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Participatory Master Plan of the Municipality of Petrolina and Sustainable Development Goals (SDG): a necessary dialogue for sustainable territorial development

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Abstract

This paper aims to analyze the Participatory Master Plan of the municipality of Petrolina as a local development policy and its dialogue with the Sustainable Development Goals (SDGs) present in the 2030 Agenda with a view to achieving sustainable territorial development. Through a qualitative bibliographical study and document analysis, it was possible to understand and identify convergences of the themes of sustainable development and territorial development policies, as well as crossings of the SDGs and proposals of the Master Plan analyzed. It was evidenced that, of the 17 (seventeen) objectives agreed upon in the 2030 Agenda, 13 (thirteen) are included in the drafting of the Master Plan, although, by the analysis of the Sustainable Development Index of Cities - Brazil (IDSC-BR), only 2 (two) were fully achieved. The study revealed that most SDGs are present in the Municipality management planning, but have not been effectively implemented at the municipal level. In this perspective, it will be necessary to deepen this dialogue between the Manager Plan of the Municipality and practical actions for the effective fulfillment of the SDGs with the participation of governments, civil society, and private initiative.

Keywords: Territorial development policy. Sustainable Development Goals. Participatory Manager Plan

Plano Diretor Participativo do Município de Petrolina e Objetivos de Desenvolvimento Sustentável (ODS): um diálogo necessário para o desenvolvimento territorial sustentável
Resumo

O presente trabalho tem como objetivo analisar o Plano Diretor Participativo do Município de Petrolina (PE), enquanto política de desenvolvimento local, e seu diálogo com os Objetivos de Desenvolvimento Sustentável (ODS) presentes na Agenda 2030 com vistas ao alcance do desenvolvimento territorial sustentável. Por meio de estudo qualitativo de caráter bibliográfico e análise documental foi possibilitada a compreensão e identificação de convergências das temáticas de desenvolvimento sustentável e políticas de desenvolvimento territorial, bem como cruzamentos dos ODS e proposições do Plano Diretor analisado. Evidenciou-se que, dos 17 (dezessete) objetivos pactuados na Agenda 2030, 13 (treze) estão contemplados na redação Plano Diretor, embora, pela análise do Índice de Desenvolvimento Sustentável das Cidades - Brasil (IDSC-BR), apenas 2 (dois) foram integralmente atingidos. O estudo revelou que a grande maioria dos ODS estão presentes no planejamento da gestão municipal, mas não foram implementados efetivamente no âmbito do Município. Nessa perspectiva, far-se-á necessário aprofundar esse diálogo entre o Plano Diretor do Município e ações práticas para o efetivo cumprimento dos ODS com participação do governo, sociedade civil e iniciativa privada.

Palavras-chave: Política de desenvolvimento territorial. Objetivos de Desenvolvimento Sustentável (ODS). Plano Diretor Participativo do Município de Petrolina (PE).

Plan Director Participativo del Municipio de Petrolina y Objetivos de Desarrollo Sostenible (ODS): un diálogo necesario para el desarrollo territorial sostenible
Resumen

Este trabajo tiene como objetivo analizar el Plan Gestor Participativo del Municipio de Petrolina como política de desarrollo local, y su diálogo con los Objetivos de Desarrollo Sostenible (ODS) presentes en la Agenda 2030 con miras a lograr un desarrollo territorial sostenible. A través de un estudio bibliográfico cualitativo y análisis de documentos, fue posible comprender e identificar convergencias de los temas de desarrollo sostenible y políticas de desarrollo territorial, así como cruces de los ODS y propuestas del Plan Gerente analizado. Se evidenció que, de los 17 (diecisiete) objetivos acordados en la Agenda 2030, 13 (trece) se incluyen en la redacción del Plan Director, aunque, por el análisis del Índice de Desarrollo Sostenible de las Ciudades - Brasil (IDSC-BR), solo 2 (dos) se lograron en su totalidad. El estudio reveló que la mayoría de los ODS están presentes en la planificación de la gestión del Municipio, pero no se han implementado de manera efectiva a nivel municipal. En esta perspectiva, será necesario profundizar este diálogo entre el Plan Director del Municipio y las acciones prácticas para el efectivo cumplimiento de los ODS con la participación del gobierno, la sociedad civil y la iniciativa privada.

Palabras clave: Política de desarrollo territorial. Metas de desarrollo sostenible. Plan Gestor Participativo.

1 Introduction

Both in the urban and rural environments, territorial development requires a broad understanding of public policies, beyond mere economic growth, taking into account the social, cultural, and environmental dimensions and in agreement with sustainability, the great global challenge that led the United Nations (UN) to propose

the Sustainable Development Goals (SDG) through the 2030 Agenda, consisting of common objectives to be achieved by all countries in order to promote a sustainable development aligned to worldwide needs. The full viability of these goals requires their approach on a global scale, but especially in the local context, in development territories and regions through management and public policies implemented in the several areas encompassed by the SDGs.

