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REGULARIZAÇÃO FUNDIÁRIA URBANA E ODS 11:  
ANÁLISE A PARTIR DO CONJUNTO HABITACIONAL GRAMORÉ

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### ABSTRACT

Cities are collective spaces for the integration of fundamental human rights, essential to life and to the dignity of the human person. Among the 17 Sustainable Development Goals (SDGs) instituted by the United Nations (UN), there is Goal 11, which aims to make cities inclusive and sustainable, contributing for the realization of the right to a sustainable city. In this context, the paper aims at analyzing the contributions of the Urban Land Regularization (Reurb) to the accomplishment of Sustainable Development Goal 11 (Sustainable Cities and Communities), with emphasis on the Gramoré Housing Complex. To this end, Urban Land Regularization activities were evaluated and monitored in the Gramoré Housing Complex, between the years 2018 and 2022, through a partnership signed between the Government of the State of Rio Grande do Norte, the Housing and Urban Development Company (CEHAB), and the Federal Rural University of the Semi-Arid (UFERSA); products generated by this Reurb were analyzed; and the articulation between the precepts of Reurb and SDG 11 was discussed, considering this case. It was found that Land Regularization assists in promoting Sustainable Development Goal 11, as it identifies the needs existing in the center, promotes quality of life for its inhabitants, and ensures legal security of tenure with the registration of the right in rem. Therefore, the expansion of Reurb also contributes to the fulfillment of SDG 11.

**Keywords:** Right to the city. Sustainable cities. Urban policy.

## RESUMO

As cidades são espaços coletivos de integração de direitos humanos fundamentais, essenciais à vida e à dignidade da pessoa humana. Dentre os 17 Objetivos de Desenvolvimento Sustentável (ODS) instituídos pela Organização das Nações Unidas (ONU), há o Objetivo 11, que visa tornar as cidades inclusivas e sustentáveis, contribuindo para a efetivação do direito à cidade sustentável. Neste liame, o trabalho objetiva analisar as contribuições da Regularização Fundiária Urbana (Reurb) para a efetivação do Objetivo de Desenvolvimento Sustentável 11 (Cidades e Comunidades Sustentáveis), com ênfase no Conjunto Habitacional Gramoré. Para tanto, foram avaliadas as atividades do processo de Regularização Fundiária Urbana em execução no Conjunto Habitacional Gramoré, entre os anos de 2018 e 2022, por meio de parceria firmada entre o Governo do Estado do Rio Grande do Norte, mediante a Companhia de Habitação e Desenvolvimento Urbano (CEHAB), e a Universidade Federal Rural do Semi-Árido (UFERSA); discutidos os produtos gerados por esta Reurb; debatida a articulação entre os preceitos da Reurb e o ODS 11, considerando o caso prático. Constatou-se que a Regularização Fundiária auxilia na promoção do Objetivo de Desenvolvimento Sustentável 11 à medida que identifica as necessidades existentes no núcleo, promove a qualidade de vida dos habitantes e garante a segurança jurídica na posse com o registro do direito real. Portanto, a ampliação da Reurb também contribui para o cumprimento do ODS 11.

**Palavras-chave:** Direito à cidade. Cidades sustentáveis. Política Urbana.

## INTRODUCTION

The right to the city is provided for in the 1988 Constitution of the Federative Republic of Brazil, in the chapter on Urban Policy, and in the Statute of the City, embodied in the chapter on general guidelines, specifically in article 2, items I and II, of Law No. 10,257/2001, and consists of the right to urbanized land, decent housing, urban infrastructure and public services aimed at promoting the quality of life of present and future inhabitants (Brazil, 2001).

Land irregularity in Brazil is still an unfinished issue, historically inherited from the disorderly urban expansion in Brazilian municipalities and from deficient public policies in the country's urbanization process. This irregularity has given rise to informal urban centers, characterized by the absence of minimum living conditions, urban and environmental problems, socio-spatial inequalities, and a strong presence of social conflicts (Reis; Oliveira, 2017; Arruda; Lubambo, 2019).

In this context, the Urban Land Regularization (Reurb) emerges as an urban development guideline that encompasses a set of legal, urbanistic, environmental and social measures aimed at the insertion of informal urban centers into the formal spaces of the city; the full development of the city's social functions; ensuring social welfare; and the titling of its occupants (Brazil, 2017).



Reurb can be understood as one of the instruments that guarantee the right to the city, as it expands access to urbanized land, implements the principle of efficiency in the occupation and use of land, discourages the formation of new irregular urban agglomerations, grants real rights (preferably to women) and guarantees the full development of the city's social functions (Brazil, 2017).

The Sustainable Development Goals (SDGs) were established in 2015 at the United Nations Summit in New York (UN Brazil, 2015). The SDGs make up the 2030 Agenda and are divided into 17 parts and 169 targets, which should be achieved by 2030 (UN Brazil, 2015; SDG Brazil, 2022).

Reurb and the SDGs are directly associated, as both aim to offer better living conditions to the population, especially in the Social Interest modality (Reurb-S). Thus, the objective of this study is to analyze the contributions of Urban Land Regularization to the fulfilling of Sustainable Development Goal 11 (Sustainable Cities and Communities), with an emphasis on the Gramoré Housing Complex.

In addition to this introduction, this study has four other sections: Contributions of Urban Land Regularization to the Promotion of Sustainable Cities; Sustainable Development Goals; Methodology, subdivided into area of study and methodological procedures; Urban Land Regularization in the Gramoré Housing Complex and SDG 11; and Final Considerations.

## **CONTRIBUTIONS OF URBAN LAND REGULARIZATION TO THE PROMOTION OF SUSTAINABLE CITIES**

The formation of cities in Brazil occurred in a context of accelerated and disorderly growth, marked by social exclusion and the lack of adequate urban planning, which resulted in several informal, irregular, unhealthy urban centers devoid of minimum living conditions (Rolnik *et al.*, 2007; Correia; Farias, 2015; Moura; Mota, 2018). This disorderly process of creation of cities has led to environmental, social, urbanistic, and legal ills, such as increased poverty, high unemployment and crime rates, unhealthiness, epidemics, lack of basic sanitation, and alarming rates of housing deficit (Maricato, 1997, 2003, 2018; Moura; Mota, 2018).



Cardoso (2003) understands irregularities as everything that is not classified as regular, and it is difficult to identify them due to their most diverse forms of manifestation. Thus, defining irregularity presupposes the existence of a classification or typology that makes it possible to guide regularization activities, considering the different forms of irregularities (Cardoso, 2003; Reis; Oliveira, 2017).

