewalks that offer accessibility and safety to the user, the lack of public transport lines and buses are part of the daily lives of FRG residents. Also, the lack of new community facilities and placements in day care centers, schools and health centers does not only represent a reality for the residents of Jardim Europa, but rather a social problem for the entire population of FRG.

However, these factors still present a simpler solution, based on municipal public policies, unlike other problems, which can expose residents to serious socio-environmental risks and vulnerabilities, as observed both in the complexes installed in Curitiba and in the housing project located in FRG. For the Parque Iguaçu I, II and III housing complexes, located in Curitiba, there are two socio-environmental risk factors that need to be addressed, caused by the proximity to the ETE (sewage treatment plant - STP) and to the Contorno Sul (an expressway at the South of the city). In the first aspect, COHAB-CT is seeking a solution, but finds legal problems related to the ownership of the land, located between the complexes and the ETE, which will be used as a reforestation area in order to create a natural barrier and mitigate the problem.

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In FRG, however, the environmental risks and vulnerabilities caused by the way the housing complex was installed represent factors with high costs, especially related to flaws in the design of its architectural and urban design. The aspects reported denote the urgent need to create accessibility to the urban fabric and community facilities with the opening of a road connecting the southern portion of Jardim Europa to Pessegueiro street; isolation with protective fences along the edges of the APPs, avoiding the risk of falls into the river, increasing the safety of users and preventing residents from advancing their lots towards the APPs; creation of leisure areas within the complex's interior, which serve both users in the northern and southern portions, to remove children from the streets, the high-voltage lines, and APPs; isolation of the terrain located under the high voltage lines, maintaining a minimum safety distance of 40m from the user; construction of retaining walls or other structural solution for all homes that have land with exposed slopes and risk of collapse; and insertion of vegetation cover throughout the complex, preventing erosions that cause constant clogging in the micro drainage system.

Other problems observed concern the recovery of degraded areas, in which very different actions can be seen in the two municipalities. In Curitiba, public policies have procedures, services and structure for the removal of families from risk areas and subsequent recovery of environmentally fragile areas in which they were located, with actions to revitalize watercourses, create leisure spaces for the community and environmental education actions. On the other hand, the municipality of Fazenda Rio Grande does not have public policies that allow fundraising to proceed with the revitalization of these degraded areas. In addition, to avoid new invasions in them, the city hall (PMFRG) decided to keep all the rubble from the demolition of the old buildings, generating an ambience of intense environmental degradation and accumulation of residues.

As for Category 2 – Design and Comfort – None of the case studies analyzed were able to fully meet this essential category for the sustainability of buildings, conflicting with the good practices of architectural projects for social housing. As for landscaping, for example, in the complexes built in Curitiba, Parque Iguaçu I, II and III, spaces with some landscape content were delivered, with grass-covered recreation and leisure areas, in addition to the planting of trees along the plot. However, only seedlings of approximately 1m in height were planted, which should have their growth monitored and which, probably – because they are very vulnerable to bad weather – will need to have some units replaced as they may die due to bad weather, such as frost, which is quite a situation common in Curitiba and RMC. However, there was no concern to mitigate fundamental issues through landscaping, which could very simply create acoustic barriers that would reduce noise from the Contorno Sul and also barriers against odors from the ETE adjacent to the land.

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As for the Jardim Europa housing complex in Fazenda Rio Grande, landscaping was simply ignored, which resulted in an inhospitable built environment regarding user safety and comfort. An urgent intervention by the municipal government is needed to mitigate the socio-environmental risks and vulnerabilities that the population living in the Jardim Europa complex is subject to. These interventions are directly related to its landscaping, caused by misconceptions of the project, inspection and implementation, which resulted in back of lots turned to APP areas with gaps of approximately 8 meters and without protection barriers, lack of green areas, recreation and leisure as a whole, lack of protection in undeveloped areas formed by transmission lines and lack of vegetation cover on the soil, leaving slopes prone to landslides.

