CHALLENGES IN PLANNING URBAN SUSTAINABILITY POLICIES IN THE CITY OF SÃO PAULO[1]

DESAFIOS NO PLANEJAMENTO DAS POLÍTICAS DE SUSTENTABILIDADE URBANA NA CIDADE DE SÃO PAULO

Rafael Prata Torres[2]
Diego de Melo Conti[3]
Meriellen Nuvolari Pereira Mizutani[4]
Cristiano Capellani Quaresma[5]

Abstract

This article studies how self-management is developed in shared management in ECOSOL Canoas stores, in view of solidarity practices, from the perspective of stores being constituted, as solidarity economy tools, being based on four basic characteristics: cooperation, solidarity , economic viability and self-management. The case study was adopted as a research method, in a qualitative, descriptive approach, having as a data collection instrument, 10 semi-structured interviews, 02 store documents and 8 direct observations recorded in field diaries from the 22nd to the 30th of December. April 2019. A técnica da análise de conteúdo foi utilizada na interpretação dos dados. Data from the research financed by FAPERGS indicate that the self-management of stores is developed in decision-making and jointly in the responsibilities from the plenary sessions, in the construction and application of the Internal Regulation of the same, as well as in the election of the team of coordination, and it plays a fundamental role of leadership and moderation.

Keywords: Self-management. Solidarity. Solidarity economy. ECOSOL.

Resumo

A cidade de São Paulo no Brasil representa o centro urbano mais importante da América do Sul devido às suas características geoespaciais, demográficas e econômicas. O presente estudo teve como objetivo investigar de que forma a cidade de São Paulo considera e atua nas questões relacionadas à sustentabilidade urbana. Para tanto, primeiramente foi realizada uma revisão

---

[1] Article selected in the Fast-Track of III Sustentare and VI WIPIS.

[2] Administration Institute Foundation (FIA). Consultant. Sao Paulo-SP. Email: rafaelprata.t@gmail.com

[3] PhD in Administration (PUC-SP), professor at the Pontifical Catholic University of Campinas, Campinas – SP. Brazil. Email: diegoconti@uol.com.br

[4] Master in Smart and Sustainable Cities from Universidade Nove de Julho. Professor at the Universities Nove de Julho and Anhanguera Osasco. São Paulo – SP, Beasil. Email: merinuvolari@gmail.com

[5] PhD in Geography (UNICAMP), professor at Universidade Nove de Julho (UNINOVE), e-mail: quaresma.cristiano@gmail.com

bibliográfica sobre sustentabilidade urbana. Em uma segunda etapa, por meio de pesquisa qualitativa e exploratória, foram realizadas entrevistas em profundidade com pessoas que representavam as visões do setor público e privado, da academia e da sociedade civil sobre projetos sustentáveis em São Paulo. Entre os principais resultados, foi possível concluir que, apesar dos pequenos avanços que a cidade conseguiu realizar nos últimos anos, ainda não pode ser considerada sustentável. Para que esse cenário seja mais positivo no futuro, é fundamental que o município atue em três frentes: planejamento urbano, redução da desigualdade social e educação ambiental.

Palavras-chave: Sustentabilidade, Sustentabilidade Urbana, Planejamento Urbano, Políticas Públicas.

Introduction

Among the different alternatives that human beings found in their development process to report and live-in society, there is no doubt that cities are now the most common way of life. Cities are currently the habitat for more than 55% of the world population, a figure that is expected to reach 66% in 2050, representing a contingent increase of 2.5 billion people in urban centers (HABITAT, 2016; DESA, 2018). In Brazil, it is estimated that 85% of the population is already urban, one of the highest rates in the world (KNIESS et al., 2019).

Cities are the anchorage where people perceive themselves as such and as members of a group. Moreover, cities have the traditional function of being a meeting place for their residents. It is also important to highlight that cities must be shaped for social life and that people tend to get together where things happen and to look for other people (GEHL, 2013). When living, working, consuming, loving, and exercising their individual freedoms, people leave their mark on the environments in which they live.

This gives cities a key role in sustainable development. It is in the cities that we find the human intelligence, technologies, financial and political resources necessary to propose the future based on the concept of the sustainability tripod, strengthening a development process balanced between the social, economic and environmental dimensions of the environment (ELKINGTON, 2001; GEHL, 2013).

Conti e Vieira (2020) emphasizes that sustainability is a fundamental part of cities to become increasingly resilient, regenerative, and habitable organisms. Such characteristics become even more relevant nowadays, where there are significant challenges related to climate change and the economic, environmental, social, and health crises. Cities must have and maintain long-term planning, which includes the preservation of their structures, sociological aspects, and essential functions (UNISDR, 2010).

It is not uncommon to have urban problems because of population growth and a disorganized expansion of cities, problems such as social inequality; inefficient mobility; noise, air and rivers, and water sources pollution. This set of factors makes urban planning and municipal public policies the most effective way to improve the quality of life of its inhabitants (ABRAHÃO, 2020).

In Brazil, the most populous city with 12,325,232 inhabitants and with the highest GDP per capita ($ 191.437,72) in Brazil, the city of São Paulo also accumulates the titles of the largest urban and financial center in the country (IBGE, 2020). However, despite the economic power, its development, at least until now, has not been structured as it could and should have been. In this scenario, we emphasize that the first master plan of the city was carried out only in 1970. According to Gala (2005), the disordered growth resulted in a great verticalization of the city center, overloading the access roads and generating an excessive horizontalization at the periphery. Thus, considering the relevance of the city of São Paulo to Brazil and South America, this paper seeks to understand the current situation of the municipality in issues related to urban sustainability from the perception of important social actors, as well as what has been done and what are the challenges that still have to be faced.

