Conceptual Landmarks of Sustainable Development in Cities -
A Reading of the Process of Building the Idea of Sustainable Development

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Abstract. The revision of concepts - from the systemic approach to the recognition of socio-
environmental structures - advanced the proposals for sustainable development of the Global
Urban Forums. However, the distance between the discourse and practice in the alleviation of
socio-environmental inequality in cities was still persistent. Nature is recognized by the
CAPITAL as an object to be captured as private property - which, by not incorporating work, does
not need to be paid for. Treated as an externality of the economical process, nature's social role
was neglected for a long time, making the revision of this concept necessary. Parallel to that, urban
legislations advanced in the control of the use of urban land to finance infrastructures and basic
services in cities, consolidating the principle of its social function. Thus, in 2014, the City of São
Paulo approved a Strategic Master Plan (PDE) that incorporated the Onerosa Grant as a
mechanism for capturing real estate surplus value, whose resources feed a public investment fund -
Urban Development Fund (Fundurb). This fund makes plans, programs and urbanistic and
environmental projects. The objective of this research is to verify the implementation of Fundurb
resources in the promotion of environmental programs and projects and in the recovery/mitigation
of impacts to the natural environment by the urbanization process of the city of São Paulo.

1. Introduction
Considering that the explosive urbanization of the global population, the territorial expansion of urban
conglomerates and the socio-spatial segregation represent a threat to the environmental balance, the
actions in urban territory scopes constitute a basic strategy, especially when urban land is one of the most
valued and wealth-generating goods in the world economic structure today. Therefore, we can see public
actions and policies that incorporative environmental assets (urban or not) with a valuation criteria similar
to the one given to land as a strategic and fundamental issue for the sustainable development of cities.

However, it considers that because it is a mechanism to capture surplus value over land use, it does not
take ownership of the concept of environmental services that could extend its scope from repair and
remediation of environmental offenses to the maintenance and conservation of assets - such as
afforestation of urban areas and tree stands, which would have guaranteed benefits for urban populations.
2. Building the idea of sustainable development

After the publication of The Limits of Growth document by the Club of Rome in 1972, which alerted that if the conditions of exploitation of natural resources, of industrialization, food production, contamination and environmental pollution were maintained, the planet's limits would be "reached within the next hundred years" [1], some criticisms have arisen. Solow [2], for example, stated that when establishing limits to their economic growth, Western developed societies would be blocking the way for less developed nations.

In the same year of 1972, the United Nations promoted the UN Conference of the Human Environment. According to some authors [3], one of the biggest contributions of such conference was the emergence of the concept of sustainable development - suggesting that the pattern of economic development in place could be more balanced and should, therefore, be altered.

The historical relationship between human societies and nature has been guided by transformative actions of such on a basis - a land that was given to them - through technical interventions, thus constituting another nature: one that is humanized [4].

Based on this, Santos [5] presents a historical analysis of these relations. He defines three periods determined by the action of the techniques on territory, extending from the local to the global scope and starting from the subsistence to the accumulation of wealth. The first period, which originated in Antiquity, where the natural environment was used without major transformations through work and use of local tactics of agriculture, which preserved the continuity of the way of life (Socio-spatial Harmony). The second commencing the seventeenth century, when the industrialization (where the transformation of the natural environment occurred through techniques based on scientific knowledge and unfamiliar to local logics) superimposed it on natural forces, constituting what the author calls the Technical-Scientific Environment. And the third period which was in force when economies, technology and science were brought to a global market in 1970s - where information is the leading "energy", expanding from big cities to the rural world, and attending hegemonic interests in politics, economy and culture; this constituted a Technical-Scientific Informational Medium [5].

This process shows how the close relationship between economy and the environment (or between society and space, as Santos sees it [5]) which expands, sophisticates and distances itself from productions sites and economies, is giving other attributes to the space where people indeed live and work - forming a set of natural and artificial forms, inherited from the past and given new functionalities or valuing the space [6].