Another concern is related to the lack of flexibility of projects financed by the MCMV. It was found in the 2 case studies that the problems are concentrated in the conceptual basis of what would be a housing project, above all, a project aimed at housing of social interest and that have sustainability as a premise. MCMV projects always have 2 bedrooms, regardless of family size, not following the profiles indicated by the Demographic Census and disregarding key issues, such as the definition of rooms that could be flexible, molded according to the needs of the people who will live in the place.

It is also noteworthy that the MCMV's requirement to limit housing developments to 500 units in order not to massify social housing is not coherent (CEF, 2012) as architectural projects are approved with 500 units, divided from each other by railings or streets, but have the same plants, materials, size of openings, height and, sometimes, different coverage. This occurs in the Parque Iguaçu I and II complexes, where in the first one the apartment blocks have a roof with apparent roof tiles and in the second, a roof with a plat band. Copying is usual, showing the total lack of creativity and innovation, reducing housing projects to masses of dwelling, without identity, which ends up making them segregated spaces in the urban fabric and, consequently, leading its resident population to social and spatial segregation as well.

Another important factor is the bioclimatic issues that were neglected in all projects of the housing developments, regardless of their location, whether in the core city or on the outskirts of the metropolis. As for the area of ventilation and lighting of the rooms, defined by the existing frames in each room, in the Parque Iguaçu I, II and III more than 60% of them did not meet the minimum parameters required by the Seal according to the bioclimatic zone they are inserted in, while in the Jardim Europa complex, more than 75% of them did not meet these same parameters.

Categories 3, 4 and 5 deal respectively with energy efficiency, conservation of material resources and water management. These categories indicate simpler actions, with lower costs

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and/or related to the builder's management. These are aspects that do not enter into more complex resolutions, such as land and the right to housing, the quality of the surrounding infrastructure and the design quality of the constructed building or social aspects. As such, these categories scored much higher than Categories 1, 2, and 6; even if sometimes not fulfilling the minimum required score for the Casa Azul Seal.

In Category 3 - Energy Efficiency, there was no differentiation between the percentages achieved in Curitiba and Fazenda Rio Grande, with the two municipalities managing to meet all the sub-items of this category considered mandatory by the Seal, covering 50% of the sub-items evaluated.

Category 4 – Conservation of material resources – was the one that managed to achieve the Seal scores more efficiently, reaching 80% in the Parque Iguaçu I, II and III in Curitiba, and 56% in Jardim Europa, in Fazenda Rio Grande. This brought something unexpected to the analysis, demonstrating that construction companies are adapting better than public institutions to aspects related to sustainability in social housing, due to competitiveness factors and even market survival.

On the other hand, Category 5 – Water Management – had great fluctuations in its results. This variation mainly refers to the incorrect way of verifying legislative aspects. At Parque Iguaçu III in Curitiba, there were problems with non-compliance with municipal legislation due to the ignorance of all the actors involved in the process: COHAB-CT, as the coordinating institution of the project; CEF, as the financing and inspection agent for the works; and the contracted construction company, as technically responsible for the projects and execution of the buildings. With these failures, the residential units of the apartment typology – Parque Iguaçu I and II, also in Curitiba – attended to 67% of the items related to water management, while the single-family homes – Parque Iguaçu III – attended to only 14% of the same items. In Fazenda Rio Grande, despite no prerogative in the legislation on these topics, 29% of the items were met, as the bidding notice had provided for these actions.

A prominent factor in this category is related to permeable areas. Social housing of the one-story and two-story houses typologies are built on extremely small plots, due to the high value of urban land both in the case study of Curitiba and in Fazenda Rio Grande. Upon delivery of the keys, these dwellings have a large permeable area, covering almost all of the front and rear setbacks of the lot. However, these permeable areas are the only spaces in these homes available to renovation in order to insert new spaces, such as a garage, laundry, bedroom, living room expansions, among other changes. Thus, as observed in the Jardim Europa complex, in Fazenda Rio Grande, within a few months of the opening of residences, these areas are already waterproofed, often totally. This action

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entails significant impacts on the drainage system, if it has not provided for any form of containment of these waters, which causes rapid surface runoff and can lead to flooding, even within the housing complex itself.