Oliveira *et al.* (2018) also emphasize the importance of identifying and characterizing the various types of irregularities in order to promote Land Regularization with the best possible use. Thus, it is noteworthy that land irregularities are translated into clandestine allotments, tenements, slums, stilt houses, pigs' heads, mocambos and informal occupations (Cardoso, 2003; Oliveira *et al.*, 2018).

The Brazilian Institute of Geography and Statistics (IBGE, 2021), through the Survey of Basic Municipal Information (MUNIC 2020), revealed, regarding the municipalities that responded to the survey, the existence of irregular and clandestine allotments in approximately 67.9% of these municipalities; the presence of slums, mocambos, stilt houses or alike in about 19.2%; the consolidation of tenements, rooming houses and pigs' heads in more than 15.8%; the existence of occupations of land or buildings by housing movements in 15.7% of the municipalities.

Land regularization can be conceptualized as:

a process for the settlement not only at the urban level, but also of social settlement of the land, that is, of the irregular or clandestine settlements destined for housing, which leads inexorably to the full development of the social functions of the city (Moura; Mota, 2018, p. 2332).

In this sense, Urban Land Regularization encompasses two modalities: (I) Urban Land Regularization of Social Interest (Reurb-S), which corresponds to the one applicable to informal urban centers occupied by a population with low purchasing power, according to an act of the Municipality; and (II) Urban Land Regularization of Specific Interest (Reurb-E), which consists of the one applicable to informal urban centers occupied by a population not qualified by an act of the Municipal Executive Branch as low income (Brazil, 2017).

Bearing in mind that those most affected by land irregularities are low-income individuals, Law No. 13,465/2017 brought, as one of its principles, the expansion of access to urbanized land by the population with low purchasing power, ensuring the minimum conditions of habitability and urban, social, and environmental sustainability (Brazil, 2017; Moura; Mota, 2018).

Reurb seeks to integrate informal urban centers into the formal context of cities, providing security of property tenure as it grants real rights (preferably in the name of women) (Brazil, 2017). The regularization ensures minimum conditions of urbanization in the allotted area and habitability of the properties that are part of these centers, and guarantees infrastructure and public services, such as accessibility, water network, sewage network, public transportation, and others (Correia; Farias, 2015; Brazil, 2017).

The construction of sustainable cities focuses efforts on strengthening the capacity of municipalities to meet social, cultural, environmental, and political needs, concomitantly with economic development (Leite; Awad, 2012). Public policies must be aligned with urban sustainability, ensuring access to public services without depleting or endangering the resources of the city and the surrounding regions (Oktay, 2012; Botton *et al.*, 2021).

In this sense, overcoming the existing land irregularity in the country contributes to the promotion of sustainable cities, considering that it not only aims at the granting and distribution of titles, but also aims to improve urban and environmental conditions in relation to the previous situation; promote social integration and job creation; encourage the consensual resolution of conflicts, including extrajudicial ones; guarantee the social right to housing; and, to order the full development of the city and the well-being of its inhabitants (Fernandes, 2007, 2011; Correia; Farias, 2015; Brazil, 2017, 2018).

## SUSTAINABLE DEVELOPMENT GOALS

The concept of sustainable development was presented in 1987, in the Brundtland Report, proposed by the World Commission on Environment and Development, created by the United Nations, as “one that meets the needs of the present without compromising the possibility of future generations meeting their own needs” (CMMAD, 1993, p. 46).

Figure 01 shows the 17 Sustainable Development Goals and their general targets, established in 2015 at the United Nations Summit on Sustainable Development, and which must be met by 2030.



Figure 01 | Sustainable Development Goals



Source: UN Brazil (2015). Graphic Elaboration by the Authors (2023).

As noted, the SDGs can be classified into four dimensions: social, economic, environmental, and institutional. The social dimension comprises objectives 1, 2, 3, 4, 5 and 10; the economic one encompasses goals 7, 8, 9 and 12; the environmental one involves goals 6, 11, 13, 14 and 15; and the institutional circumscribes goals 16 and 17 (UN Brazil, 2015; Silva, 2018).

Sustainable Development Goal 11 was structured with the scope of making cities and human settlements spaces of inclusion and sustainability, through the increase, strengthening and planning of participatory and sustainable urban environments, capable of reducing environmental impacts and safeguarding the cultural and historical heritage of humanity (UN Brazil, 2015; SDG Brazil, 2022).

In this sense, Stangherlin and Ferraresi (2021, p. 19) assert that:

the goals set out in goal 11 are directly related to the (re)adequacy of cities in order to (re) build inclusive, sustainable, safe, and resilient urban occupation spaces that will impact on the (in)effectiveness of human rights (Stangherlin; Ferraresi, 2021, p. 19).

In this SDG, targets such as: safe housing; inclusive and sustainable urbanization; planning and management of participative, integrated, and sustainable human settlement; and universal access to safe, inclusive, accessible, and green public spaces (Torres, 2019; Fraga; Alves, 2021).

The Sustainable Development Goals are necessary because they represent significant advances in terms of full sustainable development and commitment to a balanced environment, since they associate economic growth with social well-being, a balanced environment, and individual and collective human rights (Gomes; Ferreira, 2018).

In addition, the SDGs are pertinent because they contribute to overcoming existing issues that affect the current generation and future generations (Tremblay *et al.*, 2020). Therefore, in the conception of Gomes and Ferreira (2018, p. 157), “a fair environmental balance needs to be thought and developed in favor of human life with dignity and for the benefit of the entire community, which yearns for better environmental conditions”.

Sustainable urban development, especially the one based on the achievement of the objectives of the 2030 Agenda, depends on public policies aimed at the implementation of urban planning focused on attributes such as sustainability, accessibility, and universalization of infrastructure and services, in order to meet the social needs of the population, take advantage of economic opportunities, and ensure the environmental conditions of cities (Gomes; Ferreira, 2018; Botton *et al.*, 2021).

As the lack of access to housing for the low-income population is one of the main challenges of sustainable cities, the association of the Urban Land Regularization policy with the Sustainable Development Goals can be perceived, in particular, the eleventh goal (Schäfer; Albuquerque, 2021). Law No. 13,465/2017 is clear when, in its principles and objectives, it lists urban-environmental sustainability as an essential link in the implementation of land regularization (Brazil, 2017).