In the regional development scenario of northeastern Brazil, the Integrated Development Administrative Region (RIDE) of Petrolina (PE)/Juazeiro (BA) represents the most important and dynamic irrigated fruit farming area in the Northeast region of Brazil, enabling high social development rates due to the generation of jobs and income in the region (LIMA; SOUSA, 2017). However, this development is not homogenous for the eight municipalities in the RIDE, with the municipality of Petrolina standing out with the largest economic dimension, showing agricultural and commercial activities represented in some sectors of the international market. Furthermore, the city of Petrolina is located along the banks of the Sub-middle region of the São Francisco River, in the semi-arid region of northeastern Brazil, where this water resource is the main inducer of the development of irrigated fruit farming and electricity generation.

In addition to the economic growth identified in the region, it is essential for municipal planning to occur while aligned to sustainability issues, trespassing the social, cultural, educational, and health dimensions and promoting a truly sustainable territorial development. From this perspective, one might ask: is the Participatory Master Plan of the municipality of Petrolina in dialogue with the SDGs established by the UN 2030 Agenda towards sustainable territorial development? Therefore, this study aimed to analyze whether the Participatory Master Plan of the municipality of Petrolina is in agreement with the SDGs established by the UN 2030 Agenda towards sustainable territorial development.

The present study provides insights on how the municipality of Petrolina has fostered sustainable territorial development through its Participatory Master Plan in order to meet the economic, social, and environmental dimensions of the 2030 Agenda. The Participatory Master Plan of Petrolina is a recent policy established in 2022 by Complimentary Law No. 034/2022. The previous plan had been released in 2006, in accordance with the Municipal Law No. 1,875/2006.

2 An approach on territorial development policies

Brazil has been historically marked by economic exploitation and the concentration of income and capitalist means of production, which has contributed to widening the social gap. Even in the first half of the 20th century, the Brazilian State prepared a nationalist development policy directed at urbanization and industrialization as alternatives to economic growth, aiming at removing the country from the backwardness of the rural economy. However, in the term of President João Goulart (1961-1964), a public debate was initiated to address the issue of regional development and territorial planning as a State policy for Brazil.

The main ideas of regional development come from the economist Celso Furtado, who, according to Silva (2016), believed that overcoming regional inequalities could be achieved through political processes. Thus, the institutional trajectory of the

National Policy for Regional Development is marked by plans and programs for the development of Brazilian infrastructure.

[...] What has changed over time are the more recent operational instruments of planning and intervention, which are derived from a process of decentralization and decrease of the Union's central political power in recent decades. Recent political and economic transformations have opened new fronts for debate regarding regional development and territorial planning in Brazil, allowing for some advances, but also making strong restrictions derived from the Brazilian federative model itself (SILVA, 2016, p. 353).

According to Marini and collaborators (2020), the regional and territorial discussions have gained strength after the 2000s. It was in this decade that public policies for the development of rural territories advanced thanks to the political context formed by progressive and leftist governments that took power in Latin America, particularly in Brazil (SABOURIN, 2018). Taking advantage of the window of opportunity, the National Policy for Regional Development (PNDR) was instituted in 2003.

Territorial development policy and underlying programs

The Brazilian Federal Constitution of 1988 elevated Brazilian municipalities to the status of federated entities, but only in 1995 did the Master Plan for Administrative Reform of the Federal Government transfer the political, administrative, and fiscal responsibilities that were concentrated in the Union to the local plan. Political decentralization was thus possible, causing the redistribution of power and access to fiscal resources aimed at expanding democratic governance and social participation in order to improve the management of public resources and State action with the beneficiary population. However, some weaknesses in the decentralization processes made it difficult to coordinate public policy actions in the regions due to inadequacies in the municipalities' infrastructure to take on new responsibilities, but they did not prevent the incorporation of new concepts in the political decentralization process, e.g., the territorial approach on the governmental agenda (CEPAL, 2000).

For Kato, Delgado & Romano (2022), the territorial approach also entered the agenda of international organizations such as the Food and Agriculture Organization (FAO), the Organization for Economic Co-operation and Development (OECD), and the World Bank, which develop actions aimed at rural development, justified by the previous and current concern with the increase in poverty in the field, the extensive use of Green Revolution technology and its environmental consequences (pollution, soil degradation, use of agrochemicals, etc.), the worsening of climate change, neoliberal policies, and the reduction of the role of the State in guaranteeing well-being and social services to the vulnerable population.

From this perspective, the territorial approach presents new elements for overcoming the traditional view of the rural environment as a purely productive space. The focus on the multi-functionality of family farming and the territorial perspective were studied by Bonnal & Maluf (2009, p. 13):

Both approaches on the multiple roles of agriculture and on territories, underlie the manifestations of “non-productivist” rhetoric that have multiplied in Brazil – as well as in various parts of the world – in tension with the hegemonic language of agribusiness. These manifestations express concerns with questions of social equity and environmental sustainability, at the same time that they are bearers of “new” themes or perspectives on agricultural activity and the rural world, e.g., gender and generational issues, agroecological models that question relationships with nature, the Amazonian problem, and specific propositions for rural black *quilombola* communities and indigenous peoples. Thus, it is assumed that the adoption of the territorial perspective and the appropriation of the MFA [multi-functionality of family farming] approach contribute to addressing the issues mentioned above [...].