Aware of these future consequences, the architectural projects of this type should carry out a micro-drainage system and mandatorily adopt rainwater reservoirs to contain water from the waterproofed floors. Otherwise, they cannot be considered sustainable, as they are neglecting the impacts that these actions can cause on the complex itself, on the hydrographic basin where it is located and also on the city.

The last analytical category – 6 – Social Practices showed several inconsistencies, with few items fully addressed. Popular participation in the design process was minimal. On the other hand, the generation of employment and income, as well as the inclusion of the local population in work related to the development of the two housing complexes was very positive.

Both projects were guided by the technical team of COHAB-CT, being developed as a legal and executive architectural project, and complementary projects (hydraulic, electrical, drainage, gas, among other) by the construction companies contracted to carry out the works. These construction companies carried out the architectural project based on standard MCMV projects, developed by COHAB-CT (resettlement standard house, adapted one-story house and apartment blocks). Afterwards, the legal project was submitted for approval by COHAB-CT itself and, later, that of other public bodies, such as PMC (Curitiba City Hall), SMOP, COPEL, SANEPAR and SMMA, in the case of projects located in Curitiba, and PMFRG, IAP, COPEL and SANEPAR, in the case of Jardim Europa, located in Fazenda Rio Grande.

This entire process is based solely on the action of the government and companies, excluding families from any discussion or decision on the projects, contrary to what the National Housing Policy provides for regarding participation of the population. This non-participatory process implied other problems, such as the use and repetition of housing patterns, a common practice in all projects coordinated by COHAB-CT, which contributes to the great similarity in the typological, formal and aesthetic patterns of the buildings carried out, a factor that makes the architecture for social interest housing somewhat monotonous in the urban landscape and, at times, even exclusionary. This exclusion is due to the fact that it is quite possible to easily identify within the urban fabric which properties correspond to housing of social interest, enabling a continuity in the socio-spatial segregation that these families already faced when they lived in irregular settlements, even if unintentionally.

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As for the mitigation of social risks, there were different situations for the metropolis and the periphery. In Curitiba, the Social Risk Mitigation Plan required by the CEF Casa Azul Seal is contained in the Social Technical Work Project, which includes informational activities, literacy courses, digital inclusion, professional training, sports and cultural activities, all carried out in partnership with the Municipal Secretariats. These courses are offered continuously and are a part of the schedule of the various secretariats of the PMC and were selected according to the priorities of the families that had been registered for resettlement. Thus, the PMC provides support to carry out actions to mitigate social vulnerabilities, which are offered to the families that make up the resettlement process.

In Jardim Europa housing complex, there were no specific actions to mitigate the social risks of residents. The authorities were aware of the problems faced by the population but did not present actions to solve them. Thus, children and adolescents are still exposed to social and health risks, playing in the streets, in dangerous areas around the APP and under the transmission lines. The population in general continues to face problems with drug trafficking and violence within the complex, as well as violence in the surrounding schools, where children and teenagers are now studying.

Thus, the detailed evaluation of each of the 53 sub-items proposed by the Seal, presented in Table 2, showed that the MCMV does not ensure the sustainability of the houses it finances, but rather transfers this responsibility to other actors, leaving the quality aspects of the constructions in charge of the following: city halls, through greater or lesser rigidity of their urban and environmental legislation and development of social action programs and projects; designers and builders, who, depending on the materials and methods selected for the elaboration of the architectural project and, consequently, the execution of the work, may reach better levels of sustainability or not; the program's financing agency, Caixa Econômica Federal (CEF), responsible for overseeing the entire process; in addition to the end users, who will be responsible for the sustainability of the development during its phase of use, even with little guidance on environmental education.