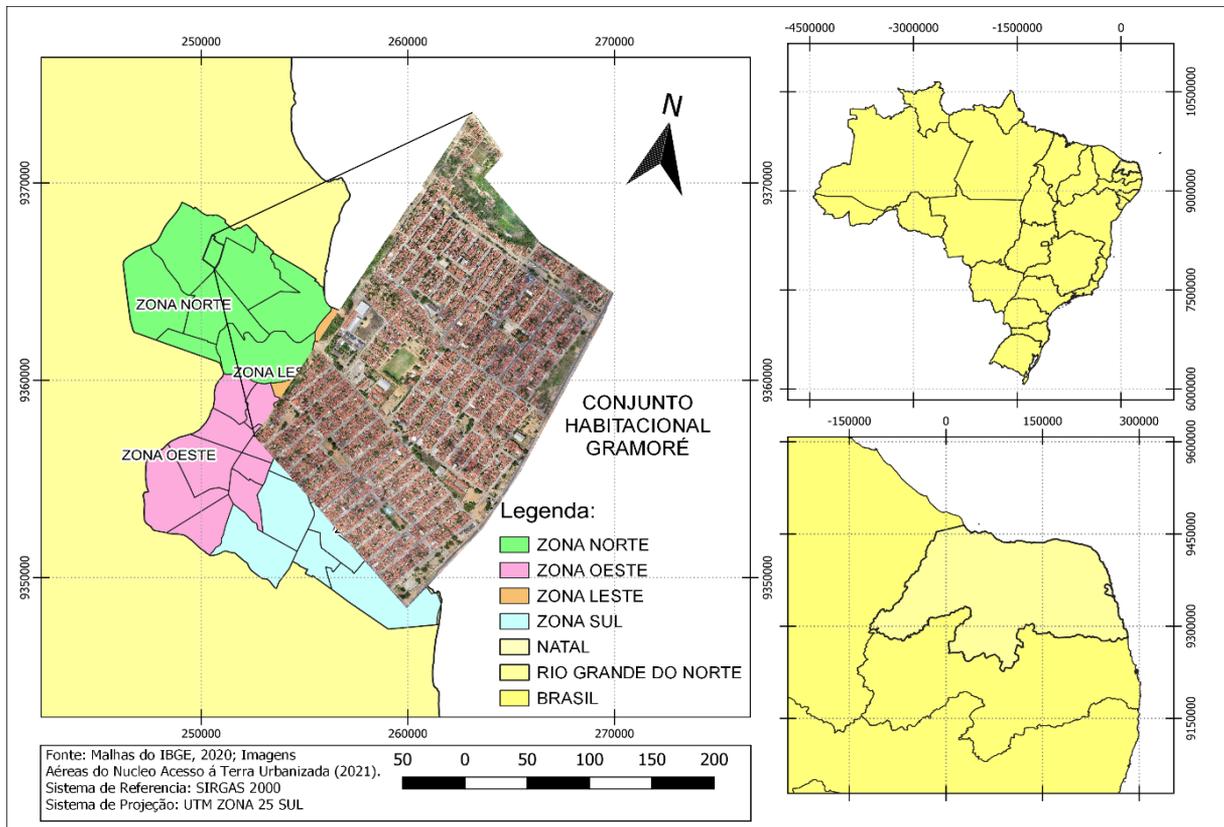


## METHODOLOGY

### Area of Study

The Gramoré Housing Complex (Figure 02) was established in 1983 and is located in the Lagoa Azul neighborhood, in the municipality of Natal, capital of the State of Rio Grande do Norte, covering an area of 982,370.96 m<sup>2</sup>.

**Figure 02** | Location map of the Gramoré Housing Complex



Source: Created from IBGE mapping (2022) and Aerial Imaging from the Center for Research and Extension Access to Urbanized Land (2021).

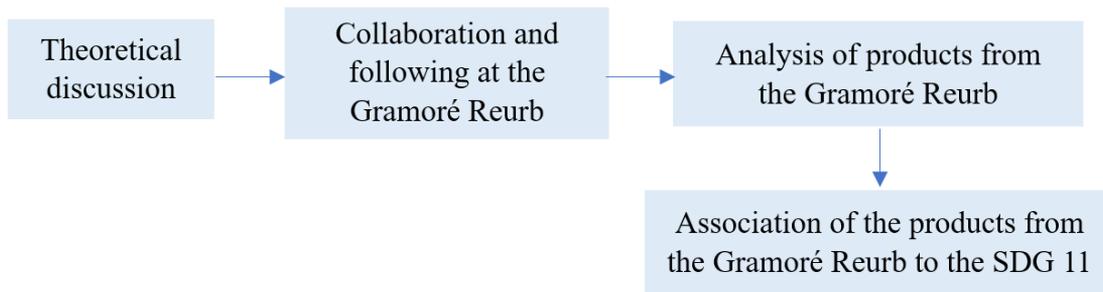
Gramoré is bordered to the north by Rua Itararé, with 688.75m; to the south, by the Guararapes Avenue, with 709.89m; to the east, by the Environmental Protection Zone 9 (ZPA - 09), with 925.29m; and to the west, by the Avenida Tocantínea, with 1,245.73m.

The Lagoa Azul neighborhood, of which the Gramoré Housing Complex is a part, was delimited by Law No. 4,328/1993. In this neighborhood, the Special Environmental Preservation Zone - 9 (ZPA - 9) is located, which covers the complex of lagoons and dunes along the river Doce (Natal, 2022).

## METHODOLOGICAL PROCEDURES

To conduct this research, the steps indicated in Figure 03 were necessary.

**Figure 03** | Methodological flow of the research

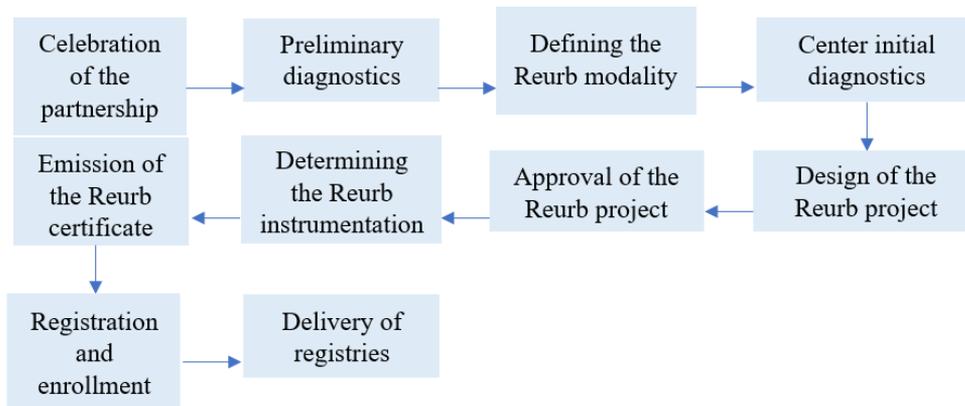


Source: Authors (2023).