Sustainable cities and urban sustainability – A comprehensive contextualization

The 21st century has proved, in several aspects, challenging for humanity. Meeting the social and economic demands of a growing and increasingly urban population, without causing setbacks and damage to the environment, poses a complex task for public managers in large cities on the

planet. This challenge is, at the same time, a great opportunity to rethink sustainability in the urban context.

Childers et al. (2014) emphasize that sustainability can be understood as a science that focuses its core of studies and performance on two different, but not dissociative, fronts. The first is constituted by human needs and values, always looking towards the future. The second, in general, focuses on the environment and can be interpreted through the needs of environmental preservation, maintenance, and restoration. Thus, the terms "cities" and "sustainability" have limitations in their descriptions and characteristics. Kniess et al. (2019) highlight that a city can be characterized as being the expression of systemic and mutual interaction between natural and social ecosystems.

A crucial factor in determining how sustainable a city is predisposed to be in its urban planning. This, when designed to consider sustainability as a relevant component, becomes an instrument for controlling urbanization zones and land uses. (BENTO et al., 2018). Lima et al. (2020) consider that it is the responsibility of municipal governments to plan and regulate land use, which should aim to organize and control the pattern of urban occupation and expansion, to ensure that social functions develop in harmony with the urban fabric and that development of cities takes place in a balanced and sustainable manner. The urban planning was substantial for some transitions, around the globe, of the so-called industrial cities in sanitary or contemporary cities and, later, for the emergence of some sustainable cities (CHILDERS et al., 2014).

However, despite being a challenge that two centuries later could be expected to be overcome, Childers et al. (2014) argue that cities like Johannesburg, Mumbai, and São Paulo, which is the subject of this study and will have their case detailed here, have not yet been fulfilled and consequently cannot even be considered sanitary, given their profile of informal and unplanned development which offers access to the benefits of a sanitary city to only a portion of the population, generally wealthier.

Sustainable cities are those that place human well-being at the center of their planning and give equal attention to environmental and social equity issues (GEHL, 2013). It is important to highlight that sustainability is a process and not a final stage, so that sustainable cities are placed in a constant evolution process, that is, sustainability is an ever-changing target that cities aim to achieve and, at the same time, media that reach it, employ more integrated management systems to reduce the demand for resources, reduce the impact on the processing and treatment of waste and explore the ecological potential that may exist in an urban area (CHILDERS et al., 2014).

The fact is that embarking on a path in pursuit of a more sustainable urban management requires changes and innovations. Consequently, it is imperative that the population follow this process and be able to understand and actively participate in such a reformulation of urban space and community life.

Challenges for the transition from traditional to sustainable cities

The turning point for cities to seek more sustainable solutions to their daily problems and dilemmas tends not to be simple and quick. Childers et al. (2014) argue that this is due in part to the conservative nature of people, who tend to prefer consistency, stability, and predictability. In addition, there is the fact that people less exposed to the vulnerabilities of a city, and often with greater political capital, tend to seek the preservation of the status quo, so as not to give up their privileges.

Childers et al. (2014) deepen their argument and put inertia as a key point in the slowness so that more profound transformations take place in contemporary cities. This inertia occurs, according to the author, in three different formats:

Structural: it is exceedingly difficult and expensive to change the physical structure of cities, given the inflexibility of the buildings, which are made in most cases based on a lot of concrete.

Governance: in the form of institutional inertia to change, as institutions are often overwhelmed by the task of maintaining rigid governance structures and have little time or freedom to seek more adaptable, agile, and long-term approaches;

Social: the change is great, as long as it does not affect the pattern in which my life is inserted.

Such factors, when combined, make urban systems less flexible and agile organisms when faced with transition and change triggers. In these places, if no extraordinary event occurs, one of the few opportunities to increase urban sustainability is in the necessary maintenance of the infrastructure. It is when the window of opportunity opens to replace the old and fixed engineering and design structures with modern, adaptable, and multipurpose "green buildings".

In other cases, the thread of transformation and change can come through exogenous factors, which include events such as earthquakes, floods, and tsunamis or events directly arising from human actions, whether environmental, such as deforestation and pollution of rivers, or social, as a major crisis in the financial market (CHILDERS et al., 2014).

Kniess et al. (2019) reveal the challenges that cities also face to bring innovation as a central point in their daily lives. For the authors, there must be: 1) reduction of social inequalities in access to technology and innovation; 2) stimulating large-scale computer education; 3) prioritizing the long-term interests of sustainability over the short-term financial interests; 4) greater popular participation in decision-making; 5) establishment of a sustainable and intelligent city vision that permeates citizens and the effective management of available resources. When thinking about the solutions to these challenges for urban sustainability, Childers et al. (2014) categorize them in two ways and argue that it will be up to the public manager to define which solution is the most appropriate for each circumstance in his municipality:

Solutions that adjust/correct the current system, be it infrastructure, institutional or social. Such solutions live with the inertia of these systems. Transformative solutions that require new systems and ways of doing business and that confront the inertia of existing systems.

For the understanding about the solutions and the possibilities they bring to be shared, cities must participate in knowledge and technology transfer networks, intending to optimize processes and results.

A practical example is the Urban Sustainability Research Coordination Network (RCN), which brings together urban scientists, designers, and public planners from more than 40 cities on 6 continents to exchange information and knowledge about sustainable urban practices (CHILDERS et al., 2014).

In Brazil, a similar initiative launched in 2008, the Brazilian Social Network for Fair, Democratic and Sustainable Cities, is composed of non-partisan and inter-religious organizations and aims to exchange information and knowledge to promote the commitment of society and governments with ethical behaviors and the fair and sustainable development of their cities (REDE NOSSA SÃO PAULO, 2020; ABRAHÃO, 2020).