TABLE 2 – SCORES OBTAINED BY THE CASE STUDIES ACCORDING TO THE CEF CASA AZUL SEAL METHODOLOGY

QUADRO GERAL SOBRE O DESEMPENHO DOS ESTUDOS DE CASO SEGUNDO A METODOLOGIA DO SELO CASA AZUL CEF				
CATEGORIAS	ESTUDO DE CASO 1			ESTUDO DE CASO 2
	P. IGUAÇU I	P. IGUAÇU II	P. IGUAÇU III	JD. EUROPA
1. QUALIDADE URBANA	0	0	0	0
2. PROJETO E CONFORTO	4	4	2	1
3. EFICIÊNCIA ENERGÉTICA	3	3	3	3
4. CONSERVAÇÃO DE RECURSOS MATERIAIS	8	8	8	5
5. GESTÃO DA ÁGUA	4	4	1	2
6. PRÁTICAS SOCIAIS	2	2	2	1
ITENS OBRIGATÓRIOS PONTUADOS	10	10	8	5
ITENS NÃO OBRIGATÓRIOS PONTUADOS	11	11	8	7
TOTAL DE ITENS PONTUADOS	21	21	16	12

Source: Fortunato (2014)

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The evaluated housing projects had the following performance regarding the sustainability of their housing units:

- Parque Iguaçu I and II, in Curitiba: 53% of the minimum mandatory score for the bronze level of sustainability of the CEF Casa Azul methodology, scoring 10 mandatory items and 11 non-mandatory items;
- Parque Iguaçu III, in Curitiba: 42% of the minimum mandatory score for the bronze level of sustainability of the CEF Casa Azul methodology, scoring 8 mandatory and 8 non-mandatory items;
- Jardim Europa, in Fazenda Rio Grande: 26% of the minimum mandatory score for the bronze level of sustainability of the CEF Casa Azul methodology, scoring 5 mandatory and 7 non-mandatory items.

The discussions and analyzes carried out in the research by Fortunato (2014) allowed to prove the thesis that the MCMV is not able to ensure the sustainability of social housing financed through its resources, but only to supply quantitative aspects for housing provisions, aimed at faster reducing the housing deficit in Brazil. In other words, the MCMV clearly addresses quantitative aspects of the production of social housing, giving low priority to qualitative aspects.

Of all the analytical categories evaluated, it is worth mentioning Category 1 - Urban Quality, whose analysis allows us to verify that a large part of the precariousness in housing production of social interest in Brazil is connected to the land issue, that is, to the urban land and, consequently, to the process of peripheralization. The choice of land in peripheral urban areas for the implementation of new housing projects, proven in the two case studies evaluated by Fortunato (2014), causes a series of urban socio-environmental problems – such as environmental degradation of APP areas, lack of urban infrastructure, lack of community equipment and services for the families that will live in these complexes, disconnection between the consolidated urban grid and the new settlements, among other aspects.

Thus, urban and housing management in Curitiba and RMC has been neglecting the land issue and accentuating the process of peripheralization in the NUC-RMC, resulting in socio-spatial segregation in the cities that comprise it.

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6 FINAL CONSIDERATIONS

The discussions and analyzes carried out throughout the work allow us to conclude that the MCMV is not able to ensure the sustainability of social housing financed through its resources, but only to supply quantitative aspects of the housing provision that aims to more quickly reduce the Brazilian housing deficit. In other words, the MCMV clearly addresses quantitative aspects of the production of social housing and their qualitative aspects are left behind.

The results showed that the MCMV does not apply the integral concept of housing; assumes the financing of the development, but not its sustainability; it passes on to other actors (city halls, businessmen, users) items such as the development of social programs and projects and the solution of eventual architectural and urban problems. In addition to the spatial peripherization, it deepens the social and citizen peripherization due to the residents' difficulties in accessing educational, professional, individual opportunities, ultimately relegating to users the sustainability of the development.

