





Sustainability in practice: a study on the municipal public management of Teresina

A sustentabilidade na prática: um estudo sobre a gestão pública municipal de Teresina

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Abstract: As a result of population growth in large cities, increase in consumption, and, consequently, in production, the bodies responsible for planning, evaluation, and execution of public policies need to implement strategies aimed at environmental preservation and the construction of sustainable cities. The objective of this study is to analyze sustainability actions in the city of Teresina, Piauí. To this end, descriptive-exploratory research was conducted using the Case Study method and qualitative approach. The last Pluriannual Plan prepared for the period from 2014 to 2017 and its reports on the execution of activities in the period were used. The results found allowed the categorization of the actions from a sustainable perspective, also covering the social, economic, and environmental dimensions. The study concluded that there was a prevalence in the actions of the economic sphere, both in the quantity of actions carried out and in resources employed. Therefore, there is a need for greater investments in the environmental and social areas, in order to promote a well-balanced sustainable development.

Keywords: Sustainability; Public Management; Efficiency; Pluriannual Plan; Teresina.

Resumo: Com o crescimento populacional nas grandes cidades, com o aumento do consumo e, conseqüentemente, da produção, os órgãos de planejamento, avaliação e execução de Políticas Públicas precisam acionar ferramentas que visem à preservação ambiental e a construção de cidades sustentáveis. O objetivo deste trabalho consiste em analisar ações de sustentabilidade no município de Teresina, Piauí. Para tanto, realizou-se uma pesquisa com a utilização da técnica do Estudo de Caso, de natureza descritiva-exploratória e abordagem qualitativa. Utilizou-se o último Plano Plurianual elaborado para o período de 2014 a 2017 e os seus relatórios de execução das atividades no período. Os resultados encontrados permitiram a categorização das ações na perspectiva da sustentabilidade, abrangendo, ainda, as dimensões social, econômica e ambiental. Conclui-se que houve uma prevalência nas ações da esfera econômica, tanto em quantidade de ações realizadas como em recursos empregados. Portanto, há necessidade de

maiores investimentos nos campos ambiental e social, a fim de se promover um desenvolvimento sustentável equilibrado.

Palavras-chave: Sustentabilidade; Gestão Pública; Eficiência; Plano Plurianual; Teresina.

1 Introduction

Environmental issues have been discussed for decades and have gained attention with the creation of climate summits and international congresses that address sustainability. Global sustainable actions move far beyond the federal sphere, as they go through the regional scope, in which each action to be taken is linked to its needs and must be seen as settled in that locality. Hence, such measures can, when also applied in other regions, build sustainability in general, thus demonstrating how relevant it is for public management to pay attention to planning in the municipal sphere.

The population growth of large cities, the increase in consumption, and, consequently, in production, impose on public policy planning bodies the need to seek strategies aimed at environmental preservation and the sustainable construction of cities. It is necessary to diagnose, evaluate and overcome the challenges that arise between the central concept of sustainability to be applied and the effectiveness of public policies, which should provide support so that such applications produce the expected effects.

Among the applications, one can mention the Pluriannual Plan (PPA), which suggests and guides the procedures, objectives, and goals for each four-year period for each federative entity, i.e., for municipalities, states, and the federation, which in addition to other objectives, define plans and proposals for sustainable actions. In this context, this research seeks to unveil how public management has promoted sustainability in the municipality of Teresina.

In these terms, this study aims to analyze the sustainability initiatives developed and implemented in the municipality of Teresina, considering the importance of the theme for municipal sustainable development, which is why the study in this regard is relevant. The choice for the city of Teresina as the focus of the study is justified by the fact that this municipality possesses a large population concentration in its urban area, representing about 94.3% of the population residing in 19% of the municipal territory area (SEMPPLAN, 2021).

Due to the high demographic density of the city, rivers are highly damaged from the discharge of sewage, and according to the Municipal Secretariat of Environment (Teresina, 2021), 50% of the places that are inspected are polluted. Nevertheless, there are other impacts that can be mentioned, such as greater pollution, exaggerated consumption, and the disproportionate use of natural resources.

The municipality chosen as the object of this research has economic importance for Piauí and for the Northeast region, as it is responsible for 42.1% of the state's GDP and has been executing the Master Plan for 14 years. Moreover, it hosts the main spaces for discussion and production of knowledge in the theoretical and empirical dimensions of the area under investigation, bringing together a population that represents about 26.5% of the entire population of the state.

According to the Municipal Secretariat for Planning and Coordination - SEMPLAN (2021) there are actions that have been proposed, whereas some need to be put into practice by the municipal government through the *Cidades Sustentáveis* (Sustainable Cities) project, and in the context of the program it is recommended that the following topics should be addressed: governance, common natural goods, equity, social justice,

local management for sustainability, planning, and urban design, education for sustainability and quality of life, dynamic, creative and sustainable local economy, responsible consumption, etc. Thus, analyzing whether these sustainability actions are actually being put into practice is the proposal of this study.

The city of Teresina was the 21st capital to adopt the *Cidades Sustentáveis* program in the country and, according to the executive coordinator of the program, Maurício Broinizi Pereira, the capital has advantages in comparison to other cities, because it already has many of the program's targets included in the PPA.

This study is structured as follows: the first section corresponds to the introductory part; in the second section, the theoretical framework is explained, which encompasses sustainable public management, followed by the methodology employed in the research. Subsequently, the analysis and discussion of the results are presented, and concluding, the final considerations of the research, containing proposals for future studies.

2. Theoretical framework

2.1 Environmental dilemmas: historical approaches

The emergence of the Industrial Revolution and its rapid development has led the world to go through vast changes and experience a significant difference in terms of goods and services, in addition to large-scale manufacturing production. This factor promoted an easier acquisition of goods and consumption grew exponentially, generating a great productive demand that led to a search for ways to supply repressed needs. The overexploitation of natural resources did not take into account their finiteness, and as a result, the search for natural resources grew in a disorderly way, causing numerous environmental impacts.