The recognition of Brazil as one of the most successful experiences compared to other neighboring countries in Latin America is reiterated in the academic literature in relation to the model of territorial policies focused on family farming, the fight against rural poverty, and the strengthening of Food and Nutrition Security (SABOURIN, 2018). According to Kato, Delgado & Romano (2022), countless experiences on territorial development were shared in Mexico, Bolivia, Colombia, Ecuador, and Brazil in the last decade. The authors also point out the Brazilian experience as one of the most important in the field of territorial policies through the creation of the Secretariat for Territorial Development of the Ministry of Agrarian Development, the National Program for Sustainable Development of Rural Territories (PRONAT), the Territories of Citizenship Program (PTC), in addition to other programs such as *Fome Zero* (Zero Hunger), which were guided by the territorial approach (ANTUNES JUNIOR; BORSATTO; SOUZA-ESQUERDO, 2021).

However, after the impeachment process of President Dilma Rousseff, in 2016, the body that managed the territorial development policy and related programs was dismantled. Nevertheless, the territorial approach remains relevant for the construction of territorial policies at the state and municipal levels, such as the recent Municipal Policy for Sustainable Territorial Development in Petrolina (PE) - Participatory Master Plan, the object of analysis of this study and, by extension, for the agroecological movement and local food systems (ANTUNES JUNIOR, BORSATTO, SOUZA-ESQUERDO, 2021; KATO, DELGADO, ROMANO, 2022), and for the implementation of small and medium-sized companies, industrial centers, and innovation in science and technology.

The planning policy of the Territory of Petrolina (PE) is contemplated in Complementary Law No. 034/2022, which institutes the new Participatory Master Plan of the city. In its article 2, the Participatory Master Plan of Petrolina is placed as a basic instrument of the municipal policy of sustainable territorial development for the entire territory of the municipality, comprising urban and rural areas (PETROLINA, 2022).

The Territory of Petrolina has an important economic dynamism due to activities such as irrigated fruit farming, wine production, goat raising, and tourism, among others. On the other hand, there are family farmers from the irrigated perimeters and rainfed areas, the riverside population, and traditional communities that need actions from the public power that encompass social inclusion and the multi-functionalities of the rural area.

Therefore, to refer to the territory as a heterogeneous and dynamic geographic space is to understand it as a multidimensional field that encompasses the economic, social, environmental, cultural, political, and institutional aspects, but also different social groups that coexist through power relations, conflicts, and competition (ANTUNES JUNIOR; BORSATTO; SOUZA-ESQUERDO, 2021). Therefore, designing a local development model is making a choice between existing models: exogenous or endogenous? In the traditional and homogeneous (exogenous) model, the accumulation of physical capital is emphasized as the driving force of economic growth. In endogenous practices, as Arraes & Teles (2000) point out, other variables are included, such as the capacity of social actors (human capital), the valuation of resources, and local vocations as a driving force of economic development.

Antunes Junior, Borsatto & Souza-Esquerdo (2021) emphasize that the endogenous practices that emerge from the interests of local actors and are adapted to the territories are anchored in the regional development approach that surfaced during the devolution of power, after the country's re-democratization, and have decentralized territorial policy actions aligned with the local potential to promote social inclusion, combat poverty, and engage citizen participation. Actions of direct incidence in the territories, e.g., PRONAT, PTC, in addition to the Zero Hunger and Growth Acceleration Programs (PAC) were well detailed in the study of Antunes Junior, Borsatto & Souza-Esquerdo (2021), including the limitations found in the Territories of Citizenship Program (KATO; DELGADO; ROMANO, 2022).

In turn, sustainable development emerged due to the crisis of environmental resources, which revealed the need to think about territorial development policies by taking into account not only aspects of economic productivity, but social inclusion and care for conservation and maintenance of ecosystems. For Mendonza Morejon, Lima & Del Bianco (2018, p. 93), sustainability indicators at a territorial scale constitute an information system that allows the assessment of progress with regard to environmental, social and economic issues. The formation of an index with sustainability indicators serves to measure territorial behavior, evaluate the progression of regions, and compliance with proposed goals and objectives for socioenvironmental balance.

As an initiative to achieve sustainable development, the UN has drafted 17 goals that address the main development challenges facing the world and make a global call to end poverty, protect the environment, the climate, and ensure that people in all places can enjoy peace and prosperity. It is essential that municipal territorial policies, such as the Municipal Policy for Sustainable Territorial Development of Petrolina (PE) - Participatory Master Plan, are aligned with the Sustainable Development Goals.

3 Sustainable Development Goals - ODS

The establishment of the SDGs took place in the 2030 Agenda for Sustainable Development, a document published in 2015 by the UN. This agenda is a result of the United Nations Conference on Sustainable Development, Rio+20, which took place in Brazil in 2012 and continued a sequence of past events and initiatives to unite nations around the global effort towards sustainability and human rights.