- a) Theoretical discussion, of bibliographic and documentary nature, subdivided into two moments. The first focused on the importance of Urban Land Regularization as an instrument for the construction of sustainable cities, based on references such as: Maricato (1997, 2003, 2018); Cardoso (2003); Rolnik *et al.* (2007); Fernandes (2007, 2011); Leite and Awad (2012); Oktay (2012); Correia and Farias (2015); Reis and Oliveira (2017); Brazil (2017, 2018); Moura and Mota (2018); Oliveira *et al.* (2018); IBGE (2021); Botton *et al.* (2021). The second directed at the Sustainable Development Goals, in particular SDG 11 and its relationship with Reurb, through the references: CMMAD (1991); UN Brazil (2015); Brazil (2017); Reis and Oliveira (2017); Silva (2018); Gomes and Ferreira (2018); Torres (2019); Tremblay *et al.* (2020); Stangherlin and Ferraresi (2021); Fraga and Alves (2021); Botton *et al.* (2021); Schäfer and Albuquerque (2021); SDG Brazil (2022);
- b) Monitoring and collaboration in the implementation of the land regularization process of the Gramoré Housing Complex, object of the partnership between the Government of Rio Grande do Norte, through the Housing and Urban Development Company (CEHAB), and the Federal Rural University of the Semi-Arid (UFERSA), between the years 2018 and 2022.

The phases of execution of Reurb in the Gramoré Housing Complex, object of study of this work, are in accordance with the provisions of Law No. 13,465/2017 and Decree No. 9,310/2018 are presented in Figure 04.

**Figure 04** | Stages of implementation of the Reurb of the Gramoré Housing Complex



Source: Authors (2023).

In 2018, an agreement was signed between UFERSA and the Government of the State of Rio Grande do Norte (starting at CEHAB) for the implementation of the Reurb of the Gramoré Housing Complex and others, in view of the need for technical capacity and familiarity with the procedures provided for in Law No. 13,465/2017 and Decree No. 9,310/2018, which is present in the Center for Research and Extension Access to Urbanized Land, which has been developing Urban Land Regularization of Social Interest since 2014, in different Brazilian municipalities.

Subsequently, a preliminary diagnosis of the conditions of the center was conducted in order to identify the legal, environmental, urban, and social conditions of Gramoré. This diagnosis, with the help of digital equipment and a search in environmental and urban agencies (Notary Offices, Judicial Platforms, Municipal Secretariats, Environmental Agencies and Autarchies and others), contributed to the verification of possible areas of permanent preservation; whether or not the essential infrastructure exists; public and community facilities; land subdivision and landowners; possible lawsuits; and dominion of the land and lots that were registered.

The choice of the modality of Urban Land Regularization (Reurb-S or Reurb-E) was based on a social registry conducted by the State Government and resulted in Reurb-S. The definition of the Reurb modality aimed to verify the fulfillment or not of the requirements for granting exemption of costs and notary fees to beneficiaries and to define those responsible for the implementation of essential infrastructure, if necessary (Brazil, 2017).

The initial diagnosis of the center was carried out by means of notary searches to identify enrollments; verification of construction standards of the real estate units and information on the urban planning of the Gramoré Housing Complex; collection of information at the Data Processing Company of Rio Grande do Norte (DATANORTE) and by the delimitation of the intervention polygonal in satellite imagery.

According to article 35 of Law No. 13,465/2017, the Land Regularization project must be composed of: i) Planialtimetric and registration survey, accompanied by a Technical Responsibility Annotation (ART) or Technical Responsibility Record (RRT), and the annotations are waived if the project is executed by a public servant or employee (article 21 of Decree No. 9,310/2018); ii) plan of the perimeter of the informal urban center, with a demonstration of the enrollments or transcripts reached, when possible; iii) preliminary study of the non-conformities and the legal, urban and environmental situation; iv) urban design; v) descriptive memorials; vi) proposal of solutions to environmental, urban and resettlement issues of occupants, when applicable; vii) technical study of risk assessment, when applicable; viii) technical environmental study, when applicable; ix) physical schedule of services and implementation of essential infrastructure works, urban, environmental and other compensations, if any, defined at the time of the approval of the Land Regularization project; and x) a term of commitment to be signed by those responsible, public or private, for compliance with the physical schedule, in case of necessary actions.

The stages of technical study of the risk situation, technical environmental study, term of commitment and schedule of execution of works were not necessary, considering that the characteristics of the Gramoré Housing Complex do not demand it.

The technical documents of the Land Regularization Project of the Gramoré Housing Complex were sent to the Department of Environment and Urbanism of Natal (SEMURB) for analysis. All the adjustments and corrections requested by the Secretariat were made and the project was resubmitted for consideration. With this, the approval of the Land Regularization Project was conducted.

Once the Reurb was approved, the Land Regularization instrument was chosen among the instruments listed in Law No. 13,465/2017, specifically the instrument of land legitimation. Subsequently, the Land Regularization Certificate (CRF) was issued since it was decided to adopt a single act for the registration of real estate.



Subsequently, the documents were forwarded to the Real Estate Registry Office, for the opening of individualized registrations of the lots and the execution of the registrations in the name of the respective owners. After the constitution of the real rights in the name of the residents, the titles are delivered to the beneficiaries. The latter are still running until the month of writing of this paper (March 2023).

- c) Analysis of products resulting from the Urban Land Regularization of the Gramoré Housing Complex: land tenure situation plan (overlapping); physical characterization plan of the urban core and planialtimetric survey; perimeter plan; definition plan for residential properties; descriptive memorials; Proposals for improvements.
- d) Correlation of the precepts of Reurb, through the information that the products of the Gramoré Housing Complex generated, to what is recommended by the Sustainable Development Goal 11 (Sustainable Cities and Communities).