The analysis of case studies in Curitiba and Fazenda Rio Grande through the methodology of the CEF Casa Azul Seal, allowed the assessment of several weaknesses that influence the achievement of sustainability in social housing. Although Federal Law 11,977/2009 – and its updates that govern the program – have as a guiding principle the guarantee of the conditions of urban, social and environmental sustainability of the population involved – article 73 of the law says that it "will be ensured in the MCMV: (...) III – sustainability conditions of constructions" (BRASIL, 2011. Free translation) – there is no objectivity in the legislation regarding specific criteria for measuring such sustainability. Without these well-defined criteria, the MCMV cannot ensure the sustainability of the projects carried out with its resources.

It is noteworthy that the core of the entire socio-environmental issue regarding housing is related to land and access to urban land provided with infrastructure, services and equipment that serve the low-income population. It should be considered that housing is connected to the right to housing, which is nothing more than an inherent element of the right to life, to live in safety, with peace and dignity. Thus reinforcing the intrinsic social value of housing. However, the analytical category 1 – Urban Quality scored null in both case studies, demonstrating the lack of assertiveness of the architectural and urban projects related to the two housing projects.

The housing complexes were both implemented in peripheral areas of both municipalities and the NUC - RMC, disconnected from the urban grid, a factor intensified in Fazenda Rio Grande, with problems of basic transport infrastructure, urban mobility, lack of community facilities to serve

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the population, lack of leisure areas, among other problems already mentioned. Added to these aspects are the risks and vulnerabilities that populations still face, with the proximity of the ETE in the case of Curitiba, without environmental protection barriers; and in the case of Fazenda Rio Grande, establishing developments adjacent to areas of high slopes and APP, in addition to high voltage lines, requiring protection on the entire edge of the APPs, barriers to ensure a minimum safety distance of 40 meters from the user from high voltage lines and construction of retaining walls or other structural solution for all homes that have land with exposed slopes and risk of collapse.

Also fundamental is the need for federal resources linked to housing programs, as it was found that there are significant differences between municipalities. Curitiba, representing the core city of the metropolis, has better prepared institutions and professionals – both technically and economically – to carry out important social actions, especially for families in the resettlement process, such as professional training and income generation. On the other hand, Fazenda Rio Grande, a peripheral municipality, has technical and institutional difficulties, as well as less economic power to provide these same actions. These differences are evident in 4 of the 6 analytic categories.

Equally important is the review of factors related to the architectural projects themselves. A coherent architectural project must be directed to the profile of families and to the quality of urban insertion, which promotes environmental comfort, diversity, flexibility and innovation. The way in which the projects are being carried out, without considering the profile of the residents – remembering that at MCMV the houses always have two bedrooms; are constructed in large plots of land with the same volumetric attribute and architectural design, forming monotonous and repetitive urban spaces – need to be revised, as they often end up promoting the socio-spatial segregation of the residents of the housing complexes and disregarding essential aspects of environmental comfort, such as solar orientation, among other aspects. To achieve this sustainability, the forms of inspection and respect for current legislation also need special attention from all actors involved in the process – public managers, designers, builders, financing agents and the population itself.

In conclusion, the access to urban land and the quality of the architectural project are factors that are connected and that are directly proportional, that is, obtaining a well-positioned land, with all the necessary infrastructure, services and equipment will provide an architectural project design of better quality and, consequently, greater sustainability. Thus, even not achieving the minimum degree of sustainability required by the CEF Casa Azul Seal – bronze level, the housing projects carried out in the core city, Curitiba, presented higher scores in terms of sustainability in the built

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environment compared to the housing development carried out on the outskirts of the NUC – RMC, in the municipality of Fazenda Rio Grande, corroborating the central hypothesis.

All the discussions and analyzes presented lead us to conclude that urban and housing policies are interconnected. A fairer city with the democratization of urban land and the right to housing with the possibility of inhabiting a building that has sustainability as design, execution and maintenance premises, exempting the population from socio-environmental risks and vulnerabilities, is a challenge that in Brazil involves the territorialization of the ideals of urban reform, thus guaranteeing the right to the city and housing. The sustainability of social housing depends on this interconnection, therefore, to ensure it, the MCMV must be linked to urban policies and adopt precise criteria for assessing this sustainability, going beyond the mere discourse to the reality of providing a fair city for all.

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