Finally, a crucial point to help urban centers in their transitions to more sustainable paths is popular participation in decision making. Through participatory governance, which is the ability of a government to articulate and apply rules and provide services, citizens can contribute to the modeling and co-creation of the city. This is fundamental for the establishment of a collective, shared, and long-term vision, allowing public investments to be made in a way that, meets the main needs of its population. (KNIESS et al., 2019; CONTI et al. 2019).

Urban sustainability indicators

Indicators are a mechanism for analyzing development processes, identifying, and observing the existence of aspects and points for improvement. Their diagnoses support decision-making processes and assist in the elaboration of public policies and subsequently measure their effects (SEGNESTAN, 2002; CUNHA, 2003). These are called Urban Sustainability Indicators.

Huang et al. (2015), in their study on sustainability indicators, point out that there are 3 important dimensions (economic, social, and environmental) that make up these indicators both in theory and in practice.

Urban sustainability is fundamentally a dynamic process of harmonizing the environment, with the economy and society in an urban area through institutional design, planning, and activity. An aggregate set of indicators gives life to an index (WU and WU, 2012).

One of the first sets of sustainability indicators for cities was developed by the World Health Organization (WHO) in 1994. The Healthy Cities Indicators (HCI) included environmental, economic, and social indicators (HUANG et al., 2015). Some of the most commonly used indices and indicators globally were addressed in the research by Huang et al. (2015) and are described in Table 1.

Table 1: Sustainability indicators for cities

Green City Index (GCI):	Created to compare cities for their environmental performance. With data from 120 cities around the world, the index contains around 30 indicators in 9 categories, including CO2 emissions, energy, buildings, land use, transport, water, and basic sanitation, waste management, quality of the environment, and environmental governance.
Environmental Performance Index (EPI):	Developed based on 2 themes: protection of human health against environmental damage and protection of ecosystems, it analyzes 9 areas: agriculture, air quality, biodiversity and habitat, climate and energy, fisheries, forests, health impacts, water resources, and water and sanitation.
Genuine Progress Indicator (GPI):	Created to be an alternative to GDP (gross domestic product), known in Brazil as GDP (Gross Domestic Product), the GPI is composed of 20 individual indicators that cover the environmental, economic, and social dimensions of sustainability. The index analyzes the positive and negative impacts of economic activity on human well-being.
Human Development Index (HDI):	Developed by the United Nations in 1990, the HDI (Human Development Index) is undoubtedly the most used because it captures the essential elements of human well-being - life expectancy, education, and standard of living - and because it is easy to compute and interpret. The index considers the economic and social dimensions but does not include the environmental one.
City Development Index (CDI):	Created in 1997 by the UN-Habitat (United Nations Human Settlements Program) to rank cities in the world according to their levels of development. The index is composed of 5 sub-indices: infrastructure, waste, health, product, and education. Each sub-index, in turn, uses multiple indicators. 1) Infrastructure: availability of water, sewage system, access to electricity, and telephony. 2) Waste: wastewater treatment and solid waste treatment. 3) Health: life expectancy and infant mortality. 4) Product: equivalent to GDP, but for the municipal level. 5) Education: literacy and school enrollment. The CDI is effective in measuring urban development and has already been used in the analysis of 232 cities in 113 countries around the world.

Source: Authors (2021).

In 2019, the City of São Paulo adopted the methodology of the City Biodiversity Index, commonly known as the Singapore Index on Cities´ Biodiversity, and launched the first edition of the BIOSAMPAi Index. By gathering 23 indicators about biodiversity in the municipality, it seeks to understand the state and evolution of biodiversity to support the planning of strategies for its conservation and recovery. The indicators are divided into 3 categories: native biodiversity, ecosystem services provided by biodiversity, and governance and management of biodiversity (PREFEITURA MUNICIPAL DE SÃO PAULO, 2020).

Methodology

The investigation employed was qualitative-exploratory research. In this sense, for data collection, in-depth interviews were carried out with specialists using a semi-structured interview script, which was previously validated through a pre-test with a scientist in the field of urban studies and sustainability.

The in-depth interviews took place digitally (videoconference), to avoid health risks for both parties due to the pandemic of COVID-19. The six interviewees were chosen intentionally based on their trajectory, technical capacity, and active role to answer questions about public sustainability policies for the city of São Paulo. To form a quadruple helix, capable of encompassing different visions and experiences, the group of interviewees had at least one member from the following sectors: academia, public sector, private sector, and civil society as shown in Figure 1.

Figure 1: Quadruple Propeller

The identity of the interviewees will be preserved based on the research ethics protocol. Table 2 presents a description of the participants' profiles:

Table 2: Respondents profiles and respective categorization in the quadruple helix

Interviewee	Description	Quadruple Propeller
1	Full Professor at the Biosciences Institute of the University of São Paulo. Director of the Institute of Biosciences at the University of São Paulo. Member of the USP Advanced Studies Institute, where he created and coordinates the USP-Global Cities program.	Academia
2	Postdoctoral Researcher at USP at the Institute for Advanced Studies - Global Cities Program. Ph.D. in Sciences by the School of Public Health at USP. Master's in public health from USP. Specialist in Environmental Law from the Faculty of Law and Faculty of Public Health of USP. Graduated in Law from FMU. Professor at UNINOVE of the Academic Master in Smart and Sustainable Cities - PPGCIS.	Academia
3	Councilman, former secretary of Green and Environment of the city of São Paulo, a proponent of the Conference on Cleaner Production and Climate Change in the City of São Paulo.	Public Sector (Legislative Branch)
4	Chief of Staff and former secretary of the Secretariat of Green and Environment of the city of São Paulo.	Public sector (Executive Branch)
5	President of the Consultative Council of the São Paulo Housing Union (SECOVI-SP) and columnist for Folha de São Paulo.	Private sector
6	The director of the Vila Nova Esperança Association, a community located in the West Zone of São Paulo, seeks to make the Vila Nova Esperança neighborhood 100% ecological and sustainable.	Civil Society

The interviews were recorded, transcribed, and then analyzed following the techniques described by Creswell (2017), and the results were divided into three categories defined from the data (data-driven), being as: 1) Public Sustainability Policies; 2) Transforming Factors and; 3) The Future of The City. The in-depth interviews were conducted between June and July 2020. The results are presented in the next session.