However, it was not until the early 20th century that the likelihood of global ecological depletion became imminent. This was because of the identification of the first implications of climate change, the post-World War II population development, the mass extraction of non-renewable natural resources, and the consolidation of new technologies, especially atomic, chemical, and biological, that gave humanity the unprecedented ability to ravage the planet itself (Fischer et al., 2017).

Corroborating this fact, MacNeill et al. (1992) explain that it was from 1900 onwards that the global population grew exponentially, more than tripled, and the economy grew 20 times larger. Fossil fuel consumption increased 30 times higher than it was at the beginning of this period, and industrial production 50 times. Much of this increase has occurred since the 1950s, and a similar rise in the next few decades is practically unsustainable. The planet's basic resources are being depleted. The rapid increase in the earth's temperature and sea levels will probably increase in the next centuries what it has not increased in the last 10,000 years since the last ice age. The authors further explain that:

Since World War I, governments have been preoccupied with economic interdependence, the coupling of local and national economies into a global system. But the world has now moved beyond economic interdependence to ecological interdependence—and even beyond that to an intermeshing of the two. The earth's signals are unmistakable. Global warming is a form of feedback from

the earth's ecological system to the world's economic system. So is the ozone hole, acid rain in Europe, soil degradation in Africa and Australia, deforestation and species loss in the Amazon. To ignore one system today is to jeopardize the others (MacNeill et al., 1992, p. 15).

Some decades ago, the population understood that preserving the planet also means preserving the life it contains (Weber, 1999), and the international community began to worry about the planet's development consequences around the 1960s, which was the time when discussions concerning environmental degradation started being addressed. These discussions became so intense that they led the United Nations (UN) to promote, in Stockholm (1970), an International Conference on the Human Environment (Cracco, 2011). In the following years, several events aimed at preserving the environment, such as ECO 92 in Rio de Janeiro in 1992, which determined the Agenda 21 (with emphasis on the dilemma of the relationship between man and nature, as well as combating social inequalities) and Berlin 95, which had as its main focus the agreement of all countries to take more assertive measures to reduce the greenhouse effect.

Therefore, around the end of the last century, these concerns expanded to all spheres, including the economic, political, social, scientific, and technological dimensions, establishing new paradigms regarding the reality involving the ecological crisis, especially due to the climatic complications resulting from the progressive destruction of the ozone layer, global warming due to the greenhouse effect, climate change, the reduction of biodiversity, the strong threat to biogeocenosis, and the increase in air, land, and water pollution (Dias, 2007).

2.2 The emergence of sustainability from an ecocentric perspective

Humanity has already exceeded the planet's capacity. The high production and consumption levels of society are absorbing and destroying the planet's resources and natural wealth in an unprecedented manner, transforming such resources into essential or non-essential items, and soon being discarded to nature in the form of polluting waste (Alves, 2014).

To curb or reduce this disproportionate growth relation between society and natural resources, international summits, large companies, and governments use sustainability, since according to Loures (2009), sustainability is directly linked to environmental issues, but not only to it. Sustainability is also linked to culture, society, and the human being itself. Additionally, it is linked to the social convention and participatory methodologies for building political institutions, civil society, and so on.

According to Sartori et al. (2014), sustainability comprises three aspects that are able to possess interests or conflicts and which tend to be fulfilled/resolved, respectively: a) economic sustainability, which is the search for better living conditions; b) social sustainability, which is the parity of living conditions between rich and poor, and c) environmental sustainability, which emphasizes the interest of the current generation in developing its needs without compromising the interests of future generations.

Sustainability equally takes into consideration society, nature, and economy, which together would be the basis for a sustainable planet. Where all the elements of nature together diminish the increasing environmental degradation. This perspective goes against the ecocentric vision where life, in all its forms and, it should be noted, not only the human, became the most expressive value of the planetary ecosystem, recognizing

the importance of all living beings by themselves, and thus maintaining the stabilization of ecosystems, hence, also of nature (Abreu & Bussinguer, 2013).

Extreme environmental degradation and its effects have caused social parameters to change, for otherwise, the planet would not be able to bear such exploration for long. Thu Gladwin et al. (1995) provide an example of society and nature being on the verge of colliding, which could result in a global decline and disorder due to intense and urgent changes, because production and welfare would be subject to health and ecological integrity, and technology would not be sufficient to perform all life support functions. Given this, Milaré (2009, p. 88) states that the value of life has become an innovative benchmark for man's interventions in the natural world.

2.3 Sustainable Public Management: effective answers?

Public Policies and Environment are closely related topics since policies can be developed in response to environmental pressures or as a way to mitigate impacts. According to Salheb et al. (2009) the advancement of studies on public policies in Brazil is due to the concern regarding broadening the focus to analyze emerging problems of contemporaneity. In this context, the environmental crisis present in modern society has raised the interest of the public agenda as to the formulation of policies that intend to address and solve environmental problems and promote well-being.

The directives regarding environmental preservation are contained in the Federal Constitution, § 3º of article 225 (Brasil, 1988). It states that behaviors and actions considered harmful to the environment will be subject to discipline, in which, for the violators, individuals or legal entities, criminal and administrative measures will be applied regardless of the obligation to repair the damage caused, making it evident that the liability of individuals or legal entities is constitutionally guaranteed.

In this context, it was in the mid-1980s that the principle of sustainable development was established in the national legal framework, through the Law 6.938/81 (Brasil, 1981). Since then, the public policy guidelines have turned to an environmental bias, which is also one of the objectives of this legal provision:

The national environmental policy aims to harmonize the environment and socioeconomic development (sustainable development). This harmonization consists of reconciling the protection of the environment, on the one hand, and the guarantee of socioeconomic development, on the other, in order to ensure the necessary conditions for industrial progress, the interests of national security, and the protection of dignity (Art. 2 of Law No. 6.938/81) (Sirvinskas, 2008, p. 130).