## RESULTS AND DISCUSSION

### Urban Land Regularization in the Gramoré Housing Complex and SDG 11

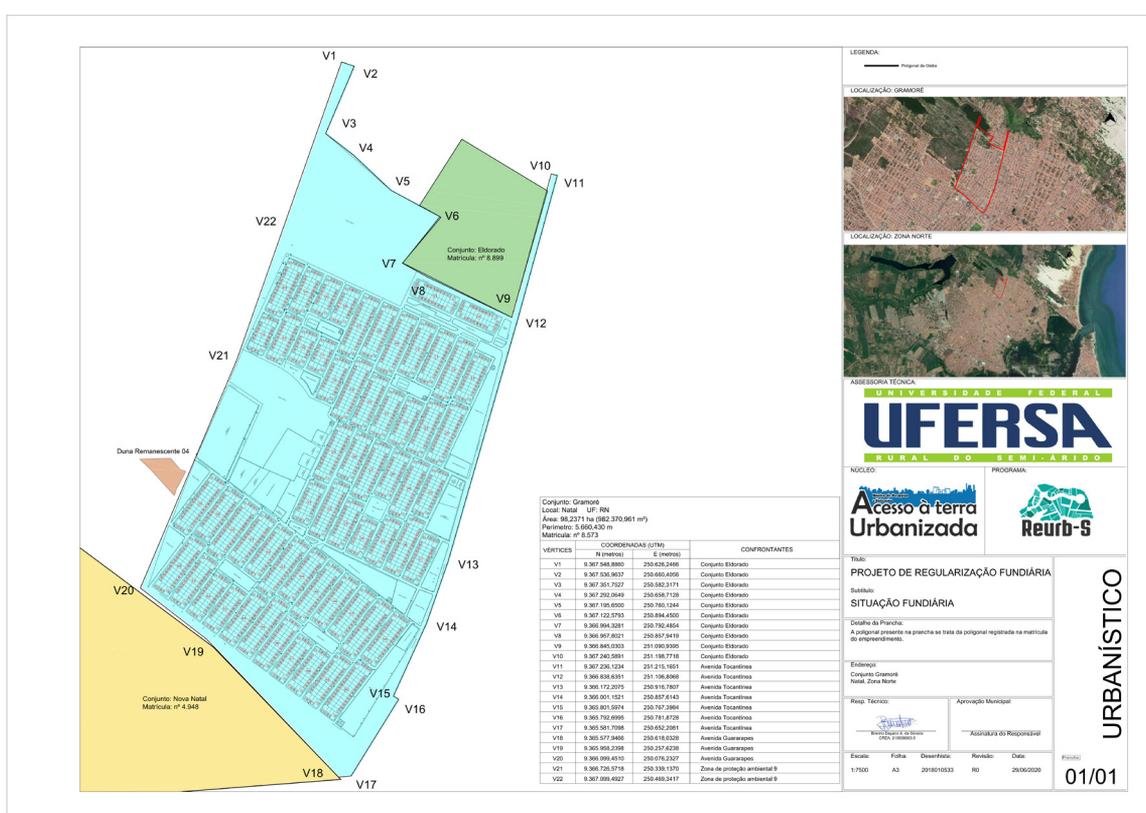
The descriptive memorials prepared during the Reurb show that the Gramoré Housing Complex contains a subdivision area of 60 blocks with 1,708 lots, occupying 397,794.80 m<sup>2</sup> (40.49% of the total area of the complex). The road system of the aforementioned Complex has 85 roads, which occupy a portion of 265,098.87 m<sup>2</sup> (26.99%), while the Free Spaces occupy 246,152.77 m<sup>2</sup> (25.06%), the Community Facilities integrate 50,994.75 m<sup>2</sup> (5.19%) and the State Public Areas add up to 22,330.08 m<sup>2</sup> (2.27%).

The Land Regularization Project of the Gramoré Housing Complex was composed of a Land Situation Plan (Figure 05); Urban plan of physical characterization and planialtimetric survey (Figure 06); Perimeter plan (Figure 08); Floor plans with specifications of residential areas (one of them shown in Figure 09); Urban design; Descriptive memorials; and Improvement Proposal Booklet (plans of suggested interventions are shown in Figure 10). All these documents were constituted considering the characteristics of the area occupied by Gramoré and, above all, the needs observed during the field visits.



According to Maricato (2002), informal urban centers do not, as a rule, constitute invaded lands, however, it is possible that they present various forms of irregularities regarding the documentation of the property or the urban provisions. Thus, the documents that make up the Land Regularization project are essential elements for the territorial reorganization of cities, especially due to the mapping of the land situation and the identification of areas that need to be regularized (Arruda; Lubambo, 2019; Nepomuceno; Miyazaki, 2020).