These objectives are not limited to the environmental issue and have participatory and integrative work as the basis for the success of their implementation. As Santos (2018, p. 15) points out, the SDGs 'seek to realize human rights and achieve gender equality and the empowerment of women and girls, integrating and balancing the three dimensions of sustainable development: economic, social, and environmental'. From the perspective of the SDGs, sustainable development presupposes a global partnership between countries, public and private sectors and society to take care of the planet and people, thus achieving social prosperity and peace. Below are described the 17 Sustainable Development Goals:

- ODS 1 - End poverty in all its forms everywhere;
- ODS 2 - End hunger, achieve food security and improved nutrition and promote sustainable agriculture;
- ODS 3 - Ensure healthy lives and promote well-being for all at all ages;
- ODS 4 - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;
- ODS 5 - Achieve gender equality and empower all women and girls;
- ODS 6 - Ensure availability and sustainable management of water and sanitation for all;
- ODS 7 - Ensure access to affordable, reliable, sustainable and modern energy for all;
- ODS 8 - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- ODS 9 - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation;
- ODS 10 - Reduce inequality within and among countries;
- ODS 11 - Make cities and human settlements inclusive, safe, resilient and sustainable;
- ODS 12 - Ensure sustainable consumption and production patterns;
- ODS 13 - Take urgent action to combat climate change and its impacts;
- ODS 14 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
- ODS 15 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss;
- ODS 16 - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels;
- ODS 17 - Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.

Achieving the SDGs at the global and local levels requires active collaboration between public authorities, the private sector, and society in general. The sustainable development of territories is entirely conditioned to the integration of these objectives into local policies and municipal planning, which need to have practical actions in their instruments for the development of sustainable cities and communities.

According to Leite (2012), sustainable cities reinvent themselves in an intelligent way, including nature as part of their structure, thinking about the ecology of the city. Thus, they meet the needs of their population in different aspects (environmental, physical, social, etc.), providing access to services, preserving the city's resources and the environment without ignoring economic development. Sustainability, in that regard, permeates the environmental issue as thinking about sustainable cities is thinking about urban planning as a whole, in a continuous and long-term way.

The New Urban Agenda of the United Nations Program for Human Settlements (UN-Habitat) points to urbanization, when well planned, as an important tool to drive the sustainable development agenda, otherwise potentiating local problems of poverty, pollution, lack of mobility, sanitation, violence, among others that permeate the municipalities (ONU-HABITAT, 2020).

The New Urban Agenda provides guidelines for the planned urbanization process that can facilitate the achievement of the SDGs and their various goals involving policies, legislation, finances, and urban design that will be defined in the plans and management programs of the municipalities. Goal 11 of the 2030 Agenda makes a more specific reference to urban planning, with the guideline of making cities and human settlements inclusive, safe, resilient, and sustainable:

In order to make cities and human settlements inclusive, safe, resilient, and sustainable, it is necessary to recognize that the management and sustainable development of the urban environment are fundamental for the quality of life of our peoples. It is urgent to work with governments and local communities to renew and plan our cities and human settlements, with the aim of fostering community cohesion and people's security, as well as stimulating innovation and employment, as well as reducing the negative effects of urban activities and chemical substances, which are dangerous to health and the environment (UN BRAZIL, 2018, p. 53).

In this understanding, the challenge of obtaining sustainable cities aligned with the SDGs pervades the integration of these objectives to the main planning instruments of municipalities, e.g., the Master Plan, the Annual Budget Law (LOA), the Budget Guidelines Law (LDO), the Pluriannual Plan (PPA) etc. The municipality's Master Plan is the 'instrument of the urban development policy. Its main objective is to offer conditions for local development by enabling an understanding of the political, economic, and territorial factors related to the municipality' (GUIA..., 2016, p.7).

In order to understand the process of sustainable urban development in the Municipality of Petrolina, it was essential to analyze its Participatory Master Plan expressed in Complementary Law No. 034/2022, which guides action and delimits the competences of public and private agents regarding urban, environmental, and social participation policies.

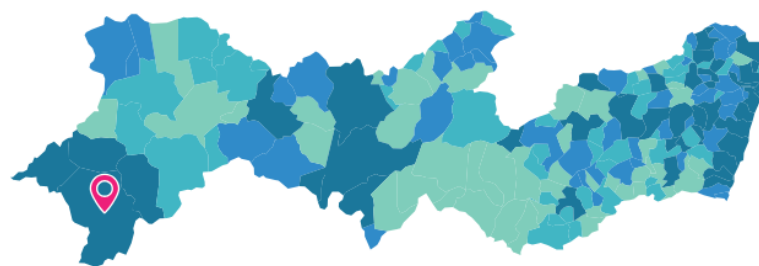
4 Methodology

The analytical reference of this research was the Participatory Master Plan of the Municipality of Petrolina (2022). Based on a qualitative analysis of the document, the items contemplated in the Plan's writing that comply with the SDGs of the UN's 2030 Agenda are pointed out. The methodological approach of the research is of a qualitative nature, combining documental analysis and bibliographical review to gather information on the investigated topic (GODOY, 2015). As for the criteria for choosing the territory of Petrolina (PE), they were:

- I. Endogenous practices that transform socioeconomic conditions;
- II. Insertion of local actors in integrated regional development projects;
- III. An important irrigated fruit growing area in the Brazilian Northeast region, also standing out in the raising of sheep and goats;
- IV. Strong rural reference (agribusiness and family farming);
- V. Economic, cultural, and service dynamism, promoting good quality of life;
- VI. Municipal Sustainable Territorial Development Policy for the entire municipality, including urban and rural areas.