Even with the legal provisions, popular participation in the formulation of these policies is still necessary, because with the growing environmental problems - global warming, environmental disasters, environmental neglect by public managers - the concern with the establishment of actions and Public Policies that mitigate and reduce the process of environmental degradation has become a global problem. This is due to the fact that society as a whole needs to be mobilized for this fight. Popular participation needs to start from the planning stage, including the debates covering the legislative process of evaluation of the legal instruments that constitute public planning, such as the Plurianual Plan (PPA), the Budget Guidelines Law (LDO), and the Annual Budget Law (LOA). Thus, we seek to ensure a democratic and transparent administration that provides and encourages the participation of the population in decisions of their interest. Moreira (2007) explains that democracy can no longer be considered only a formal process of choosing who should govern, but also a choice about how to govern.

In this sense, Corrêa et al. (2010), explain that sustainable policies arise through available natural resources, and society along with the government and its sectorial policies make decisions to consolidate ideas in a sustainable way, encompassing four important and basic items that are: a) ecologically friendly enterprises; b) viable economy; c) socially responsible, and d) culturally accepted.

To measure the effectiveness of sustainability in the public sector, sustainability indicators can be used. These indicators make it possible to perform a real follow-up of the basic variables of interest of corporations and governments, allowing the planning of improvement actions for their performance. For skillfully effective management, the supervision and control of the institution's performance become imperative, so that it can meet the constitutional requirements and the interests of the whole society (Callado & Fensterseifer, 2010).

However, Carvalho & Barcellos (2010) point out that the use of indicators are partial and approximate measures because sustainability is immeasurable. Such a statement is due to the fact that initially there is no universal definition of sustainability that can be applied to all situations, that is not generic or little precise. According to the authors, statistics on the subject are insufficient and difficult to access.

However, there are efforts by governmental entities to carry out the collection of statistics for the construction of sustainability indicators, including the agricultural sector. As an example at the municipal level, one is able to have access to studies carried out by the Brazilian Institute of Geography and Statistics (IBGE), surveys such as the Gross Domestic Product (GDP), the Municipal Agricultural Production (PAM), the Survey of Basic Municipal Information (MUNIC), company registration information, basic sanitation, demographic census, population count; the Annual Report of Social Information (RAIS) of the Ministry of Economy, among others.

As an additional effort at the international level, in 2015, the United Nations General Assembly (UNGA) designed the 2030 Agenda, an instrument containing seventeen Sustainable Development Goals (SDGs), inspired by the Millennium Development Goals (MDGs) (ONU, 2021).

3 Methodology

The present research has a descriptive-exploratory nature, which, given the proposal of the objectives contained in the study, seeks the impartial description of a specific reality (Minayo, 2012). For Cooper and Schindler (2011), this type of research describes an event and details its characteristics in order to obtain a diagnosis for the central question of the study. The study has a qualitative approach and, in this respect, Godoy (1995) states that, among other characteristics of the qualitative approach, one has the natural environment as a direct source of data and the researcher as a fundamental instrument. In addition, qualitative research is characterized by being predominantly descriptive, not sticking only to statistics and graphs (Yin, 2016). For Denzin & Lincoln (2017, p. 36):

[...] qualitative research seeks to discover and describe narratively what particular people do in their everyday lives and what their actions mean to them. The research identifies relevant types of things in the world - types of people, types of actions, types of beliefs and interests - with a focus on the differences and ways things make a difference to the meaning they understand.

To achieve the proposed objective, the case study method was adopted (Yin, 2016) with the intention of knowing and explaining the reality of the municipality of Teresina regarding the economic, social, and environmental sustainability practices that were carried out in the years from 2014 to 2017.

The sustainability dimensions chosen are justified in the Elkington (1994) model, also called Triple Bottom Line or Sustainability Tripod. Although it is acknowledged that other dimensions already exist, as discussed in the Theoretical Framework section, in this work this theoretical model was adopted because it is the most used and a classic for defining the theme.

The triple bottom line theory of sustainability was adapted to the context of municipal public management in order to fit the actions developed in the municipality. The following theoretical framework, based on Elkington (2012), was developed to fit the actions into the dimensions or pillars indicated.

In Chart 1, some characteristics of the economic, environmental, and social dimensions are defined. Furthermore, we highlight the tripod of sustainability, that is the guiding theory of this study, being the pioneer, the most referenced, and the one with the greatest conceptual consolidation so far, which is why these dimensions were chosen, even though there are studies that explore further dimensions of analysis, such as cultural and political, for example.

Chart 1. Criteria for framing the actions of the Pluriannual Plan from the point of view of the *Triple Bottom Line*.

Criterion	Description
Economic Pillar - <i>Profit</i>	Considers economically sustainable operations. Traditionally, it encompasses the production factor, considering physical capital (such as machinery and equipment) and financial capital. In addition, it also considers human capital, involving the experience, skills, and knowledge that drive the organization. As main indicators, it considers an institution's long-term costs, both internal and external, the demand for products or services, prices, and profit margins, and business innovation.
Environmental Pillar - <i>Planet</i>	The most traditional pillar of sustainability. It uses the concept of natural capital to assess whether organizations are environmentally sustainable. In this sense, it accounts for the natural wealth that sustains ecosystems and its consequent benefits and impacts generated by human action. It studies the possible environmental risks considering potential indicators such as compliance with legislation; provision for fines, insurance, and other costs; costs related to land, remediation, decommissioning, and abandonment. Another aspect is the measurement of environmental impacts related to measurement standards such as the number of public complaints; impacts of the life cycle of products; use of energy, materials, and water on the production site; potentially polluting emissions; environmental risks and threats; waste generation, among others.
Social Pillar - <i>People</i>	It considers social capital, which includes human capital, in the form of healthcare, skills, and education. Hence, the following aspects are analyzed: community relations, employment for minorities, human rights, impacts on indigenous people, involvement in nuclear energy, irresponsible marketing, land rights, oppressive regimes, political contributions, common market relations, wages and working conditions, women's rights, etc.