**Figure 05 | Land Situation Plan of the Gramoré Housing Complex**

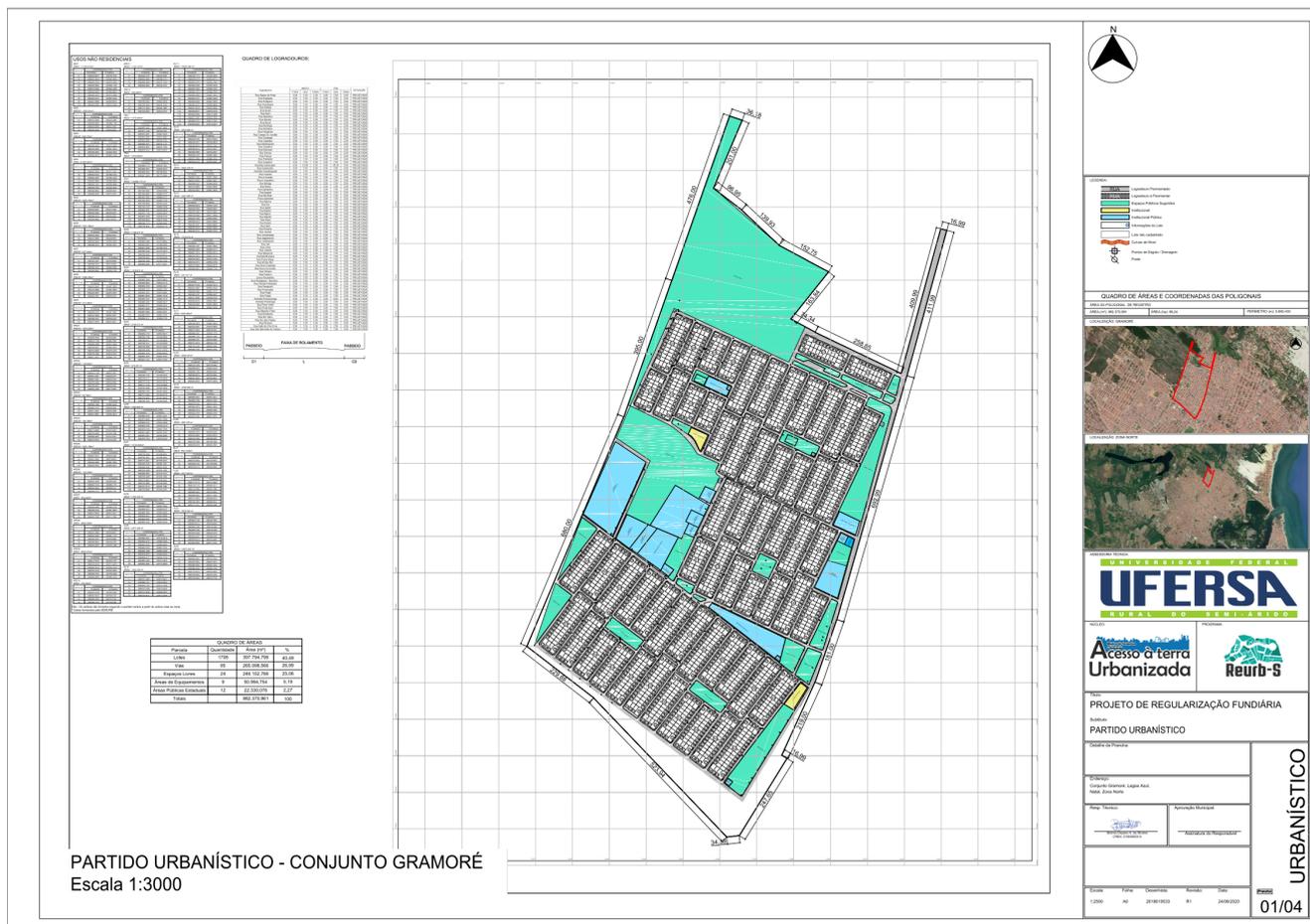


Source: Center for Research and Extension Access to Urbanized Land (2022).

The Land Situation Plan of the Gramoré Housing Complex, represented in Figure 05, shows that the registration of the Housing Complex, delimited by the blue polygon, covers the entire perimeter of the Gramoré Complex, showing that there is no disagreement between the area registered in the Real Estate Registry Office and the consolidated area. The yellow and green areas explain the specifications of the registration of adjoining complexes (Nova Natal and Eldorado). The orange area indicates the Remnant Dune, which borders the Gramoré.



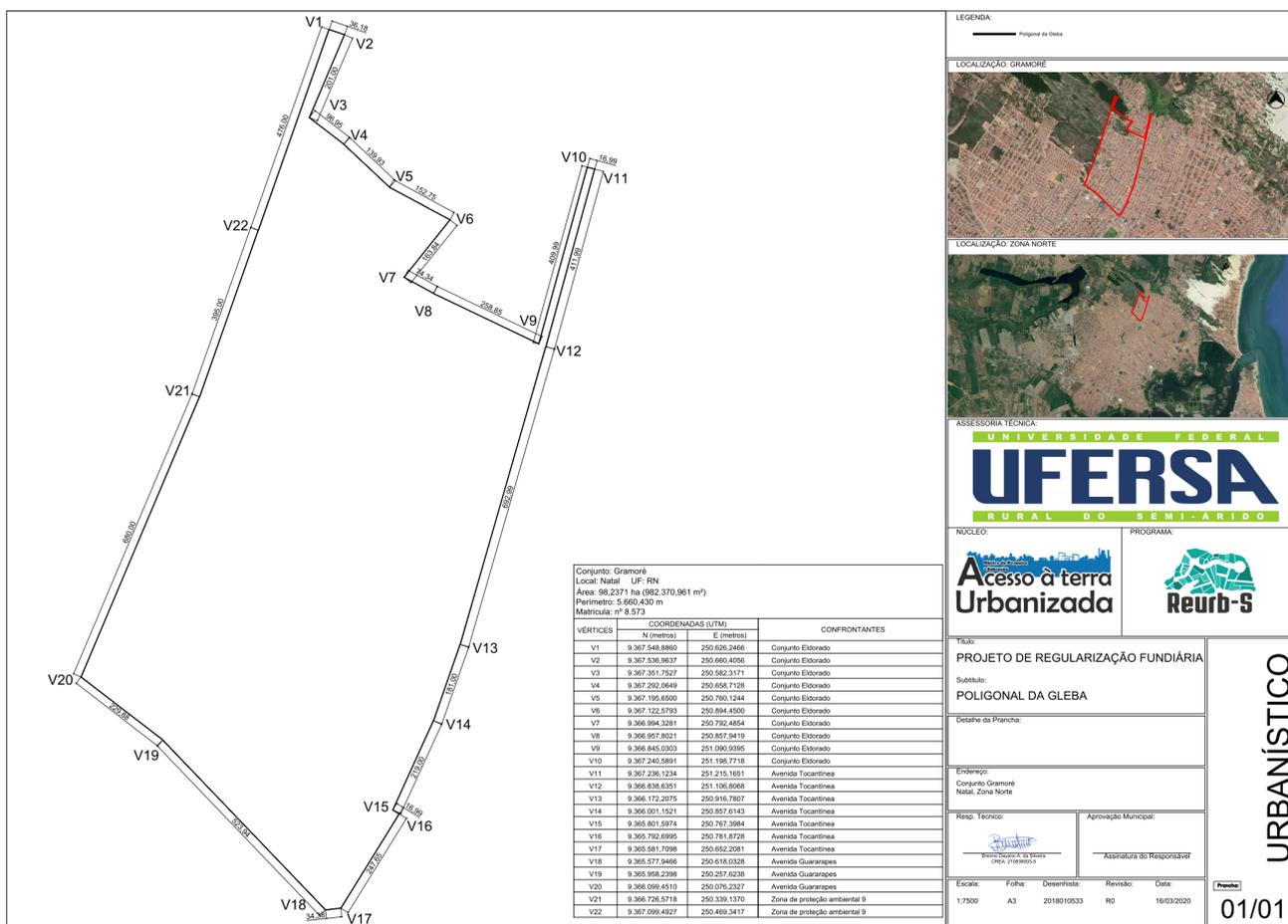
**Figure 06** | Urban plan of physical characterization of the Gramoré Housing Complex and planialtimetric survey



Source: Center for Research and Extension Access to Urbanized Land (2022).

From the urban plan of physical characterization and planialtimetric survey of this area, shown in Figure 06, it is possible to analyze the dimensions of the lots, paved and unpaved public places, institutional areas, public institutional areas, residential and non-residential areas, open spaces, community equipment, drainage and sewage points, public lighting, and other notable points, essential to the Land Regularization process. The caption of this plant is shown in Figure 07.