Results

The city of São Paulo, the main Brazilian capital economically with a GDP of U$ 603.4 billion, and ranked as the third-largest economy and the third-largest consumer market in Latin America (CASACIVIL, 2021). It has been acting strongly in public policies aimed at sustainability.

Public sustainability policies

At first, respondents were asked what factors, in their opinion, would make a city sustainable and if they considered that São Paulo could be to become a sustainable city. Interviewees 1 and 5 placed social inequality as a big umbrella that encompasses problems such as health, housing, and security; that prevent the city from reaching higher levels of sustainability. According to interviewee 5: "a sustainable city must have an equitable economic development balanced with the environment and a concern for social equality".

Interviewee 2, who, like the others, agrees that São Paulo is not a sustainable city, highlighting out that the city when compared to other municipalities in the country is a reference in the issue of urban mobility, mainly because it has a population of more than 12 million people. inhabitants, being the city with the most interconnected modes of transport and with the largest subway network in the country. In addition, it also highlighted the city's performance in the management of solid waste, with controlled sanitary landfills, adequate disposal for hazardous waste, and a selective collection being intensified.

In the same vein, Interviewee 4, chief of staff of the Secretariat for Green and Environment, argued that the city has some sustainability policies in place: connectivity, we already have the climate action plan ready to be implemented".

Returning to the question about what factors, in their opinion, caused a city to become sustainable, interviewee 1 argued that cities as part of a primary urban subsystem, where they receive agricultural products, industrial imports that are processed with the combination of water and energy, and end up resulting in the generation of waste (garbage and sewage. According to the academic (Interviewee 1), the less water and energy are used, and the less waste is generated, the more sustainable a city will be.

In a complementary way, Interviewee 2, also linked to the academy, says that a city to be sustainable needs to consider some dimensions such as: urban mobility (mainly about public transport), sources of energy generation and use, availability of water, and sewage treatment and collection and proper disposal of solid waste. In a different light, Interviewee 4 believes that what makes a city sustainable is an equation between public power, private power, and population. Public authorities with the nickname of generating and implementing public policies aimed at sustainability (including environmental education policies); the private sector understanding their relevance and engagement with the cause; and the population daily with sustainable attitudes such as proper waste disposal and correct use of public spaces.

When asked about the public policies related to sustainability that have been adopted by the city in recent years, the interviewees highlighted several actions, some that are still in force and others that no longer exist.

Four respondents cited advances in mobility. Interviewee 1 praised the use of ethanol and biodiesel, which according to him, in the city, the use of these fuels financially compensates the consumer, compared to fossil fuels and emphasized investments in the construction of bus corridors and regulation of transport by applications, such as Uber. Respondents 2 and 3 mentioned the construction of about 400 kilometers of bike lanes under the management of Fernando Haddad (2013 - 2016), a relevant action to instill in the São Paulo citizen the idea that the bicycle could be a viable means of transport. In public transport, Interviewee 4 argued that the new Urban Transport Bidding sought to establish criteria for reducing emissions, through fleet requalification. This is taken with some disbelief, since according to Interviewee 2, in the Municipal Climate Change Policy of 2009 (LEI14.933, 2009), a progressive reduction of the current bus fleet by a less polluting fleet had already been established (Ecofrota Program), which in her words, has not yet occurred.

The Municipal Policy on Climate Change, promulgated by Law 14.933/2009, was remembered by Respondents 2 and 3, who participated in its drafting. Interviewee 3 highlighted the fact that it was formulated with the participation of civil society, academia, different sectors of the private sector, and, of course, the public sector.

Respondents 3 and 4, linked respectively to the municipality's legislative and executive power, cited several public policies related to sustainability that the municipality has adopted or still adopts. Table 3 presents the main ones:

Table 3: Public policies related to sustainability in the municipality of São Paulo, according to Interviewees 3 and 4 perceptions.

	Policy/Public Action	Comments
Interviewee 3	Water Defense Operation Program	Created in 2007, according to the interviewee "practically zeroed the occupation, the invasion, the criminal allotment on the banks of the São Paulo dams. It was suspended during Haddad Management and resumed in 2017".
	Clean Stream Program	With 151 unpolluted watercourses between 2007 and 2017, the Córrego Limpo Program reached an area of 213 km² of basins in the city of São Paulo.
	Clean City Law	Interviewee: "What we have to achieve is visual pollution, because in 2008, 2009 the Clean City Law was passed, which greatly improved the city's visual pollution".
Interviewee 4	Selective collect	The selective household collection is present in 94 districts in the city of São Paulo, covering about 75% of the roads.
	Municipal Plan for Urban Afforestation (MPUA)	MPUA will contribute to the improvement of afforestation management, based on participatory planning and actions. It is an instrument to define the planning, implementation, and management of urban afforestation in the Municipality.
	Connect the dots project	"The Connect the Points project that creates an agroecological transition network for the south of São Paulo; it is a way of guaranteeing the farmer's permanence as a farmer, preserving the agricultural areas of São Paulo."
	Environmental education - UMAPAZ	"We are working hard to implement environmental education policies that lead the population to engage. the environmental education unit here at the secretariat, which is UMAPAZ, has developed environmental awareness and education programs that are spreading throughout the city".
	Adoption of the BIOSAMPA Index	"gathers indicators that make it possible to measure biodiversity in the City of São Paulo, as well as making it possible to compare with other cities that use the same methodology."