Source: elaborated from Elkington (2012).

A critical point to be observed is that when proceeding with the framing, it was noted that there were actions that could be classified in more than one dimension/pillar. Thus, they were placed in the dimension with the closest approximation. This difficulty is corroborated by the study of Elkington (2012), considering that the author claims that the pillars are not stable, as they are in a constant state of flux due to social, political, economic, and environmental pressures, establishing cycles and conflicts inherent to them.

In a study by Kuhlman & Farrington (2010) this difficulty was also addressed, especially when trying to dissociate the economic pillar from the social one, which, in the authors' view, are dimensions that get confused, considering that social and economic development are intrinsically related themes.

However, this work addresses the necessary approximations to categorize the actions of the PPA in the mentioned dimensions, and to investigate the planned and actual spending in the city of Teresina in the light of the exposed theory.

The study period is between 2014-2017. This choice is justified by the access to publications from documentary sources widely available for consultation, considering that it refers to the most recent PPA until the time of data collection, made in June 2021. The portal of the Municipal Secretariat for Planning and Coordination (SEMPPLAN) was used as a documentary source. From there, the Pluriannual Plan and the management reports for the mentioned period were extracted. With these documents, it was possible to identify and compare the sustainability actions planned and executed in the period under consideration, as well as to promote an analysis of the respective budgets.

These documents were selected according to the delimited objective and problematic. Furthermore, a tabular analysis was performed, from which the planned and executed actions, the framed dimension, the period, and the budget were extracted. This data was also used to compare spending with that foreseen in the documents, as well as to analyze the relationship between planning and effectiveness.

Finally, it should be noted that graphical analyses were also performed in order to summarize the data tabulation.

4 Results and discussion

4.1 Brief characterization of Teresina

Teresina is the capital of the state of Piauí, located in northeastern Brazil. It is located in a transition area between the Cerrado and Caatinga biomes (MapBiomas, 2021) being in a total territorial extension of approximately 1391 km² (IBGE, 2021b), with a predominantly hot climate throughout the year.

The city carries the title of the first Brazilian capital planned during the period in which the country was under the command of Dom Pedro II. It is also called "green city", a nickname given by the writer Coelho Neto due to the existence of many tree-lined streets in the city (Teresina, 2021).

The predominance of the service sector is also a particular fact of the locality. From this sector, the existence of a reference service center in health care that attracts the population from several other municipalities, including neighboring states, stands out.

The estimated population of the municipality in 2020 was 868,075 people according to the Brazilian Institute of Geography and Statistics (IBGE, 2021a). The demographic density is 584, 94 inhabitants/km², according to the last demographic census conducted in 2010 (IBGE, 2010a).

The municipality has the highest Gross Domestic Product (GDP) at current prices in the state and is in the 46th position in Brazil. When the GDP per capita is analyzed, the municipality ranks twelfth in the state and the 1853rd nationally.

The Municipal Human Development Index (MHDI) is 0.751 (PNUD, 2010), the first position among the municipalities of Piauí and the 526th position among the municipalities of the federation.

In the municipality 61.6% of households have adequate sanitation, 72.3% are urban households on public roads with trees, and 5.8% of urban households on public roads with adequate urbanization with the presence of culverts, sidewalks, paving, and curbs (IBGE, 2010b).

In Teresina, the environment sector is managed by the Municipal Secretariat of Environment and Water Resources (SEMAM), whose mission is to promote the sustainable use of natural assets and resources in the perspective of sustainable development, i.e., considering the needs of the present without forgetting the demands of future generations. However, it was found that the portal of this secretariat has not been continuously fed with environmental information (SEMAN, 2021).

In the virtual environment of the Municipal Secretariat for Planning and Coordination (SEMPLAN) we noticed more information about the environment, such as the profile of each neighborhood; Agenda 2030; Municipal Plan of Integrated Solid Waste Management (PMGIRS); Environmental Education Plan; Integrated Action Plan for RIDE Teresina; Plan for the Management and Conservation of the Poti River Fossil Forest Park; the *Teresina Sustentável* Program; Pluriannual Plans (PPAs); Management Reports, among other relevant documents (SEMPLAN, 2021).

However, due to the diversity of actions and programs related to the promotion of sustainability in the municipality of Teresina, it was decided to choose the last PPA finalized, comprising the years 2014 to 2017. The management reports of the respective years were used as a way to compare the planned actions in relation to their effectiveness.

The PPA is a management tool whose main purpose is to establish the priority actions or demands to be carried out by the municipality over a four-year period. Its elaboration must take into account popular participation in the discussions, given that the population has the knowledge about the needs and the respective levels of prioritization regarding the implementation of public policy actions.

The dimensions addressed in the PPA studied encompass thematic axes that include urban mobility, safety, health, education, economy, environment, and government. Therefore, this instrument is considered to be an important guiding document for governmental actions aimed at meeting the needs of the municipality's population.

4.2 Analysis of the sustainability actions planned in the PPA 2014-2017

The PPA for the four-year period 2014-2017 was prepared by the municipal administration, taking into account popular participation in order to filter demands that are a priority. This document was approved by the City Council and sanctioned by the current mayor through the publication of the law nº 4971 of December 26, 2016.

Initially, it is important to point out that the aforementioned document has a budget forecast of R\$11,691,104,853.48 for the period under analysis. This budget refers to 31 programs in the most diverse segments. Table 1 shows the programs with their respective budgets, directly related to the sustainability theme.

Table 1. Programs related to social, economic, and environmental sustainability in the city of Teresina.