**Figure 07** | Caption of the Urban plan of the Gramoré Housing Complex

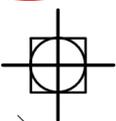


Source: Center for Research and Extension Access to Urbanized Land (2022).

The products generated help in the verification of urban, social, legal, and environmental irregularities, enabling the planning of actions aimed at mitigating them, enabling the social functions of the city from the Land Regularization of informal urban centers, and contributing to the achievement of Sustainable Development Goal 11, especially with regard to the implementation of sustainable cities.

**Figure 08** | Perimeter plan of the Gramoré Housing Complex

**LEGENDA:**

	Logradouro Pavimentado
	Logradouro à Pavimentar
	Espaços Públicos Sugeridos
	Institucional
	Institucional Público
	Informações do Lote
	Lote não cadastrado
	Curvas de Nível
	Pontos de Esgoto / Drenagem
	Poste

Source: Center for Research and Extension Access to Urbanized Land (2022).

The perimeter plan of the Gramoré polygonal (Figure 08) shows the perimeter measurements, total area of the plot, confronting and description of the coordinates of the Housing Complex, which allows planning actions aimed at the full use of unused areas, contributing to the fulfillment of the social function of the city and to the full territorial planning. Therefore, the prioritization of urban public policies is essential for the achievement of Sustainable Development Goal 11, especially due to the promotion of measures aimed at mitigating damage to the environment, so as not to jeopardize present and future generations (Machado; Aquino; Bodnar, 2020), which can be enhanced from Reurb.

**Figure 09 | Plan with specifications of residential areas of the Gramoré Housing Complex**



Source: Center for Research and Extension Access to Urbanized Land (2022).

The plan with specifications and coordinate table of residential areas (Figure 09) allowed the identification of the sizes of the lots, which makes it possible to verify whether or not they are adequate for the number of residents living in them. In addition, it was essential to identify that some original lots of the Complex underwent modifications and occupations occurred in areas with different purposes.

It should be noted that Gramoré is not fully characterized in the plan with specifications of residential areas in Figure 09 due to its large size, which is why more than one plant of this type was developed.

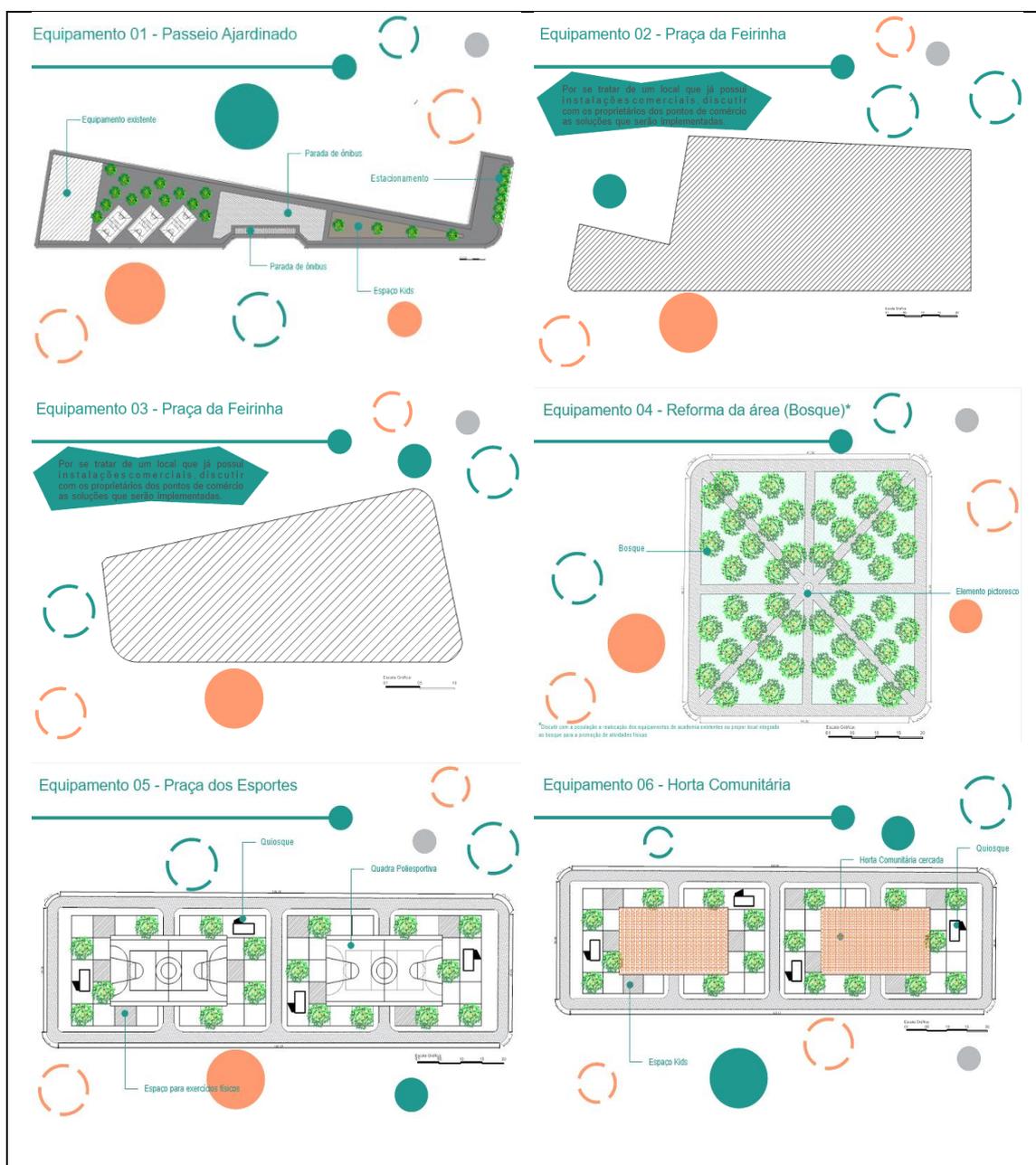
Thus, land tenure plans, urban plans of physical characterization and planialtimetric survey, perimeter, and with specifications of residential areas are directly associated with Sustainable Development Goal 11, given that they present the vulnerabilities of the Complex and enable the planning of appropriate measures for the planning of irregular urban centers, in order to contribute to the social well-being of their occupants.



From the analysis of the products generated in the process of Urban Land Regularization in the Gramoré Housing Complex, proposals for public programs were developed, aimed at the residents of the aforementioned Complex in order to consolidate physical and social well-being, promote the strengthening of health and the enhancement of the local economy.