Schutzer [6], who draws his insights from a Marxist view, affirms that only work gives life and social function to artificial and natural objects. So capital transforms "nature into a simple object" to be "captured like private property"; by "denaturalizing nature" it internalizes the idea that there is no need to pay for its use, given that it doesn't incorporate human work and is therefore a "gift of nature." Nature, dominated by the power and techniques which are allied to science, is treated like an externality to the economic process; because of that, the perception that achieves a social role within the capitalist production has been neglected for a long time. But an important concept evolves from this criticism: that urban ecosystems (courses and bodies of water, forest stands and other green areas) contribute to the mitigation of the impacts that human activities have on the urban environment, which then promotes air filtration, reabsorption of water surpluses, reduction of the heat island effects and sound pollution - to note the most memorable ones. These then offer "benefits to the human population, directly or indirectly, from the functions of ecosystems" [6] e that constitutes a group of important environmental services in the context of urban ecosystems.

Santos [4] classifies the composing elements of space as being: men, institutions, environment and infrastructure - clarifying that environment is a set of territorial complexes that constitute the physical basis of human work and infrastructure the human work materialized and geographically shaped into houses, plantations, pathways, which "add up and stick to the ecological environment." Demantova [7] corroborates with Santos [4] and considers the ecological environment as "a type of existing infrastructure, which performs important and differentiated functions to the maintenance and improvement of urban sustainability." She defines cities as a field of research and proposes an analysis
where "it is assumed that such structures, in reality, are the technical environmental networks that prevail in cities." These networks, according to her, have the potential to "alter the functionality of ecosystems in the improvement or maintenance of urban sustainability," thus creating "an important methodological strategy for a spatial organization" oriented to a balanced and sustainable development.

2.1. Urbanization and Sustainable Development

In 1983, the UN created the World Commission on Environment and Development (WCED), chaired by Gro Harlem Brundtland, Prime Minister of Norway. Its work originated an important conceptual framework: the report "Our Common Future: From One Earth to One World," that spread the concept of sustainable development and came to be present in international discussions - serving as the guiding principle for public and private organizations [8]. This document recognizes that social and environmental problems are interconnected, being an essential guide in the pursuit of sustainable development.

Despite the pessimistic view The Brutland Report exposes the possibility of reconciling economic development with poverty reduction and environmental preservation. It therefore defines the main pillars of sustainable development: economic growth with environmental protection and social equality.

In 1992, the Eco-92, or Rio 92, took place in Rio de Janeiro under the sponsorship of the United Nations. It consolidated ideas and produced a series of documents that constituted legal and conceptual environmental landmarks: Agenda 21; the Declaração do Rio sobre Meio Ambiente e Desenvolvimento (Declaration of Rio About Environment and Development), also known as Earth Charter; the UN Convention to Combat Desertification; the Convention on Biological Diversity; the United Nations Framework Convention on Climate Change and the Forests Principles (formally known as the Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests).

The Eco-92 paved the way to four subsequent UN conferences: Rio + 5 (in New York, 1997); Rio + 10 (in Johannesburg, 2002); Rio + 15 (in Rio de Janeiro, 2007), which brought back the evaluation of the Agenda 21; and the Rio + 20 (also in Rio de Janeiro, 2012), addressing issues of food security, green economy, access to water and use of energy. Following the mandate issued by Rio + 20, the Sustainable Development Goals (ODS) was adopted in September of 2015. It embraced and detailed in great length the concept of sustainable development, increased and added the number of objectives, such as: building resilient infrastructures and promoting inclusive and sustainable industrialization (ODS 9 and ODS 11).

This synthesis of the conceptual frameworks in the agreements supported by the UN shows the evolution in issues raised since the 1970s: the close relationship between issues of economic production, the urbanization of the global population and the socio-environmental impacts on the planet. Since the publication of "The Limits of Growth" report in 1972, we observed that the intersection of the concept of sustainable development was incorporated into the agenda of discussions in the vast majority of UN member countries; from this point of view, they implemented public policies of conservationist character, where the triad environmental, social and economic sustainability are presented.

But a question arises: even with so many advances in research, in the elaboration of documents that guide public policies and urbanistic policies, why does the reality of cities, especially in developing countries, persist unequal, insalubrious, insecure and unsustainable? Does the persistence of contradictions and poor indicators reveal that certain ideas, embodied in the discourse on sustainable development, are incompatible with the evolutionary process of capitalism in the current stage? How can we reconcile the extension of minority rights to a dignified life, access to benefits and comforts of a developed economy and maintenance and assurance of meeting present needs without compromising the
capacity of future generations with the vertiginous concentration of power and wealth and the intense social exclusion promoted by economic strategies of neoliberalism that dominate and expand in all developed and developing societies?

