



III *Sustentare* – Seminários de Sustentabilidade da PUC-Campinas
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CHALLENGES TO SUSTAINABLE URBAN PLANNING POLICIES IN THE CITY OF SÃO PAULO - BRAZIL

Rafael Prata Torres, FIA, rafaelprata.t@gmail.com
Diego de Melo Conti, PUC-Campinas, diegoconti@uol.com.br
Meriellen Nuvolari Pereira Mizutani, Uninove e Anhanguera, merinuvolari@gmail.com
Cristiano Capellani Quaresma, Uninove, quaresma.cristiano@gmail.com

Abstract

The city of São Paulo is the most populous city in Brazil and can be considered the most important urban and financial center in South America. However, this city had an accelerated urbanization process and without proper planning, resulting in urban problems that challenge sustainability. In this sense, this study seeks to understand the current situation of the city of São Paulo in matters related to urban sustainability, as well as to identify existing actions and the main challenges that still need to be faced. The study can be classified as exploratory with a qualitative focus and is based on a literature review and in-depth interviews with social actors involved in sustainable projects in the city of São Paulo, which represent views of the public and private sectors, academia and civil society. Among the main results, it can be pointed out that there have been small advances in the city in recent years, however it is still far from the desired sustainability. The study also points out that the city should act on three fundamental fronts with ways to improve its present reality, namely, urban planning, the reduction of social inequalities and environmental education.

Keywords: Sustainability, Urban Sustainability, Urban Planning, Public Policy.

1. Introduction

World data on urbanization allow us to verify that cities have constituted the main way of life for humanity (QUARESMA & OLIVEIRA, 2020). Currently, more than 55% of the world population lives in cities and, according to forecasts, this percentage should reach 66% by 2050. This means that there will be an increase of 2.5 billion people in urban centers in the coming years, implying major challenges sustainability, especially in developing countries (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 (KNISS 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 its 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 fu-



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ture based on the concept of the sustainability tripod, strengthening a development process balanced between the social, economic and environmental dimensions (ELKINGTON, 2001; GEHL, 2013).

Conti e Vieira (2020) highlight that sustainability is a fundamental part for cities to become increasingly resilient, regenerative, and habitable organisms. Such characteristics become even more relevant nowadays, given the existing challenges related to climate changes and 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).

Among the main urban problems resulting from disorderly population growth in cities, we can cite the social inequality, the problems of mobility and accessibility and the environmental pollution. Facing these problems highlight the importance of urban planning and municipal public policies to improve the quality of life of the urban population (ABRAHÃO, 2020).

The city of São Paulo is the most populous city in Brazil (absolute population of 12,325,232 inhabitants). In addition, it constitutes the largest urban and financial center in this country (IBGE, 2020). However, its economic development did not take place in a sustainable way, which resulted in a situation marked by environmental degradation and social injustice.

Thus, considering the relevance of the city of São Paulo to Brazil and South America, this work sought to understand the current situation of the city of São Paulo in matters related to urban sustainability, as well as to identify existing actions and the main challenges that still need to be faced.

2. 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. Knies et al. (2019) highlight that a city can be characterized as being the expression of a systemic and mutual interaction between natural and social ecosystems.

A crucial factor in determining how sustainable a city is predisposed to be, is 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



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and expansion, in order 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) argues that cities like Johannesburg, Mumbai and Sao Paulo, which is the subject of this study and will have its 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 places in 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 in order 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.

2.1. 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 authors, 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.



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These factors, when combined, make urban systems less flexible and existing bodies less agile in the face of opportunities for change. In this sense, 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, it is essential that there is: 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.

Childers et al. (2014) present two categories of solutions to the challenges to urban sustainability, namely: a) Solutions that fit / correct the current system, whether infrastructure, institutional or social. Such solutions coexist with the inertia of these systems; b) Transformative solutions that require new systems and new ways of doing business. These solutions face the inertia of existing systems. According to the authors, it will be up to the public administrator to define which of the existing solutions is the most appropriated to the reality of their municipality.

For a better understanding of the solutions and their potential, it is necessary that cities participate in knowledge and technology transfer networks, in order 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 in order to exchange information and knowledge about sustainable urban practices (CHILDERS et al., 2014).

In Brazil, an important initiative is the Brazilian Social Network for Fair, Democratic and Sustainable Cities. This network is an initiative created in 2008, consisting of non-partisan and inter-religious organizations, with the objective of promoting exchanges of information and knowledge, in order to strengthen the commitment of society and governments to ethics and with the fair and sustainable development of its cities. (REDE NOSSA SÃO PAULO, 2020; ABRAHÃO, 2020).

Finally, popular participation in decision-making is a crucial factor in helping urban centers in their transition to more sustainable paths. Through participatory governance, 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, in fact, meets the main needs of its population. (KNISS et al., 2019; CONTI et al. 2019).



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2.2. Urban sustainability indicators

Although there is no universal consensus regarding the concept of sustainability, sustainable development can be appointed as a lasting development capable of meeting human needs, as well as providing improvements in the quality of life. At the same time, this development must allow the use of natural resources on a scale that does not affect the regenerative capacity of ecosystems (TURCU, 2013).

The progress of cities in relation to sustainable development can be measured using indicators, which can provide the information needed to measure environmental, economic and social progress (VERMA & RAGHUBANSHI, 2018).

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).

Indicators are a mechanism that favors the analysis of development processes, allowing the identification of aspects and points that need improvement. Its data are important for the elaboration of public policy and decision-making (SEGNESTAN, 2002; CUNHA, 2003).

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

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 in line with Figure 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



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	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.
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Source: Authors (2021).