The Municipality of Petrolina is located in the semi-arid region of Northeast Brazil, which shows high social vulnerability, poverty, rainfed areas, and irregular rainfall as its main challenges (KATO; DELGADO; ROMANO, 2022). However, the Territory of Petrolina has a different human development profile in relation to other municipalities distributed in the mesoregion of the São Francisco Territory.

Figure 1 - Map of the State of Pernambuco (with the location of Petrolina highlighted)



Source: IBGE Cities

According to data from the 2010 Census of the Brazilian Institute of Geography and Statistics (IBGE), Petrolina's Municipal Human Development Index (MHDI) is 0.697 on a scale of 0 to 1, indicating an average status close to high in the human development range. As for the territorial dimension, the municipality of Petrolina has an area of 4,562 km²; a population of 386,786 people (2022 Census - available at: <https://censo2022.ibge.gov.br/panorama/index.html>). It is a medium-sized city that has received strong investment in infrastructure over the years, boosting economic growth, as can be seen in the passage of Azevedo and Alves (2010, p.97):

It was from the 1960s onwards that the Federal Government made massive investments in irrigated perimeters in the Northeast, especially those at the Petrolina-Juazeiro Pole, in the São Francisco Valley. They were centralized actions carried out during the military regime. Highways were built to connect the area to the main northeastern capitals, a bridge between Petrolina and Juazeiro, the São Francisco River waterway, and the Petrolina airport. To make the irrigation projects viable, there were investments in the electricity sector, with the implementation of the Sobradinho hydroelectric plant, and incentives for the private sector with the creation of public and specific funds for access to credit for producers, such as the Northeast Investment Fund (FINOR) and the Northeast Financing Constitutional Fund (FNE). Currently, the region is a hub for the technological development of irrigated fruit farming, implemented by the Northeast Development Superintendence (SUDENE), the Development Company of the São Francisco and Parnaíba Valleys (CODEVASF), and by the private sector, with the support of the Brazilian Agricultural Research Corporation (EMBRAPA).

In order to subsidize the development of the municipality of Petrolina, its first Master Plan was drawn up in 2006, according to the guidelines established in Article 2 of Federal Law No. 10,257/2001 of the City Statute. In 2022, the new Master Plan was instituted as a territorial policy with the perspective of adherence to sustainability, social and productive inclusion, in addition to improving mobility.

5 Participatory Master Plan of Petrolina as a policy for sustainable territorial development

The first Master Plan for Petrolina dated from 2006 and was effective for the next decade. However, the first revisions only began to take place in 2018, under the coordination of the Municipal Secretariat for Urban Development, Housing, and Sustainability, after the authorization of the service order for contracting a specialized consulting firm to prepare the new project and training the technical team to monitor the construction of the proposed project. However, activities were suspended in 2020, during the Covid-19 Pandemic, and resumed in 2021, when the City's Legislative House received the new Participatory Master Plan project for public hearings with the population and representatives from various bodies, e.g., the Department of Urban Development, CODEVASF, the Public Attorney's Office, the Petrolina Builders Association, among others (AUDIÊNCIA..., 2021).

But on what legal bases is a Master Plan established? The Federal Constitution of 1988 establishes that the urban development policy has the purpose of ordering the full development of the social function of the city in order to guarantee the well-being of its inhabitants, defining that the basic instrument of this policy is the Master Plan (article 182 and in §1) (BRASIL, 1988). In 2001, there was the regulation of the Urban Policy chapter of the CF/88 through Federal Law No. 10.257/2001, the City Statute, with emphasis on Art. 2 and its paragraphs:

Art 2º. Urban policy aims to organize the full development of the social functions of the city and urban property through the following general guidelines:

I – guarantee of the right to sustainable cities, understood as the right to urban land, housing, environmental sanitation, urban infrastructure, transport and public services, work and leisure, for present and future generations;

II – democratic management through the participation of the population and associations representing the various segments of the community in the formulation, execution and monitoring of urban development plans, programs and projects;

III – cooperation between governments, the private sector and other sectors of society in the urbanization process, in compliance with the social interest;

IV – planning for the development of cities, the spatial distribution of the population and the economic activities of the Municipality and the territory under its area of influence, in order to avoid and correct distortions of urban growth and its negative effects on the environment;

V – offer of urban and community facilities, transport and public services suited to the interests and needs of the population and local characteristics;

VII – integration and complementarity between urban and rural activities, bearing in mind the socioeconomic development of the Municipality and the territory under its area of influence (BRASIL, 2001).