Description	RESOURCES				
	2014	2015	2016	2017	Total
Sports and Leisure Expansion	6,160,140.00	9,086,000.00	8,822,251.00	7,267,000.00	31,335,391.00
Social Assistance and Citizenship	48,343,124.00	46,397,950.00	41,691,570.00	46,801,912.00	183,234,556.00
Sustainable Economic Development and Tourism of Teresina	4,334,000.00	10,100,000.00	9,025,000.00	2,455,000.00	25,914,000.00
Rural and Sustainable Development	19,566,100.00	20,354,971.00	14,592,743.00	18,569,516.00	73,083,330.00
Sustainable Urban Development - Infrastructure Implementation and Maintenance	300,576,926.00	314,748,590.00	346,614,134.00	253,583,400.00	1,215,523,050.00
Sustainable Urban Development - Urban Services	113,656,088.00	117,062,575.00	120,072,754.00	136,275,668.00	487,067,085.00
Implementation of Creative and Solidarity Economy in the context of economic activities	3,830,000.00	10,321,288.00	5,967,030.00	11,322,679.00	31,440,997.00
Youth and Citizenship	2,078,500.00	5,247,000.00	2,341,610.00	4,576,500.00	14,243,610.00
<i>Lagoas do Norte</i>	79,029,682.00	67,939,030.00	88,466,100.00	99,279,307.00	334,714,119.00
Sustainable environment for the population	25,144,680.00	23,017,258.00	6,303,202.00	9,244,224.00	63,709,364.00
Promotion of art and cultural identity	7,116,589.00	8,926,043.00	5,944,598.00	4,480,840.00	26,468,070.00
Promotion and defense of women's rights in Teresina	274,000.00	1,462,000.00	1,123,500.00	2,058,705.00	4,918,205.00
Sustainability of social security	130,701,493.00	135,033,322.00	166,183,724.00	242,603,606.00	674,522,145.00
	740,811,322.00	769,696,027.00	817,148,216.00	838,518,357.00	3,166,173,922.00

Source: Adapted from Teresina's Pluriannual Plan 2014-2017 (Brasil, 2013).

Table 1 portrays 13 programs related to the promotion of sustainability and, among them, 5 are programs in the social dimension, 6 in the economic dimension, and 2 in the environmental dimension, arranged with their respective budgets. It is essential to make it clear that a program can be included in more than one sustainability dimension, because it highly depends on the impacts generated in its execution stage. Thus, the estimation per dimension performed in this work took into account the greatest similarity with the respective one. Therefore, this does not mean that each program should be classified solely and exclusively in a given dimension.

According to Machado & Matos (2020), sustainability emerged as a mechanism to achieve Sustainable Development standards. In this sense, the environment, society, and economy are the dimensions that began to be addressed as the core of sustainability.

According to Salheb et al. (2009), public policies are designed to address objectives or areas of interest in the daily lives of the population. In the environmental area, they serve to protect the environment and to improve people's quality of life.

It is worth highlighting, therefore, the existence of resources in nature that are exhaustible and that can cause negative impacts when they are scarce. These impacts influence both the biotic and abiotic factors of the environment, as well as the way of living of the populations, leading to social impact. Thus, it is essential to formulate environmental policies as guiding instruments for application in specific contexts.

In the case of Teresina, the low participation, in terms of quantity, of programs related to the environmental area stands out. It is noteworthy that it is through the programs that the actions are detailed as goals in the structure of the PPA.

It was found that sustainability programs represent 27.08% of the total budget established for the four-year period. In order to better detail the representativity of each dimension considering their respective budgets, Figure 1 is presented with the respective percentages.

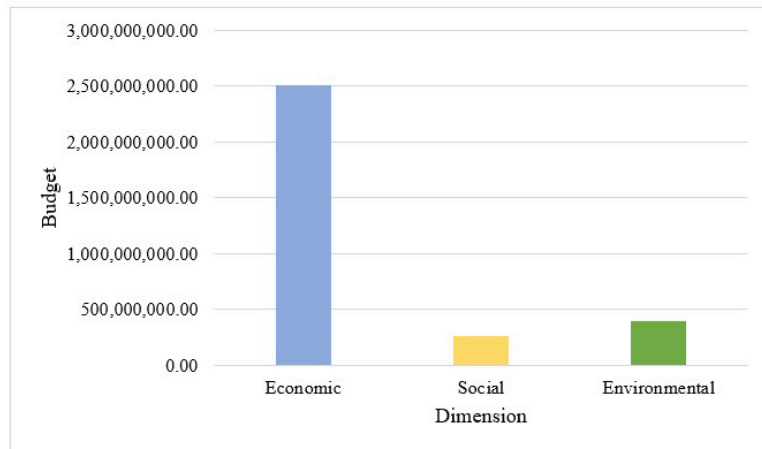


Figure 1. Budget forecast per dimension. Source: based on Teresina's PPA for 2014-2017 (Brasil, 2013).

From Figure 1, we can see that in monetary terms, the social dimension received the smallest financial forecast. These resources were distributed among five programs, as already mentioned. On the other hand, it was observed that even though the environmental area had fewer programs - only two - it had a higher priority in the planning of resources in the quadrennium when compared to the social area.

The economic dimension, on the other hand, was the one with the highest priority in both resource planning and program quantity. When compared to the other dimensions, significant inequalities are observed in terms of budget forecasting. It is a fact that economic issues should be relevant; however, there is a lack of balance in relation to the other areas.

According to Silva (2003), public policies to promote sustainability in the urban context need to consider, as intertwined factors in this sociological web, citizen formation and harmony between man and the environment. The urban space refers to the delimitation of the geographic area with an emphasis on cities. The issues of this theme at the municipal level go far beyond merely addressing environmental problems, bearing in mind that cities suffer from social inequalities that must be considered in order to provide people with decent living conditions.

Kuhlman & Farrington (2010) state that the term "sustainability" is related to concepts of well-being, happiness, and public policies. Well-being is momentary, representing the fulfillment of material needs. Happiness, on the other hand, is comprehensive, consisting of a state of mind. For the authors, measuring sustainability and well-being separately will increase the transparency of the process of formulating public policies to improve people's lives.