2.2. Global Urban Forums: Planning Urban Spaces and Sustainability
The United Nations Conference on the Human Environment, in 1972, generated a series of actions within the UN that alerted the importance to discuss the "extremely serious conditions of human settlements" - especially in developing countries. Thus in 1978, the Word Urban Forum – United Nations Conference on Human Settlements, called Habitat I, is promoted in Vancouver. This meeting led to the Vancouver Declaration of Human Settlements, which recognized that the issues with human settlements weren't isolated from the socio-economic context of their countries, nor from the conjuncture of an unjust scenario of international economy. It also demanded actions of all its signatories, based on equity, justice and solidarity, and emphasizing the importance in the control of public power over the economic and social processes with the objective of simultaneously acting "in the reduction of disparities between rural and urban areas and the management of urban growth" [9]. But the omission of responsibility of this planning generated a "nebulous and difficult field for the establishment of necessary links to the implementation and management of proposed actions" [9], especially in "land policies based on zoning, land reserves and expropriations through acquisitions and public investments" - even though it demonstrated the importance of the action of residents in public management policies, financing, production and transformation of urban space. The fragility of this proposal was also based, in our opinion, on the lack of defining effective mechanisms for raising funds by public authorities to be applied in reducing inequalities that were generated by the management of private capitals in cities.

The United Nations Conference for Human Settlements - Habitat II - held in Istanbul in 1966, "ordained the theme of decentralization of local power," broadened the participation of representation through non-governmental organizations and emphasized the presented of Agenda 21, "that the planet's sustainability necessarily went through the sustainability of its cities."

The Third Global Urban Forum of 2006 had a smaller audience than the one in Istanbul, and gave important emphasis on the necessity of clearer definitions, with the respective technical and financial support "for the operationalization of the global development goals outlined in the Declaration of the Millennium."

The Global Urban Forum incorporated, through the New Urban Agendas, the concept of sustainability that was clearly express in their objectives - seeking to raise awareness and improve knowledge of sustainable urban development and encouraging exchanges of food practices from a systemic approach (which integrates physical, material, social, economic and political aspects of the urban context in its relationship with the environment).

The Fourth Global Urban Forum (WUF 9), held in Kuala Lumpur in February of 2018, focused of urban themes ranging from climate change to urban mobility, land issues and public policies, habitation, immigration and accessibility for children, the elderly and women. It assembled Kuala Lumpur Declaration on Cities 2030), where it outlines its objectives, goals and mechanisms. These objectives reinforce the role of governments as protagonists of urban governance, stimulate partnerships and sharing of creative solutions and propose the adoption of monitoring mechanisms of the policies put in place [10]. As such crisis are increasingly "urban", it also recommends that urgent actions should be implemented through inclusive urbanization tools, management of complexities of increased migration, understanding the impact of new technologies and responding to the environmental degradation and concerns about
climate change. The concept of land in this document is treated in its physical aspect, but not as a commodity or economic good.

After 50 years, we see that the crisis which demanded revaluation of actions and policies have transformed, but still persist and are potentialized by the actions of the global economy that produced more wealth and concentrated them on levels never seen or imagined. The effects of the relationship between the environment and the process of manufacturing were sophisticated, but minimally altered.

The relationships between political power and economic power have been contaminated to such an extent that the structures of representation and power are discredited and the civil society seeks autonomous ways of organization. It is undeniable that many advances occurred, but perhaps not at the necessary speed and therefore have yet to be consolidated.

2.3. Brazil: From Environmental Planning to Urban Planning

The first documents of an environmental and naturalistic nature in Brazil date back to the first decades XX century, which are written under the influence of the French school. They were concerned with the quality and quantity of water resources, protection of forests, conservation of sources water and sanitation in cities. The themes were studied by naturalists for specific and localized solutions, hence lacking proposals for environmental planning. It was only in 1930 that, through the work of sanitary engineers, specific laws (with national features) were proposed and implemented: The Water Code, Forest Code and the Wildlife Protection law.