Source: Prepared by the authors based on data from the city hall and interviewees (2020).

For Interviewee 3, city councilor in his 5th term, policies and actions related to sustainability is not a priority for municipal administrations: "São Paulo's efforts in the environmental and sustainability areas are small and on the periphery of public policy priorities current management. It is not part of the current management, it is management that has been in existence for practically eight years. The last intervention that [...] resulted in a great advance to transform São Paulo into a more sustainable city, was in the management that Eduardo Jorge was Secretary of Green and Environment of São Paulo, from 2005 to 2012. We had 36 parks in 2004, in 2012 we had 100. In those eight years, [...] 1,600,000 trees were planted in the city. The *Ecofrota* Program was started, when 2012 ended São Paulo had 1,500 buses powered by less polluting fuels, such as biodiesel". The Ecofrota Program was discontinued in 2013, under the management of Fernando Haddad (PT). Also according to Interviewee 3, the low budget that the Secretariat for Green and Environment receives is yet another demonstration of the non-priority of the theme in the management of the municipality: "the Secretariat of Green in São Paulo currently has 0.3% of the city budget [...], we are in a very difficult moment, very suffering [...] there is no public policy for real and effective implementation of sustainability in São Paulo". Dissonant view of interviewee 4, former secretary of Green and Environment and current chief of staff of the same secretariat, for him "in terms of public policy, São Paulo is one of the most advanced in the world ... data with all the major cities in the world in terms of public policies and international commitments, signed and fulfilled".

The 2010 National Solid Waste Policy, even though it is a federal law, it was cited by Respondents 2 and 6 as an important policy for the city. For the representative of the academy (2),

"it came at a time when it was very necessary, establishing the issue of reverse logistics and shared responsibility among [...] all representatives of a product chain".

Finally, the representative of civil society (Respondent 6), director of the *Vila Nova Esperança* Association, criticized: "the truth is that we have other problems in the city that end up stifling any more sustainable initiative. It takes place that it is simply impossible to resolve the garbage collection and implement the separation of waste if the truck does not pass through the alley of the favela. Sustainability should be integrated into everything, in all policies, so that whenever we think about a new policy, think about how that policy will not contribute to the destruction of our natural resources".

To finalize the category of "Public sustainability policies", the interviewees were invited to take stock. In terms of sustainability issues, in the last 10 years, the city: wouldn't it have advanced, would it have made little or much?

Among the interviewees who argued that the city would have made little progress, the political situation stands out as one of the main factors for this result. According to interviewee 5, linked to the private sector, "the implementation of policies is never done properly. When we talk about sustainability, we think about this environmental, economic, and social tripod. But, we forget another little foot [...] that is fundamental for this to happen, which is the political one". Interviewee 1 added, "the big problem today is in politics. It is not that politicians are bad; it is that they are ignorant of theories and each has its concept of public policy".

In turn, a factor remembered to demonstrate the advances that the city has achieved was the population's awareness of the issue of sustainability. According to Interviewee 2, "these 10 years have served to draw the attention of our population to fundamental issues. If we don't have important behavioral changes, we can't improve our quality of life". For Interviewee 6, "the mentality of the population has advanced a lot. I think people are at least concerned, they are at least concerned about being sustainable".

Transforming factors

In the "Transforming factors" category, some factors that could be decisive in the "sustainability process" of a city were systematized, based on the theoretical chapter, where some challenges were presented for the transition from "traditional cities" to "sustainable cities". Thus, respondents were asked about urban planning; popular awareness and participation; and technology. Concerning urban planning, more broadly, Interviewees 1, 5, and 6 spoke about the importance of this component being done through a systemic view and reconciling urban and social factors, with the intention that the inhabitants who live in that location enjoy a better quality of life.

For respondent 5, linked to the real estate sector, systemic thinking brings greater efficiency to the city and public spending, "If you do urban planning where people have to travel less, you end up solving the question of the cost of implementation of mass transportation. Neighborhood centers for people to be close in their day-to-day activities and not have to move around a lot, structures for active cycle commuting, all of this helps the sustainability of cities".

Interviewee 6, director of the *Vila Nova Esperança* Association, sees urban planning as a way of measuring the positive and negative impacts of a given action before taking it and an effective way to optimize spaces and constructions already carried out, to avoid new environmental damage.

The Municipal Master Plan is defined in § 1 of Article 182 of the Federal Constitution of 1988 as "the basic instrument of urban development and expansion policy". Since the 2001 Statute of Cities, it has become mandatory for municipalities with more than 20,000 inhabitants (IBGE, 2018). Even so, in 2015, 50% of the municipalities in the country that should have a Master Plan had not yet prepared it.

Interviewee 2 addressed the importance of the Master Plan as an instrument for planning to be carried out and reviewed every 5 years. According to her, "you can, after 5 years, evaluate what worked, what didn't, revise and ensure that some changes happen. The Master Plan also makes it possible for society to participate in this evaluation and review process".

Both representatives of the public sector spoke about the case of São Paulo and its history of disorderly occupation. For interviewee 3, the aggression to the environment in the city is done "by the poor when they invade the edge of a stream because they have nowhere to live; for organized crime when it clears the forests of water sources; and by builders and real estate developers when they do things where they shouldn't be doing". He also emphasized the influence that the real estate

sector has on the city council and the pressure that is put on deregulation in favor of disorderly verticalization.