Six areas have been identified for possible interventions. Figure 10 shows the plans of propositions prepared for the Gramoré Housing Complex.

**Figure 10** | Proposal for urban programs for the Gramoré Housing Complex



Source: Center for Research and Extension Access to Urbanized Land (2022).

The first proposal consists of the implementation of landscaped sidewalks, aiming to make the urban core wooded, contributing to urban sustainability. The second and third proposals are intended to equip two plazas of the Complex. These proposals are directly associated with Sustainable Development Goal 11, especially because they aim at the economic, social, and sustainable development of cities based on community facilities for social interaction.

The fourth proposal aims to renovate the area (Forest) with the preservation of the existing vegetation on the site and the recovery of the sidewalk. The fifth proposal is about consideration for the implementation of a plaza (including the construction of kiosks). Once deployed, the equipment will lead to improvements in physical facilities that will provide safe, inclusive, and effective learning environments for children and adolescents.

The sixth proposal consists of the implementation of a community garden that functions as a point of social inclusion and helps in the fight against hunger, ensuring the promotion of sustainable agriculture and ensuring the production of food for the local community, especially low-income families that fit into the Reurb-S modality, in which the Ensemble was framed. The implementation and development of these activities mitigate the serious problems of cities, especially those related to the environment (Alves; Moura; Schultz, 2019).

As can be seen, Urban Land Regularization is associated not only with Sustainable Development Goal 11, but is integrated with the other Sustainable Development Goals, so that, together, it is possible to envision the achievement of urban and social sustainability (Gomes; Ferreira, 2018).

The descriptive memorials (georeferenced and subdivision) of the land contain the name of the center, its origin, location, total area, perimeter, registration number, georeferenced perimeter description, subdivision data, land situation, infrastructure information, services, caveats, and recommendations.

It is noteworthy that, in addition to the memorials of the land, there are the descriptive memorials of the lots containing specifications of the properties (identification of the lot number, location of the complex or allotment, neighborhood, city, county, block, street, total area, perimeter and area of the building and georeferenced perimeter description); polygonal area of the lot (with its perimeter measurements, total area, borders, description of the coordinates in a frame and graphic scale) and location plan of the lot in the block. There are also memorials of the open



spaces, institutional areas, state public areas and equipment areas.

As can be seen in the descriptive memorandum of the Complex, Gramoré is almost entirely covered by the general water supply network promoted by the Water and Sewage Company of Rio Grande do Norte (CAERN). With regard to sanitary sewage, it can be seen that there is a cover implemented in half of the Complex, but not operational. Individual solutions are found in almost the entire Complex. As can be seen, measures are needed to ensure, in an integrated manner, the development of activities and programs related to water and basic sanitation, in order to ensure the achievement of SDG 11 (Djonú *et al.*, 2018).

The Gramoré Housing Complex is fully paved (asphalt pavement on the main and secondary roads and cobblestone on the others) and has surface drainage on all paved roads. Solid waste is collected by the cleaning service offered by the Municipality of Natal, which encompasses almost completely the referred Complex.

The Urban Land Regularization aims, among other benefits to the occupants of the urban centers object of its execution, to guarantee the provision of public services that improve environmental and urban conditions. Thus, access to essential services such as the collection of solid waste must be observed in Urban Land Regularization, as these are activities that add to the achievement of Sustainable Development Goal 11.

The Gramoré Complex is completely covered by the electricity network provided by the Energy Company of Rio Grande do Norte (COSERN) and is fully served by the public lighting service, which contributes to Sustainable Development Goal 11, especially with regard to universal access to clean energy services and to illuminated and safe public spaces and public places.

From the descriptive memorial of the subdivision, it is also noted that the Gramoré Housing Complex has health, education, and leisure equipment. The provision of basic health and primary care services to the residents of the Complex makes it possible to ensure the eradication of waterborne diseases and epidemics; tackling poor hygiene and unsafe sanitation; in addition to ensuring the distribution of products related to sexual and reproductive health.

The implementation of public education institutions and leisure facilities (sports and community squares) provides Gramoré residents with access to quality public education from childhood to adolescence and access to sports and leisure by diverse groups, ensuring citizenship and social inclusion for present and future generations, contributing to the realization of the right to the city and SDG 11.

One of the potentials of the Reurb policy is to shorten the path of identification of irregularities concerning urban, legal, and environmental standards (Torres, 2019). Thus, the implementation of its procedure in informal urban centers of Brazilian municipalities demonstrates the fulfillment, in the local context, of the sustainable development goals, specifically SDG 11.

Therefore, it is evident that informal urban centers must be submitted to Urban Land Regularization in order for the right to the city to be realized (Reis; Oliveira, 2017). The Reurb of the Gramoré Housing Complex is an example of the materialization of inclusive public policies that aim to overcome the challenge of urban land irregularity. Attributing this instrument to governance in the construction of sustainable cities realizes the right to the city of the population benefiting from the policy and expands human beings' access to sustainable, intelligent, and inclusive urban environments (Ahvenniemi *et al.*, 2017; Botton *et al.*, 2021).

## FINAL THOUGHTS

Urban Land Regularization is a fundamental element in the process of realization and development of the right to a sustainable city. In the modality of social interest, the Urban Land Regularization serves the population with low purchasing power, expanding access to adequate housing and the full development of the city's social functions, aspects that are being achieved in the reality of the Gramoré Housing Complex, Lagoa Azul Neighborhood, Natal/RN, implemented in 1983, but still in an irregular situation with the prospect of change only starting in 2018.

This concrete possibility of changing the panorama of irregularities happened through the partnership established between the Government of the State of Rio Grande do Norte (from the Housing and Urban Development Company of Rio Grande do Norte) and the Federal Rural University of the Semi-Arid Region, with the execution of activities by the Center for Research and Extension



Access to Urbanized Land.

The products generated in the Urban Land Regularization of the Gramoré Housing Complex allow subsidizing the organization of urban planning through the information developed by the work of the technical team, as is the case of the descriptive memorial that details the entire infrastructure of the Complex.

Therefore, the analysis of the process of Urban Land Regularization of Social Interest in the Gramoré Housing Complex allowed the identification of the existing needs in the Complex, which enabled the elaboration of actions and proposals aimed at structuring the collective urban spaces of the center, contributing to the achievement of Sustainable Development Goal 11, especially with regard to universal access to housing, basic infrastructure services, social inclusion and a better quality of life for the local population and the environment.

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