In view of the above, in spite of the disparities or inequalities, it was observed that the municipality studied possesses action programs planned in the PPA 2014-2017 in the dimensions of the Sustainability Tripod. However, it is necessary to investigate the effectiveness of these actions, i.e., it is necessary to determine whether the municipality has actually carried out such actions or if it is promoting planning only as a bureaucratic-legal requirement, and then "put on ice" the supposedly prioritized proposals.

4.3 The execution of sustainability actions between 2014-2017

For a better categorization of the actions carried out in the period from 2014 to 2017, the actions executed by municipal management bodies were divided, considering that some carried out activities in more than one dimension in which it is included.

4.3.1 Environmental Dimension

In the environmental dimension, the actions carried out by the Municipal Secretariat of Environment and Water Resources and the Municipal Secretariat for Planning and Coordination stand out, where *Lagoa do Norte* and Sustainable Development Projects are included.

According to law nº 4971 of December 26, 2016 (Brasil, 2016), the main initiatives by the Municipal Secretariat of Environment and Water Resources are the Caneleiro Sustainable Architecture Award, a project that aims to stimulate professionals in the area to propose new models of construction environmentally appropriate and providing welfare to citizens; the Jandaia Sustainable School Contest, with the objective of rewarding schools with the best environmental projects; Construction of seedling nurseries and gardens in schools aimed at the reforestation of neighborhoods, thus making municipal schools become multiplying agents of initiatives of environmental preservation.

Another important campaign is the Teresina Verde Novo Program that seeks to rescue and revitalize the urban arboreal greenery of the city of Teresina, through various actions and with the participation of the community of Teresina. Another important initiative is the A3P - Environmental Agenda in Public Administration, which aims to implement actions to monitor and preserve the environment, through socio-environmental responsibility and working on the following pillars: 1. Waste Management; 2. Sustainable Procurement; 3. Quality of life in the work environment; 4. Raise awareness in public servants and provide training.

The promotion of formal and informal environmental education in Teresina takes place through actions and environmental education campaigns on pre-determined dates that address the environmental theme such as World Environment Day; Tree Day; Nature Christmas etc. Another initiative of this agency is the Program "*Teresina Bairro Sustentável*" (Sustainable Neighborhood Teresina), which aims to promote environmental sustainability practices in Teresina's neighborhoods by reducing waste and promoting rational consumption of energy and water, for example. Besides these initiatives, there are other ones from this agency, such as those related to the Fossil Forest of Teresina and environmental education events.

According to the total resources analyzed in law nº 4971 of December 26, (Brasil, 2016), the year 2014 was the period with the largest contribution of resources allocated to the environmental dimension, a total of R\$ 100,513,843.00. From this amount, R\$68.792 373.00 was allocated to the Municipal Secretariat for Planning and Coordination, according to the selected agencies and projects, as shown in Table 2.

The main actions from the Municipal Secretariat for Planning and Coordination focused on the environmental dimension are the actions related to the Agenda 2030, which arise from the treatment and analysis of data collected in seminars where strategic problems were formulated, debated, and solved by experts, and the actions aimed at the *Lagoas do Norte* project and others focused on the Sustainable Development project.

For the *Lagoas do Norte* project, renovations of the physical infrastructure were planned, such as landscape interventions for the recovery and construction of green areas, squares, and public places; construction of public spaces for leisure, culture, and support to economic activities in the *Parque Linear* area; interventions to recover the environmental and natural aspects of the region; recovery and cleaning of the canals and banks of the Poti and Parnaíba rivers, among other actions.

Within the *Lagoas do Norte* Project, actions were also carried out to resettle families living in risk areas and to improve housing in the homes of families in precarious conditions, an action that involves economic and social aspects.

Observing Table 2 of programs related to the environmental dimension, it can be seen that the year 2014 had a greater amount of resources compared to the following years. It is also noticeable that the *Lagoas dos Norte* Project is the one that receives the largest amount of resources due to its significance, which also covers actions in the social and economic dimensions.

Table 2. Agencies and programs related to the environmental dimension.

Agency	2014	2015	2016	2017	Total
Municipal Secretariat of Environment and Water Resources	31,721,470.00	31,547,437.00	15,274,724.00	13,912,039.00	92,455,670.00
Municipal Secretariat for Planning and Coordination					
Agenda 2030*	210,000.00	250,000.00	36,000.00	39,600.00	535,600.00
<i>Lagoas do Norte</i> -initiative - 7360*	34,232,695.00	31,743,630.00	40,982,300.00	67,892,600.00	174,851,225.00
<i>Lagoas do Norte</i> -Initiative - 7361*	17,341,250.00	9,920,000.00	21,602,000.00	15,457,500.00	64,320,750.00
Elaboration of studies and projects for sustainable development*.	17,008,428.00	759,200.00	3,450,800.00	1,140,425.00	22,358,853.00
Total per Year	100,513,843.00	74,220,267.00	81,345,824.00	98,442,164.00	354,522,098.00

Source: Adapted from Teresina's Pluriannual Plan 2014-2017 (Brasil, 2013).

4.3.2 Social dimension

In the social dimension, according to the law nº 4971 of December 26 (Brasil, 2016), it is important to highlight actions carried out by the following agencies: Municipal Secretariat of Sports and Leisure, Municipal Secretariat of Labor, Citizenship and Welfare, Municipal Secretariat for Youth, Monsenhor Chaves Municipal Culture Foundation and Municipal Secretariat of Public Policies for Women.

The main actions of the Municipal Secretariat of Sports and Leisure, in the social aspect, aim at providing access to sport and leisure in all areas of the city of Teresina, through initiatives such as renovation and re-equipment of sport units in the municipal network; revitalization of reference sports gymnasiums in the city and construction of sports gymnasiums; construction of Sports Initiation Centers-CIE; the programs *Segundo Tempo* and *Amigo do Esporte* that aim at promoting excellence in local sport; implementation of the incentive program for sport and community leisure, among other initiatives carried out by this agency.