Interviewee 4, chief of staff of the Secretariat for Green and Environment, highlighted the importance of the 2014 Master Plan for the development of the city of São Paulo, "the Master Plan establishes licensing criteria and principles, green plans for the development of the city, criteria for gauging the destination of solid waste, criteria for the evolution of transport, generated the municipal transport plan, municipal plan for *Mata Atlântica*, municipal plan for afforestation, municipal plan for garbage. Deploying it and making it count gives another dimension to the city. It is all about enforcing what is in the law".

When asked about strategies and mechanisms to raise awareness and engage the population on the issue of sustainability, Interviewees 1 and 2 argued that environmental education plays a very important role, which is to give knowledge about what sustainability is, to warn about the environmental problems we have and raise awareness that attitudes are changed. Interviewee 1 complemented his answer by saying that education, for greater assertiveness, should be adapted according to the age group to be reached and that in this respect, technology could be a great ally. Interviewee 2 ended her argument with a challenge that permeates sustainability, "as it is a collective question and it is not immediate, it is not something you do today and tomorrow you see the result, it is a question that you need to implement, insist on, and you will have to make people aware and repress some attitudes or habits that were already incorporated".

For Interviewee 6, the government has the opportunity to set a very big example to promote the change in the population's habits. She gives the example of the city of *Chapecó* (SC), where "the city has adopted a measure of being zero waste. And this is very interesting because [...] in addition to being a huge example, it will involve a whole change in bids, forcing all suppliers to adapt. All public facilities, such as schools, social assistance networks, urban planning, will need to be zero waste".

Respondents 4 and 5 focused their responses on social participation. For them, people need to have forums for participation, such as councils and public hearings, but they should not be restricted to them. The government has to always be attentive and propose alternatives for greater popular participation. This is in line with Conti and Vieira (2020), when they state that collaborative governance presupposes the possibility of participation by all citizens, regardless of social class, race, or religion. In this way it is possible to have a perception of the real needs and desires of society, resulting in a model where everyone wins.

With regard to technology, among their positive attributions, Interviewees 1 and 6 highlighted their facilitating role in communications, enabling the dissemination of information and the generation of debates. Following the line of communication, Interviewee 4 brought up a little of the reality of the executive power of the municipality of São Paulo and commented that technology has been essential to bring the city's departments closer through much faster and more effective interactions and this has allowed the perception of different municipalities that environmental policy is transversal and permeates different areas such as urban planning and janitorial.

Interviewee 2, from the academy, and Interviewee 6, from civil society, corroborate the importance of technology. However, they pay attention to the necessary care so that it is not an exclusive tool. For them, it is necessary to have an educated population to know what to do and how to interact properly with the information and dispositions that technology brings; as well as considering that a good part of the population still has restrictions on the internet access.

The future of the city

In the third and last category, we present the issues related to the future of urban sustainability and the city of São Paulo, seeking to understand the existing challenges for the adoption of public policies that privilege sustainability, the initiatives that could/should be taken for the improves the quality of life of citizens and expectations for the city in the coming years.

In the opinion of Interviewee 1, there are two main factors related to the policy that ends up being consequently reflected in public policies related to sustainability. The first is the poor quality of the political framework, with candidates and elected officials ill-prepared for both legislative and executive functions. The second is the influence that certain business groups have on politicians, "If the bus companies, if the construction companies and other groups that are very strong had a vision

of a free mandate rather than a tied mandate, we would have politicians of a different quality, which would reduce inequality, put more people in the game and make the whole city better".

Interviewee 2, also a representative of the academy, brought other points. In her view, culturally we have a resistance to respect and comply with laws that are in force, a point that also emerged in the interviewee's speech 3. The concern of politicians with "what gives a vote" or "what will not take a vote" was mentioned by her and also appeared in the Interviewee's speech 4: "The public power is very afraid to make decisions that contradict public opinion, decisions that in theory would be at odds with current understanding".

However, discontinuity is the factor that most affects policies related to sustainability in her view: "the main difficulty that we find in the executive and legislative branches to achieve this long-dreamed, utopian, sustainability is discontinuity. As we change every four years (the political situation), everything that has started, that is working, or that is being built, changes so that the other does not take the merits "and adds with an example of how continuity is important for sustainability, which naturally requires medium and long-term planning to have the expected effect: "the great positive results that we managed to obtain in the municipal management of São Paulo, were from a time when we maintained the same secretary for green and the environment for 2 consecutive terms ". She was referring to Eduardo Jorge in the terms of the mayors Gilberto Kassab and José Serra, between 2004 and 2012.

Table 4, in a systematic way, the results offered by the interviewees to the question about what would be the main initiatives that should be taken by the public authorities to improve the quality of life of the inhabitants of a city.

Table 4: Initiatives to improve the quality of life of the inhabitants of a city according to the perception of the interviewees

Respondent	Inciatives
Interviewee 1	Technology in favor of more education, entertainment, knowledge, and security
Interviewee2	Investment in education; Strict compliance with laws; Integration and collaboration between government, private initiative, civil society, and academia; Better equip and increase the budget of environmental agencies; Promote the proper destination of solid waste.
Interviewee 3	Adjust the bus fleet by less polluting sources; Protection of water sources and bodies + sewage treatment; Measurement and control of noise and visual pollution; Expansion of the cycling network; Creation of new parks.
Interviewee 4	Promote proper disposal of solid waste; Increased afforestation / green areas.
Interviewee 5	Decent housing; Safety; Quality health.
Interviewee 6	Combating inequality; Decent housing; Universal access to basic sanitation; Strict compliance with existing laws.

Source: Authors (2020).