In the years following the war, the developmentalism dominated the actions of public policies, giving priority to industrialization. Ergo, the establishment of the concepts of planning were linked to economic parameters, such as GDP, and towards sectorial market economies. This mind-set was predominant from 1950 to 1970, and little attention was given to environmental aspects. In this last decade, Brazil adhered to the discussions of countries like Canada, Japan, New Zealand, Australia and those in Western Europe, and adopted their perspective in the beginning of the 1980s - especially under the pressure of international banks (demanding studies of environmental impact) and institutions like IUNC/WWC (World Wildlife Foundation). A National Environment Policy was then established and organized around a new government office: The Department of National Environment. This department would come to gather guidelines and create SINAMA (National Environment System) and CONAMA (National Environment Council).

In 1986, a legal framework was approved by CONAMA through the resolution 001, which made it obligatory to prepare studies of environmental impact of various human activities. This allowed for many environmental departments in states and municipalities to accumulate a large amount of environmental data, and concurring to the incorporation of environmental planning into the city's master plans starting 1990s. This planning system was arranged as "a conjunction between concepts and structures of urban planning, environmental impact studies and river basin plans" [11]. The perspective of sustainable planning will gradually be incorporated, but the predominance of the engineering perspectives (traffic and sanitary) and the economy still dominate decisions, even though steps have been taken in the process of constructing environmental and urban planning, especially in the last decade.

From the urban planning perspective, the legal framework of the inflexion of public policies occurs with the promulgation of the Statute of Cities in 2001. Rolnik [11] points out three fields of action where this law promotes advancements: in the scope of new urbanistic instruments of induction for the use and occupation of urban land (way beyond the idea of zoning as an "autonomous instrument", which
predominated urban planning since the beginning of the 20th century), the direct participation of citizens in city planning and expansion of the possibilities of land property (a serious urban problem in Brazil).

2.4. The City of São Paulo: Urban Planning and Its Sustainable Development

The city of São Paulo had sectorial and localized plans since the beginning of the 20th century, but its first integrated master plan was approved only in 1972. After the publication, several revisions were made and new concepts were absorbed, which allowed for an expansion of their scope and incorporation of new instruments and resources.

A milestone in the series of plans was established in the 1990s, when new urban planning instruments came to form the scope of the Master Plan. It is worth mentioning the abandonment of the idea of the Territorial Zoning as an autonomous instrument that would be sufficient for urban regulation, and raises the question of environmental preservation and participation of an organized community in proposal development - as one of the presuppositions for the effective democratization of access to land and to citizenship. From the point of view of governance, a set of new instruments of urban nature, which are aimed to "induce, rather than standardize, the ways in which land occupation is used" are approved [11].

In 2011, the Federal Government promulgated the Statute of Cities, an essential landmark in the establishment of urban policies in Brazil. It enshrines the social function of the city and urban property, and offers urban managers a set of new management and governance instruments.

In the field of urbanistic instruments, the recognition of the interaction between urban regulation and the logic of pricing in the real estate market, determined by the presence (or absence) of urban infrastructures, defines the valuation of the land. It allowed the creation of the instrument of Progressive Collection of Territorial Tax for vacant land in areas with infrastructure, and the idea of Solo Criado (Created Urban Land) allowed to the transfer of constructive potential amongst real estate capital through the Onerous Right to Build Grant. Its objective is to act in the relationship between public investment and real estate valuation, considering that if there are real estate capital gains from the implementation of infrastructure with public investment, it is fair that part of this gain returns to public power - which can use such capital in less valued areas [11].

In 2014, the City of São Paulo approved a Strategic Master Plan (PDE) that adopted some instruments of the Statute of Cities. This regulated the use of the Onerosa Grant as a mechanism for capturing real estate surplus value - whose resources feed a public investment fund (known as the Urban Development Fund, or FUNDURB), which then implements plans, program and projects of urbanistic and environmental nature.

This article presents data and analyse of the application of FUNDURB resources (from 2013 to 2016) in the promotion of environmental programs and projects and in the works to recover/ relieve the impacts in the natural environment through the process of urbanization in São Paulo. Its objective is to evaluate the effectiveness of such application through actions of the Municipal Green and Environment Department

3. Results and Discussion

The revenues generated by the application of Onerous Granting fundraising instrument by the City of São Paulo (during the period of 2013 to 2016) were collected and selected from public data. The selected projects and works of environmental nature received resources through three municipal departments: The Department of the Green and the Environment (SVMA), Department of Urban Infrastructure (SIURB)
and the Department of Regional Municipalities (SMSP). Those that have been contemplates with resources but not implemented were not accounted for in our data collection. Investments made in environmental works (green and blue) - such as involving green areas and courses (streams and rivers), or bodies (lakes) of water - were also selected.