It should be noted that the democratic management system provided for in the Citizen's Constitution of 1988 provides for the participation of society in various fields of Public Administration, following the example of art. 29, item XII, which deals with the cooperation of representative associations in municipal planning.

In this context, the preparation of the Master Plan became mandatory for Brazilian municipalities in 2001. However, when analyzing the territorial development policy of the municipality of Petrolina/PE, it appears that this was started in the 1960s, when the first guidelines with a view to its sustainable urban growth were defined. After a few decades, the Petrolina Master Plan has already undergone two updates, the most recent being implemented by Complementary Law No. 034/2022, which instituted the new Participatory Master Plan of the Municipality of Petrolina/PE.

The new Participatory Master Plan of the Municipality of Petrolina is a basic instrument of the territorial development policy that guides the performance of the public administration and the private sector in order to ensure the full orderly development of the social functions of the city and property, the improvement of the quality of life, and the well-being of the population, according to the principles of participatory democracy and social justice.

According to the Master Plan, the full ordering of the development of social functions of the city will take place through public norms of social interest in favor of the community, social well-being and environmental balance (PETROLINA, 2022).

Petrolina's Master Plan sets its foundations, principles, guidelines, and defines strategic objectives as the main instrument of urban and environmental policy, contemplating in its normative text important guidelines such as sustainability, social and productive inclusion, mobility, and the management of society on the municipal territory (Art. 1).

With regard to the fundamentals that form the conceptual basis of Petrolina's Master Plan, the following deserve mention: municipal development, considering the city's strategic location in the Sertão do São Francisco region and in the State of

Pernambuco; and the city's vocation as a regional leader integrating the Petrolina/PE and Juazeiro/BA RIDE.

In other words, the urban and environmental policy of the Municipality of Petrolina, in compliance with the precepts of the City Statute (Law 10,257/2001), aims at ordering the full development of the municipality and is guided by the following principles: i. social function of the city; ii. property function; iii. urban sustainability; iv. democratic and participatory management (Art. 7º).

As for the social function of the city, the master plan of the municipality of Petrolina adds, at this point, that it corresponds to the right to the city for all. In this sense, the municipality of Petrolina fulfills the social function of the city when it meets the express requirements provided for in art. 9 of Complementary Law 034/2022, guaranteeing the population:

- I. The right to urbanized land and housing;
- II. Appropriate conditions for carrying out economic, social, and cultural activities;
- III. Access to education, health, and social assistance services;
- IV. Decent living conditions;
- V. Accessibility and mobility, with quality public transport;
- VI. Meeting the demand for infrastructure, public and community services, including at least water supply, sewage and electricity;
- VII. Environmental protection, with conservation, recovery and protection of the natural environment;
- VIII. The appreciation of the historical, artistic and cultural heritage and the referential values of the Municipality's history;
- IX. The rehabilitation and use of empty or idle urban areas.

As for the function of the property, the Master Plan ensures that the needs of citizens are met in terms of quality of life, social justice, and the development of economic activities, respecting the guidelines provided for in the City Statute and municipal urban legislation (Art. 10).

Sustainability is translated in the Master Plan as a socially fair, environmentally balanced, and economically viable local development, aiming to guarantee quality of life for present and future generations (Art. 12).

As for democratic and participatory management, the master plan provides for the participation of different segments of society in its formulation, execution, and follow-up. In this regard, the Master Plan of the Municipality of Petrolina was built with primacy on social participation, after extensive discussions with society, being debated in various spheres, from public hearings with community organizations to sessions of the Legislative House of Petrolina (Art. 13).

In addition to the aforementioned fundamental principles, in accordance with art. 3 of Complementary Law 034/2022, are also premises of the Municipal Master Plan of Petrolina: the improvement of the quality of life; the well-being of the population; social inclusion; the reduction of poverty; and the expansion of job opportunities and income.

The contributions of the Participatory Master Plan to the achievement of the Sustainable Development Goals (ODS)

In the new Master Plan, the structuring axes of territorial planning deserve to be highlighted: a) *Ambience* - reserves of green areas such as ecological corridors, parks, squares, and trees; b) *Mobility* - implementation of a bicycle path, widening and adaptation of sidewalks to improve accessibility; and c) *Urban dynamics* - population balance between the urbanized areas located in the city and the rural area (AUDIÊNCIA..., 2021). In a comparative analysis with the previous document, the deletion of the chapter on Social Policies was identified, which covered, in more detail, sensitive topics such as: Safety, Education, Professional Education, People's Health and Public Health, Urban Accessibility, Housing, Tourism, Culture and Leisure, Social Assistance, and Income Generation. However, the topics on urban accessibility and Housing were redirected to the Mobility and Urban Dynamics axes, respectively.

It is possible to verify that, although they are not included as specific sections of the current document, the topics are pointed out throughout the text, especially in the chapter of fundamental principles, which did not appear in the previous version, through the following excerpts: Art. 14, item V - Ensuring the use of urban and rural property for the benefit of the community, the safety and well-being of citizens, as well as environmental balance; Art. 9, item III - Access to education, health and social assistance services; and item IV - Ensuring accessibility and mobility for all citizens; Art. 10, item I - Housing, especially social interest housing and item II - Economic activities that generate employment and income (PETROLINA, 2022). All these points are directly related to the ideals of the 2030 Agenda and the achievement of the Sustainable Development Goals.