Finally, the last question of the interview asked the interviewees to think about how they believed that the city of São Paulo would be in the next 10 years. The factor most cited by everyone and seen as essential for São Paulo to move towards more sustainable development is awareness, participation, and popular pressure. Respondents 3 and 4, both from the public sector, differ in terms of the degree of organization of this popular pressure. For 3, the pressure already exists and is great, but it is not organized in movements, while 4 believes that the city already has movements/collectives organized in favor of sustainability and highlights the city's commitment to international organizations: "I think that we have elements, we have a necessary critical mass already formed in the city, very important groups thinking and working on it (sustainability). We have the city's commitment to international policies and organizations. São Paulo works in partnership with the United Nations, World Bank, C40, Cities for forests. We have public policies to ensure that the city is sustainable, we are facilitating the diffusion of environmental education to form a slightly larger critical mass and I think that people are increasingly sensitive to this issue".

Regarding popular participation, interviewees 1 and 6 highlighted the emergence of local leaders who are emerging on the outskirts of the city. According to interviewee 1, he is seeing very well-trained people "who are studying at the best universities, who live in the favelas and who are trying to change the favela from the bottom up. São Paulo can improve a lot, I am seeing a great commitment, an overly excited youth to change things".

In the political framework, interviewee 1 believes that the quality of the politicians elected by the population will be preponderant in this process, while interviewee 3 believes that the elected mayors will play the crucial role of leading the change: "the mayor who wins must have this commitment, you have to want it, you have to be the environmentalist, you have to be a person with a vision of the future of sustainability". Anyway, they believe that we will have better candidates given the popular awareness and pressure.

Concerning the city's infrastructure, interviewee 2 believes that in 10 years the city will have integrated transport modes more efficiently and that there will be an appreciation of active transport. Factors that would make, in her words, São Paulo a "more human, inclusive and resilient" city. Respondent 5, linked to the civil construction sector, believes that the city will be able to better plan its development in the coming years because the rate of population growth is at a decreasing moment. We ended this results session with a speech by Interviewee 6, who sees this moment as opportune for the city to "rethink the dynamics of work, rethink the mobility system and how society is structured. [...] also an opportunity to look at how to shorten distances, how to expand the possibility of active commuting and how we can also give more value to the health system, which is directly related to sanitation, which is completely related to the environment, which is completely related to sustainability".

Discussions

The composition of the interviewees in a quadruple helix (academy, private sector, public sector, and civil society) provided a broad view on the topic, given that each interviewee presented arguments and points of view regarding the reality they experience in their professional activities. As a result, it was possible to obtain a comprehensive study on the current situation of urban sustainability and the city of São Paulo, as well as to understand the expectations of these people for the future of the city with regard to sustainability.

In addition to the clear perception that São Paulo is not a sustainable city, even with some specific actions related to sustainability, another point that could be easily observed is that one of the main challenges for the policies related to this theme to advance in São Paulo, it is due to the electoral logic of reelection, which directs politicians to privilege executable projects in a short term and that also bring quick results, to win votes for a second term. Sustainability projects, in turn, tend to bring and show their results only in the long run, which generates disinterest in the executive. Even so, when a project manages to be approved, it will have a new challenge ahead: the discontinuity of management.

These challenges will be faced by all projects that seek to reduce social inequality, for example, since it is a complex problem and needs long-term solutions. This was seen by at least 4 interviewees as a key aspect to be tackled in the search for a more sustainable and fairer city. After all, how to talk about sustainability for someone who doesn't even have sanitation at home?

It is also noticed that there is a divergence of understanding regarding the current situation of public sustainability policies in the city of São Paulo. While the representative of the legislature (Interviewee 3) sees the current situation with considerable pessimism, the representative of the executive (Interviewee 4) believes that the city has evolved significantly and treads a prosperous path towards a better future. This gives the feeling that there is a mismatch within public management and that there is no clear perception of the reality of the municipality. In general, most participants believe that given the capacity it would have, São Paulo has made little progress in the past 10 years in terms of sustainability.

Respondents demonstrated an understanding that we do not need more municipal laws or other federative bodies, but rather compliance with already demanding laws, with sanctions for violators. Reducing the ineffectiveness of the legislation would already make the city go a long way in urban sustainability issues.

On the part of the executive power, a greater systemic vision of the city is demanded, capable of integrating public policies through the municipal secretariats, so that they work in a joint and orchestrated way, preventing different projects from colliding in their interests. Thus, the more systemic a public policy is, the greater the chance that it will succeed after being implemented. Seen by all the respondents as an important component in the way of cities to become more sustainable, technology can also open space for the public authorities to activate the culture of popular participation in a more effective way. The already traditional means, such as councils and assemblies, seem limited and limiting in a city with more than 12 million inhabitants in the middle

of the 21st century. Increasing the mechanisms for collecting public opinion, through social networks, for example, can be an alternative to ensure that public investments are made to meet, in fact, the main needs of the population.

At the same time, the third use of technology can occur in the process of education and awareness of city residents. Awareness leads to an increase in popular pressure for guidelines related to sustainability to move forward. It is believing in a higher educational level of the population that the interviewees showed optimism with the future of the city when they answered that they believe that it will be better in 10 years. A final inference that can be made is that the public power must value the importance of investing in science and strengthen ties with the academy so that it can provide it with scientific knowledge to support the formulation of public policies.

Conclusions

The city of São Paulo carries in its identity the history of the actions carried out by its public managers in the past. These actions were the result, among other factors, of political ideas and interests, the desires of its population and the technologies, and financial resources available at the time. Thus, the city was founded in 1554, but which had its first Master Plan only in 1972, developed informally and without planning for almost its entire history. As a result, the metropolis of São Paulo in 2020 still presents several social, environmental, and economic problems that prevent it from being characterized as a sustainable city.