For the Municipal Secretariat of Labor, Citizenship, and Welfare, SEMTCAS, which had the most resources, totaling RS 274,116,745.00, the main initiatives are aimed at building, equipping, and renovating Reference Center for Social Assistance (CRAS), Specialized Reference Centers for Social Assistance (CREAS), and other social assistance units.

There are also actions that aim to guarantee basic social protection to people and families in situations of social vulnerability in Teresina, besides guaranteeing the offer of special social protection services of medium and high complexity to families and individuals in situations of personal and social risk, or who had their rights violated. There are actions and services to support children and elderly people who have broken or are about to break family ties. They seek to guarantee the implantation, maintenance, and qualification of child protective services in Teresina, which are autonomous public bodies that aim to protect children and adolescents when they have their rights threatened or violated.

The main initiatives developed by the Municipal Secretariat for Youth were the implementation and expansion of “Pontos da Galera”, youth stations that encourage public policy actions through the promotion of citizenship, culture, sports, leisure, and employability. These initiatives also aim to provide training and information to institutions that work with youth, along with actions that foster a culture within this specific public.

The Municipal Cultural Foundation Monsenhor Chaves implemented the Municipal Culture System - SMC in order to strengthen the city's culture together with the society and develop policies to promote art and culture in the city through projects such as *Cultura de Música FM Award*; *Fazendo Arte Project*; *Arte na Praça*; Teresina's anniversary; Teresina's Carnival; *Salão de Encontro e Artes*; Festivals, Salons and Art and Culture Meetings among other initiatives. A total of R\$65,081,544.00 has been earmarked for this body.

The Municipal Secretariat of Public Policies for Women, with a budget of R\$ 10,861,805.00 had as goals: implement the Municipal Plan of Public Policies for Women, develop actions such as: forum of political discussion to ensure women's rights, holding the Municipal Conference for the Defense of Women's Rights and thematic events related to women. Other initiatives involved publicizing services for women with educational booklets, promoting specialized agencies and services that make up the protection network for women victims of violence with sheltering services and professional training, for example.

Table 3 below shows the total number of initiatives within the social classification with actions by the respective agencies:

Table 3. Agencies and programs related to the social dimension.

Agency	2014	2015	2016	2017	Total
Municipal Secretariat of Sports and Leisure	19,795,740.00	18,870,500.00	18,225,721.00	17,098,612.00	73,990,573.00
Municipal Secretariat of Labor, Citizenship and Welfare	72,004,554.00	66,681,523.00	66,601,442.00	68,829,226.00	274,116,745.00
Municipal Secretariat for Youth	2,523,000.00	4,914,000.00	3,281,660.00	5,107,257.00	15,825,917.00
Monsenhor Chaves Municipal Culture Foundation	14,284,055.00	16,946,273.00	19,049,406.00	14,801,810.00	65,081,544.00
Municipal Secretariat of Public Policies for Women	1,473,000.00	3,228,000.00	2,380,400.00	3,780,405.00	10,861,805.00
Total	110,080,349.00	110,640,296.00	109,538,629.00	109,617,310.00	439,876,584.00

Source: Adapted from Teresina's Pluriannual Plan 2014-2017 (Brasil, 2013).

Table 3 shows the values of the PPA 2014-2017 and the total resources allocated to the selected bodies. As indicated in the table, the largest source of resources was allocated to the Municipal Secretariat of Labor, Citizenship, and Welfare, totaling R\$ 274,116,745.00 from 2014 to 2017, and the smallest to the Municipal Secretariat of Public Policies for Women, with only 10,861,805.00 within the period of this PPA.

4.3.3 Economic dimension

In the economic dimension, according to law nº 4971 of December 26, 2016 (Brasil, 2016), the actions performed by the following agencies stand out: Municipal Secretariat for Economic Development and Tourism, Superintendency of Urban Development - North, South, Southeast, East Center, Municipal Secretariat for Solidarity Economy, Institute of Social Security of the Municipal Servants of Teresina, Superintendency of Rural Development and the Company for Urban Development *Teresinense*.

The Municipal Secretariat for Economic Development and Tourism has, as one of its goals, to consolidate Teresina as a touristic destination for business, events, and health, as well as strengthen the intervention in business hubs in the industry, commerce, and services sectors, besides providing the city with an investment attraction policy to foster the expansion, modernization, and diversification of local economic activities.

Together, the Superintendencies of Urban Development - North, South, Southeast and East concentrate the largest budget of the resources of the PPA 2014-2017: RS1.473.564.118,00. Among the main actions of this body are: Increase the coverage of paved roads; expand the rainwater drainage system; ensure that the institutional buildings of the City Hall of Teresina meet accessibility standards; provide citizens with quality urban services, provide quality public goods with accessibility to all levels of the population, such as the maintenance of the *Parque da Cidadania* (Citizen Park) so that it can serve as a place of leisure for the population, as shown in Table 4 below.

Table 4 . Total of the initiatives of the Superintendencies of Urban Development of Teresina.

Service	2014	2015	2016	2017	Total
Superintendency of Urban Development – North/Center	104,244,860.00	109,723,239.00	118,588,363.00	88,140,953.00	420,697,415.00
Superintendency of Urban Development - South	102,722,310.00	99,419,939.00	107,322,430.00	104,444,277.00	413,908,956.00
Superintendency of Urban Development - East	81,195,258.00	74,133,685.00	95,231,525.00	69,547,099.00	320,107,567.00
Superintendency of Urban Development - Southeast	81,518,957.00	76,339,614.00	101,615,720.00	59,375,889.00	318,850,180.00
Total	369,681,385.00	359,616,477.00	422,758,038.00	321,508,218.00	1,473,564,118.00

Source: Adapted from Teresina's Pluriannual Plan 2014-2017 (Brasil, 2013).