From a theoretical point of view, analyzing the Participatory Master Plan of the Municipality of Petrolina in the light of the SDGs, it was possible to show that of the 17 (seventeen) SDGs agreed in the 2030 Agenda, 13 (thirteen) are contemplated in the writing of the new Municipal document directly as main objectives of the policy:

Table 1 - Correlation between the Participatory Master Plan of the Municipality of Petrolina and the SDGs

Sustainable Development Goals (SDGs)	Participatory Master Plan of Petrolina/Complementary Law 034/2022
SDG 1 - End poverty in all its forms everywhere	Art. 15: II - Promote the well-being and improving the quality of life of the population, social inclusion, reducing poverty and expanding opportunities for work and income.
SDG 3 - Ensure healthy lives and promote well-being for all at all ages	Art. 15: II - Promote the well-being and improving the quality of life of the population, social inclusion, reducing poverty and expanding opportunities for work and income.
SDG 6 - Ensure availability and sustainable management of water and sanitation for all	Art. 15: III - Promote the improvement of living conditions, through access to urbanized land, environmental sanitation, urban infrastructure, public services, public transport and community facilities.
SDG 8 - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Art. 15: II - Promote the well-being and improving the quality of life of the population, social inclusion, reducing poverty and expanding job and income opportunities; XVI - Encourage the development of economic activities that generate employment, work and income.
SDG 11 - Make cities and human settlements inclusive, safe, resilient and sustainable	Art. 15: I - Promote the full development of the city's social functions and urban property, guaranteeing the right to a sustainable city; II - Promote the well-being and improvement of the population's quality of life, social inclusion, poverty reduction and expansion of job and income opportunities; VI - Promote the identification of environmental preservation areas and the development of actions for sustainable management.
SDG 12 - Ensure sustainable consumption and production patterns	Art. 15: XX - Promote the use of land in rural areas directed to rural families and cooperative activities linked to primary production through integrated and planned public action.
SDG 15 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Art. 15: V - Promote the appreciation, protection, and preservation of the environment and landscape, promoting the proper use of natural resources; VI - Promote the identification of areas of environmental preservation and the development of actions for sustainable management; IX - Promote the ordering and control of land use and occupation with a view to respecting and valuing green areas, ensuring the city's afforestation and soil permeability and the proper use of public spaces.

Source: Research data (2023)

With regard to the following Sustainable Development Goals: SDG 4 - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all; SDG 7 - Ensure access to affordable, reliable, sustainable, and modern energy for all; SDG 9 - Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation; SDG 13 - Take urgent action to combat climate

change and its impacts; SDG 14 - Conservation and sustainable use of oceans, seas and marine resources for sustainable development; SDG 16 - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels, although they are not listed among the main objectives of the Participatory Master Plan of the Municipality of Petrolina, they are assured to the population of Petrolina in the urban and environmental policy of the Municipality in articles 9 and 10 of the Master Plan.

In the update of the Master Plan, as pointed out in the Public Hearing to discuss the document (AUDIÊNCIA..., 2021), some relevant points were considered, resulting in a document with wording aimed at including guidelines aligned with the SDGs. Among these relevant points is the indication of green areas and natural soils to mitigate environmental impacts in urban areas (Art. 17, IV), e.g., squares and urban parks, which are directly consistent with SDG 11, 13 and 15., the Josefa Coelho Park and Municipal Stadium, where 25% of the natural soil must be preserved (Art. 40).

Proposals for sustainable cities and the proper use of natural resources are fundamental for achieving sustainable territorial development. In Petrolina, Law No. 3618 of May 2, 2023 provides for the Municipality's Urban Afforestation Plan and seeks to enhance actions for the implementation and maintenance of urban green areas. In the 2010 IBGE census, the city already had 91.5% of afforestation on public roads. The possibility of creating Permanent Preservation Areas (APP) by the municipal government, by means of law, established in the Plan (Art. 34), is also a measure aimed at preserving water resources, the landscape, biodiversity and ensuring the well-being of the population (ODS 3).

Another point is the integration of different types of transport, favoring non-motorized travel, adapting for accessibility and expanding the range of sidewalks (from 1.5m to 2m), thus favoring the mobility, quality of life, and well-being of the population, directing actions for SDGs 3 and 11. Changes in the requirement for parking spaces to encourage the use of alternative transport and the demand for bicycle parking spaces in properties are some of the Plan's actions. The city has invested heavily in mobility and currently has an extensive range of cycle paths that contribute not only to urban mobility, but also to the safety of cyclists, reduction of environmental pollution and incentive to health. Other highlights of the update are the recognition of villages in the irrigated perimeters as urban centers in rural areas, establishment of a historic preservation zone to preserve memory and identity, the balancing of population density, occupation of urban voids, etc., (AUDIÊNCIA..., 2021).