Despite this, as the results of this research demonstrate, the city has been advancing slowly in recent years in search of establishing some public policies that privilege sustainability, even with all the challenges also mentioned in this work.

Looking ahead, in the possibility that future political managers in the city will start to consider sustainability issues more emphatically, it will be necessary to place human well-being at the center of city planning, giving equal attention to environmental and social issues. It is worth mentioning that sustainability is an ongoing process and not an end goal. Sustainable cities are places in the constant process of improvement.

As a continuation of this work, which brings with it the inherent incompleteness of exploratory research, a more detailed study of the relations between academia and public power becomes relevant; and civil society and public power. Understanding in more detail how these relationships flow and seeking to improve them seems to be a key item for public management to have a scientific basis and a fine-tuned perception of the real needs of the population before formulating public policies.

References

ABRAHÃO, Jorge. Ferramentas e instrumentos para transformar a sustentabilidade das cidades brasileiras. In: CONTI, Diego de Melo; VIEIRA, Vinnicius Lopes Ramos (org.). O futuro das cidades: sustentabilidade, inteligência urbana e modelos de viabilidade utilizando PPPS e concessões. São Paulo: CD.G Editora, 2020. p 47-54.

BENTO, Sarah Corrêa., et al. As Novas Diretrizes e a Importância do Planejamento Urbano para o Desenvolvimento de Cidades Sustentáveis. Revista de Gestão Ambiental e Sustentabilidade: GeAS, v. 7, n. 3, p. 469-488, 2018.

CASACIVIL. São Paulo is the 21st largest economy in the world., 2021. Available at:

http://www.casacivil.sp.gov.br/sao-paulo-e-a-21a-maior-economia-do-mundo/

CHILDERS, D. L., et al. Advancing urban sustainability theory and action: Challenges and opportunities. Landscape Urban Plan. (2014), http://dx.doi.org/10.1016/j.landurbplan.2014.01.022.

CONTI, Diego de Melo et al. Collaborative governance towards cities sustainability transition. urbe. Revista Brasileira de Gestão Urbana, v. 11, 2019.

CONTI, D.; VIEIRA, V. Governos locais e sociedade civil: a nova democracia urbana para o desenvolvimento de cidades sustentáveis. In: CONTI, Diego de Melo; VIEIRA, Vinnicius Lopes Ramos (org.). O futuro das cidades: sustentabilidade, inteligência urbana e modelos de viabilidade utilizando PPPS e concessões. São Paulo: CD.G Editora, 2020. p 24-34.

CRESWELL, J. W. Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications, 2017.

CUNHA, F. O uso de indicadores de sustentabilidade ambiental no monitoramento do desenvolvimento sustentável agrícola. Centro de estudos em economia, meio ambiente e agricultura. 2003. Universidade de Brasília. P. 85.

DESA, U. N. World Urbanization Prospects: The 2018 Revision. New York, 2018.

ELKINGTON, J. Canibais de garfo e faca. São Paulo: Makron Books; 2001.

GALA, P. História econômica da cidade de São Paulo. Revista de Economia Política, vol. 25, nº 3 (99) São Paulo. pp. 314-317 julho-setembro/2005.

GEHL, Jan. Cidades para pessoas. 2013.

HABITAT, U. N. Urbanization and development emerging futures. World cities report, 2016.

HUANG, L. et al. Defining and measuring urban sustainability: a review of indicators. 2015. DOI 10.1007/s10980-015-0208-2.

IBGE. Available at: https://cidades.ibge.gov.br/brasil/sp/sao-paulo/panorama. Accessed on: 28th August 2020.

https://cidades.ibge.gov.br/brasil/sp/sao-paulo/panorama

IBGE. Perfil dos Municípios Brasileiros. 2018. Available at: https://agenciadenoticias.ibge.gov.br/media/com_mediaibge/arquivos/496bb4fbf305cca806aaa167a a4f6dc8.pdf . Accessed on: 13th August 2020

KNIESS, C. et al. Inovação urbana e recursos humanos para gestão de cidades sustentáveis. 2019

LEI 14.933. Institui a política de mudança do clima no município de São Paulo, 2009. Disponivel em: https://leismunicipais.com.br/a/sp/s/sao-paulo/lei-ordinaria/2009/1493/14933/lei-ordinaria-n-14933-2009-institui-a-politica-de-mudanca-do-clima-no-municipio-de-sao-paulo. Accessed on: 25th October 2020.

LIMA, E. et al. Smart and Sustainable Cities: The Main Guidelines of City Statute for Increasing the Intelligence of Brazilian Cities. Sustainability. 2020, 12, 1025; doi:10.3390/su12031025. www.mdpi.com/journal/sustainability (p. 1 – 5)

PREFEITURA MUNICIPAL DE SÃO PAULO. Available at: https://www.prefeitura.sp.gov.br/cidade/secretarias/meio_ambiente/noticias/?p=293015 . Accessed on: 11th August 2020.

REDE NOSSA SÃO PAULO. Available at: https://www.nossasaopaulo.org.br/rede-social-brasileira-por-cidades-justas-democraticas-e-sustentaveis/ . Accessed on: 17th May 2020.

SEGNESTAN, L. Environment and Sustainable development; Theories and pratical experience. 2002. The Word Bank Environment Department, Washington DC. Fonte: worldbank.org/inteli/9362IT111580/

UNISDR. United Nations International Strategy for Disaster Reduction. World disaster reduction campaign. Ginebra, 2010.

WU, J.G.; WU, T. Sustainability indicators and indices: an overview. 2012. In: Madu CN, Kuei C (eds) Handbook of Sustainable Management. Imperial College Press, London, pp 65–86.