The Municipal Secretariat for Solidarity Economy is responsible for organizing fairs and events encouraging solidarity economy in Teresina. Its main initiatives are *Cidade Criativa* (Creative City), *Banco Popular de Teresina* (Popular Bank of Teresina), and the implementation of the Solidarity Cooperative, among other actions.

The Institute of Social Security of the Municipal Servants of Teresina has as initiatives: to improve the quality of life of municipal employees, guarantee the sustainability of welfare, invest in actions that make the concession of retirements and pensions faster, besides promoting more autonomy to the services, thus developing excellence in management.

Among the actions realized by the Superintendency of Rural Development, it is possible to highlight the implantation and maintenance of water treatment systems in homes, seeking to increase the number of families benefited from such policies. Another important initiative is the recovery, maintenance, expansion, and implantation of community gardens that serve about 20 families per hectare.

Lastly, the Company for Urban Development *Teresinense* seeks to promote excellence in the administrative management of this company. The following chart

(Table 5) shows the total of initiatives within the economic classification with the actions of the respective bodies:

Table 5. Agencies and programs related to the economic dimension.

Service	2014	2015	2016	2017	Total
Municipal Secretariat for Economic Development and Tourism	8,592,528.00	16,923,000.00	13,005,000.00	5,581,834.00	44,102,362.00
Superintendency of Urban Development - North Center	104,244,860.00	109,723,239.00	118,588,363.00	88,140,953.00	420,697,415.00
Superintendency of Urban Development - South	102,722,310.00	99,419,939.00	107,322,430.00	104,444,277.00	413,908,956.00
Superintendency of Urban Development - East	81,195,258.00	74,133,685.00	95,231,525.00	69,547,099.00	320,107,567.00
Superintendency of Urban Development - Southeast	81,518,957.00	76,339,614.00	101,615,720.00	59,375,889.00	318,850,180.00
Municipal Secretariat for Solidarity Economy	6,007,000.00	13,049,288.00	8,870,608.00	14,406,399.00	42,333,295.00
Institute of Social Security of the Municipal Servants of Teresina	170,798,892.00	176,878,301.00	215,178,677.00	310,264,106.00	873,119,976.00
Superintendency of Rural Development	30,409,700.00	35,270,496.00	30,351,324.00	35,118,161.00	131,149,681.00
Company for Urban Development Teresinense.	22,290,919.00	25,634,557.00	34,839,215.00	33,750,000.00	116,514,691.00
Total	607,780,424.00	627,372,119.00	725,002,862.00	720,628,718.00	2,680,784,123.00

Source: Adapted from Teresina's Pluriannual Plan 2014-2017 (Brasil, 2013).

Among the studied dimensions, the economic one was the one that received the most resources, totaling R\$ 2,680,784,123.00, most of which were destined mainly to the Secretariat of Urban Development. In second place was the Institute of Social Security of the Municipal Servants of Teresina with a total of R\$ 873,119,976.00 in resources.

Silva (2003) reminds us of an aspect of sustainability that links us to the concept of management concerned with environmental resources in time and space, in this case, the urban space. In this space, city management must address the administration of environmental resources aiming at the present time and future, also associated with social management with a focus on the democratic management of cities.

According to Rodrigues Bruno & França Matos (2020), through participatory actions in situations of public or social interest, one can have an effective exercise of citizenship. In this aspect, the Pluriannual Plan is a tool available to the population to monitor and supervise the plans that city managers are developing in both environmental, social and economic aspects.

When observing the tables of the PPA 2014-2017 and the distribution of resources given to some agencies, one notices how much the economic dimension still excels over the environmental and social dimensions. For this to happen in a sustainable way, it is necessary to understand the economic aspect as a proposal for socioeconomic and environmental equity, as Sena et al. (2017) proposes, aiming at the good of humanity with respect for natural resources and thus and not having the economic

aspect as the main element of economic growth, but as an element strengthening the concept of sustainability in all its dimensions.

5 Final considerations

After analyzing the PPA 2014-2017, it is possible to notice that the municipality of Teresina manages sustainability through environmental, economic, and social dimensions and that these dimensions are covered by the actions planned and executed, as described throughout this study.

The actions focused on the economic dimension still prevail over the other dimensions, and this surely brings negative impacts on the lives of people who need investments in other areas. The actions that are being developed in the environmental and social dimensions were not questioned in this study, but actually the quantity in terms of financial contribution destined to each one of these dimensions, thus comparing their planning and execution.

This shows how much the environmental and social actions still lack investments by the public sector. However, for this to happen is necessary that the population take part in the exercise of their citizenship more effectively. It is necessary that people understand that being a citizen in a democratic country does not mean just voting, but acting directly in the actions of the country, state, and municipality, either by following up, inspecting, participating in movements, councils, or pointing out where public investments need and should be executed.

It is important to recognize that it is possible that the economic dimension still prevails in terms of investments when compared to the others. However, it is expected that the difference between them will be less than in the PPA studied. The result, then, for the population may be better, translated, for example, into quality education, basic sanitation as a basis for ensuring fairer and more humane healthcare, permanent and effective public policies, public security compatible with the demands of modern society, public transport capable of meeting the needs of society, policies aimed at promoting employment and income, etc., bearing in mind that the investment needs to consider the positioning of social arrangements, which are, after all, the locus of the latent demands.

Future studies on PPAs should explore this issue further in order to verify whether the relationship between the amounts invested in these dimensions (environmental, economic, and social) will be more or less balanced. New studies could also address the impacts that each dimension generated in the city, especially in the lives of those directly involved, demonstrating this through interviews with people who were benefited from investments in each of the dimensions. Such studies could also include graphs, statistical analysis, and indexes that could indicate whether there was an improvement in the quality of life of people through public policies that are expected to be part of the actions of the municipality.

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