In 2019, the City of São Paulo adopted the methodology of the City Biodiversity Index, commonly known as Singapore Index on Cities’ Biodiversity, and launched the first edition of the BIOSAMPA Index. By gathering 23 indicators about biodiversity in the municipality, it seeks to understand the state and evolution of biodiversity in order 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).

3. Methodology

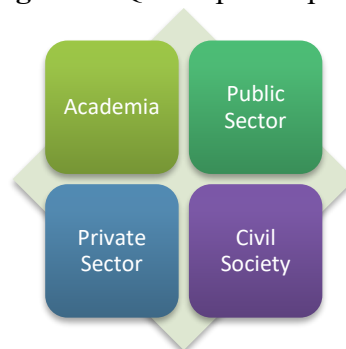
The study can be classified as exploratory with a qualitative focus and is based on a literature review and in-depth interviews with social actors involved in sustainable projects in the city of São Paulo, which represent views of the public and private sectors, academia, and civil society.

The interviews were semi-structured, and the script was previously validated through a pre-test with a scientist from the area 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.

In order 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 the Figure 2.

Figure 2: Quadruple Propeller



Source: Authors (2020).



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The identity of the interviewees was preserved to respect ethical research protocols. Table 2 presents a description of the participants' profile:

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

Inter-viewee	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.	University
2	Postdoctoral Researcher at USP at the Institute for Advanced Studies - Global Cities Program. PhD 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.	University
3	Councilman, former secretary of Green and Environment of the city of São Paulo, 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	Director of the Vila Nova Esperança Association, a community located in the West Zone of São Paulo, which seeks to make the Vila Nova Esperança neighborhood 100% ecological and sustainable.	Civil Society

Source: Authors (2020).

The interviews were recorded, transcribed and later analyzed following the techniques described by Creswell (2017). 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.

4. Results

4.1. Public sustainability policies

Initially, respondents were asked what factors, in their opinion, would make a city sustainable. They were also asked if they considered that São Paulo could be becoming a sustainable city. Respondents 1 and 5 placed social inequality as a big umbrella that covers issues such as health, housing and security. According to them, this problem prevents the city from reaching higher levels of sustainability. According to interviewee 5: “a sustainable city must have equitable economic development, balanced with the environment and a concern for social equality”.

For interviewee 2, as for the others, São Paulo is not a sustainable city. The respondent highlighted, however, that the city, when compared to other municipalities in the country, is a



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reference in the issue of urban mobility, mainly because it has means of transport with the highest level of interconnection in the country. Also in relation to mobility, the respondent highlighted that São Paulo has the largest subway network in Brazil. Another point highlighted by interviewee 2 was the city's role in solid waste management, implying controlled sanitary landfills, the proper destination for hazardous waste and the intensification of selective collect.

In the same vein, Interviewee 4 highlighted that the city has some sustainability policies in place and that the climate action plan is ready to be implemented.

Returning to the question about what are the main factors that makes 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 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 are mentioned here in the sense of generating and implementing public policies aimed at sustainability (including environmental education policies); the private sector understanding their relevance and engaging with the cause; and the population on a daily basis 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. The interviewee mentioned also emphasized investments in the construction of bus corridors and regulation of transport by applications, such as Uber. The Interviewees 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 transportation, 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.

Respondents 2 and 3 highlighted the Municipal Policy on Climate Change, enacted by Law 14.933 / 2009. Given that the aforementioned respondents participated in the preparation of this Policy, they highlighted that it was formulated with the participation of civil society, academia, in addition to various public and private sectors.



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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. The 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
Inter- viewee 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 waterways between 2007 and 2017, the Córrego Limpo Program reached an area of 213 km ² 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”.
Inter- viewee 4	Selective collect	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 are 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. In fact, it is not part of the current management, but a management that has existed for almost eight years. The last intervention that [...] resulted in a great advance in the transformation of São Paulo into a more sustainable city, took place during the administration of the Secretary of Green and Environment, Eduardo Jorge, 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



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the management of Fernando Haddad (PT). Also according to Interviewee 3, the low budget that the Secretariat of Green and the Environment receives is yet another demonstration of the lack of priority of municipal management in relation to the issue: “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 (Interviewed 6), director of the Vila Nova Esperança Association, criticized: “the truth is that we have other problems in the city that end up suffocating any more sustainable initiative. It turns out that it is simply impossible to solve garbage collection and implement garbage separation, since the truck does not go through the favela’s alley. 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 end the category “Public sustainability policies”, respondents were asked to take stock of the advances the city had made in sustainability issues over the past ten years. Therefore, respondents were asked if they assessed the city: no made advances, made little progress or made many advances.

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 own 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”.

4.2. 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”.



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Thus, respondents were asked about urban planning; popular awareness and participation; and technology.

With regard to 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 Interviewee 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, in order 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 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,



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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. It is the duty of the government 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.

About 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 allowing 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 internet access.

4.3. 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 end 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



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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.

The 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	Initiatives
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 factors most cited by all



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interviewees and which they pointed out as essential for São Paulo to move towards more sustainable development were 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. Sao 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.

With regard to 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”.

5. 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.



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The city was founded in 1554, but had its first Master Plan only in 1972. Thus, it is possible to see that the city developed informally and without planning throughout its history.

As a result, the metropolis of São Paulo, in 2020, still has several social, environmental and economic problems that prevent it from being characterized as a sustainable city.

In spite of 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 constant process of improvement.

Continuing this work, which brings with it the incompleteness inherent to exploratory research, a more detailed study of the existing relationships between academia and public authorities, as well as between civil society and public authorities, becomes relevant. 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.

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