It was observed that, in terms of the proportion of resources applied in each of the departments during the periods, the SVMA received resources for the application of its projects only in 2013, while the SIURB received and applied resources in 2013 - assuming the management of resources in works of such nature starting on 2014 until 2016.

It was discovered that a great majority of works that received resources from FUNDURB were associated with services of urban drainage and remediation of geological risks at the banks of water streams and, consequently, in some cases also paving works; refurbishment works of public squares with landscaping and installation of sports and leisure equipment. Some works of construction and execution of complementary services in linear parks were also identified, but in a much smaller proportion (0.14% of resources were raised and deposited in FUNDURB in 2013, while the drainage works received the equivalent of 10.34% to the total amount raised in the same year). Other departments used part of these resources in works of different nature, and 30% of the total resources were left unused, and accumulated for the following year.

In 2014, SIURB also applied FUNDURB resources in drainage works (30% of the total raised and accumulated) and SMSP received and used resources in two works - one for drainage and the other towards landscape adjustment in a public square (0.89% of the total). Regarding cash flow, FUNDURB closed the year with a deficit of 62%.

In 2015, SIURB led the use of resources in works of green and blue nature - using services of readjustment and improvements of public square and one work of accessibility of the Lajeado stream. We observed that the largest amount of investments by SIURB went towards works of accessibility, and once again (as it happened in 2014) this department took over the control on works of green and blue nature. The total investments in these works amounted to 2% of the total funds raised by FUNDURB.

The year 2016 consolidated the conduction of works by SIURB. Similarly to 2015, it focused on the readjustments of public squares, beyond landscaping, by installing sport and leisure equipment in them. But the general balance of works of this nature was reduced, amounting for around 1% of the total collected by the fund.

The graph below (Graph 1) shows the overall performance of FUNDURB during the studied quadrennial. It demonstrates that, Onerosa Grant demonstrated capacity of provision to the municipal public power of investment to reduce the inequalities of the city through the redistribution of the economic gains of real estate production to the regions that lack the most investments. However, when regarding the application of resources, we could observe the maintenance of sectoral logics when determining the selection criteria of public works. Considering that the conceptual foundations disseminated by regulatory frameworks indicate the importance of an active participation of communities in the actions of governance and management of public resources focused in the sustainable development of cities, we stress that there is still a path to be trodden in order for us to, in fact, approach this strategy; for built receptive and democratic cities as proposed by the Statute of Cities.
Figure 1. The performance of FUNDURB, Source: Author on data from the secretary of urbanism and licensing, city hall of São Paulo municipal.

4. Conclusion
In relation to the nature of the works, we observed that in these periods, there was a prevalence of infrastructure works associated with the road system and of geological risks prevention, pedestrian accessibility works and square’s rearrangement. This corroborates our assertion that, although the discourse of plans and public programs incorporate an environmental aspect to them, when put in practice, governance leans on the use of resources in works of sanitary and traffic engineering. This demonstrates that public still operates under sectoral and fragmented management without a view of a systemic approach.

The geological risk containment works reveal the option of occupying the areas of floodplain and flooding of the water courses for the implantation of streets and avenues. They also reflect the sanitary works of the beginning of the 20th century, where these watercourses had the strict function of macro urban drainage systems. More advanced concepts of re-establishing contact with urban waters and the implementation of green infrastructure systems are not even applied in projects, let alone included in plans and programs.

Although the urban planning instruments adopted by the 2014 PDE are advanced from the point of view of the management of real estate capital relations and the use of land towards balancing the existing disparities in the metropolis of São Paulo, from the environmental stand, there is still a lot to be done.

We believe that because the Onerosa Grant is a mechanism to capture surplus value over land use, it does not take ownership of the concept of environmental services. The adoption of such concept could, in our view, allow the public power an active role through preventive, instead of merely reactive, actions - extending the scope of its actions for the repair and remediation of environmental offenses, the maintenance and conservation of assets (such as afforestation and bodies of water). In this sense, there are successful experiences in countries like Portugal that could be used as reference for Brazil.

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