From the point of view of achieving the SDGs, the city of Petrolina obtained, in 2022, the best performance in Pernambuco and the 9th place in the Northeast in the Evaluation made by the Index of Sustainable Development of Cities - Brazil (IDSC-BR), which evaluates the sustainable development policies of Brazilian municipalities regarding their compliance with the 17 Sustainable Development Goals established by the UN.

This assessment is carried out by the Sustainable Cities Institute (ISC), within the scope of the Sustainable Cities Program, and uses 100 indicators to monitor municipal performance in the 17 SDGs agreed in the 2030 agenda, with a view to tackling the main global problems. The IDSC-BR panels

(<https://idsc.cidadessustentaveis.org.br>) provide a visual representation of the performance of each city in the 17 SDGs by adopting a color system that indicates the extent to which a municipality is far from achieving the goals (green, yellow, orange, and red). The closer to red, the further from reaching the goal will be the municipality (IDSC-BR).

Based on the results achieved, it can be inferred that the elaboration of a Master Plan in the 60s contributed to Petrolina reaching a prominent position compared to other municipalities in the State of Pernambuco and the Northeast, in terms of the adoption of public policies for the implementation of the UN Sustainable Development Goals. The recent Master Plan of the Municipality imposed guidelines on the occupation of streets, preservation of the environment, sanitation, drainage, among other aspects related to the sustainability and urban mobility of the City, which will guide the next years of the urban and environmental policy of the Municipality of Petrolina.

In spite of the Participatory Master Plan of the Municipality of Petrolina analyzed, contemplating in its wording 13 (thirteen) of the 17 (seventeen) UN Sustainable Development Goals, according to the IDSC-BR, only 02 (two) of the 17 (seventeen) SDGs were fully achieved by the Municipality of Petrolina, as can be seen below in figure 2:

Figure 2 – SDG performance per city in the IDSC-BR - Petrolina (PE)



Source: Cities' Sustainable Development Index (2022)

According to the ISC assessment carried out in 2022, the municipality of Petrolina, first in the State of Pernambuco, obtained a general score of 52.60 out of a total of 100.00, occupying the 1,084th position in the overall ranking of 5,570 municipalities evaluated by the Cities' Sustainable Development Index (AUDIÊNCIA..., 2022). This result demonstrates that there is much to be done by the studied municipality in terms of Sustainable Development and effective fulfillment of the Sustainable Development Goals agreed by the UN.

It can be inferred that there is still a gap between the urban and environmental planning of the municipality consolidated through its participatory Master Plan and the effective fulfillment of the SDGs. However, it is necessary to consider that the update of the Plan dates from 2022, and it is not possible to contemplate in the results of the index possible implementations of actions directed to the new guidelines established in the new document, and this performance is indicated in the IDSC-BR based on the previous Plan. It is important to highlight the need for constant

monitoring of the goals agreed within the scope of the local government, which, although it has shown the best performance in the State of Pernambuco, will still face major challenges to achieve the 17 Sustainable Development Goals by 2030.

6 Conclusions

The adoption of a Participatory Master Plan by Brazilian municipalities, in addition to being mandatory, is of paramount importance to ensure the general well-being of the population and quality of life for present and future generations and for the construction of more sustainable cities.

The present study analyzed the Participatory Master Plan of the Municipality of Petrolina in the light of the SDGs, as a driving instrument for Sustainable Territorial Development. It was demonstrated that the Municipality of Petrolina, as a regional leader integrating RIDE Petrolina/PE and Juazeiro/BA, has an urban planning initiated since the 60s, which has been improved over the years. From the analysis of the Participatory Master Plan of the Municipality of Petrolina (2022), it was possible to show that, of the 17 (seventeen) SDGs agreed in the 2030 Agenda, 13 (thirteen) are contemplated in the writing of the new document.

According to the Cities' Sustainable Development Index, which evaluates the sustainable development policies of Brazilian municipalities with regard to compliance with the 17 Sustainable Development Goals established by the UN, the municipality of Petrolina, in 2022, was in the 1st place in the State of Pernambuco and in the 9th in the Northeast region regarding compliance with the SDGs agreed in the 2030 agenda.

Despite the results presented in the evaluation of the Sustainable Cities Institute, the Municipality of Petrolina fully achieved only 2 (two) of the 17 (seventeen) agreed SDGs, which demonstrates that there are great challenges to be faced by municipal public management from the establishment of the new Plan in 2022.

The challenges faced in order to achieve Sustainable Territorial Development include those related to government public action, with emphasis on issues faced by local public managers to implement and monitor urban and environmental public policies in municipalities since the vast majority of SDGs are contemplated in the writing of the Master Plan, but were not effectively implemented within the scope of the municipality.

From this perspective, it will be necessary to deepen this dialogue between the Master Plan of the municipality and the effective fulfillment of the SDGs, with all sectors involved – governments, civil society, and the private sector, and this theme should be the subject of new studies that aim to translate the defined commitments by the UN in the 2030 agenda, in targets and monitorable indicators within the scope of municipal public management, pointing out the practical actions applied within the scope of the municipality.

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