SUSTAINABLE MEGACITY VISIONS FROM SÃO PAULO

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ABSTRACT

Envisioning São Paulo's sustainable urban future by imagining it composed of many cities inside the megacity, each with different territorial contexts, densities, qualities, issues, opportunities, and demands through a smart city management is the heart of this work. The top challenges presented are: mobility, housing, environmental issues, inclusion, governance, and opportunities, including at the informal territories context. To better understand the main idea, we present some problems in short but important descriptions: megacities context; São Paulo context; urban Interventions in the city; the reinvention process needed; the desired massive changes proposed; urban design ecologies.

Keywords: megacities; sustainable cities; São Paulo.

RESUMO

Imaginar um futuro mais sustentável para São Paulo, onde a megacidade esteja composta de várias cidades dentro dela, cada uma com seus diferentes contextos territoriais, densidades, oportunidades e demandas mediante uma gestão inteligente é o coração deste trabalho, a ideia central. Os maiores desafios apresentados são: mobilidade, habitação,

questões ambientais, inclusão social, governança e oportunidades, incluindo aquelas oriundas dos territórios informais.

Para melhor compreender a ideia central, apresentam-se algumas questões de forma sucinta mas importante: o contexto das megacidades; o contexto de São Paulo; as intervenções urbanas na cidade; o processo de sua reinvenção necessária; as mudanças massivas desejadas; ecologias urbanas.

Palavras-chave: megacidades; cidades sustentáveis; São Paulo.

RESUMEN

Viendo el futuro urbano sostenible de São Paulo imaginando que se compone de muchas ciudades dentro de la megalópolis, cada uno con diferentes contextos territoriales, densidades, calidades, problemas, oportunidades y demandas a través de una gestión inteligente de la ciudad es el corazón de este trabajo. Los mayores retos - algunos cambios masivos - son: movilidad, vivienda, medio ambiente, la inclusión, la gobernabilidad y las oportunidades, incluso en el contexto de los territorios informales. Para entender mejor la idea principal, se presentan algunos problemas en descripciones breves pero importantes: el contexto de las megaciudades; el contexto de São Paulo, las intervenciones urbanas en la ciudad, el proceso de reinvención necesaria, los cambios masivos deseados propuestos; ecologías de diseño urbano.

Palabras clave: megaciudades, ciudades sostenibles, São Paulo.

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PREAMBLE

In 1930, the economist John Keynes foresaw that humanity, after a hundred years of development, would face the new problem of how to use leisure and freedom from pressing economic concerns, which science and economic gains would bring and to live well, "knowingly and pleasantly"?

Now, only eighteen years before the scenario proposed by Keynes, it may be appropriate to ask ourselves the great question of the 21st century: How do we create a sustainable urban world? After all, if the 19th century was the era of nations, the 20th the century of empires, this is the century of the city, and cities constitute the key sites for the ecological innovation that needs to occur. Sustainable solutions might come from unexpected places, such as the connections and linkages of the marginal, void, and underutilized multiple localities of megacities such as São Paulo.

1. MEGACITIES

One hundred years ago, only 10% of world population lived in cities. Currently, we are more than 50%, and by 2050, we will be more than 75%. The city is where human exchanges are made, from large and small businesses, to social and cultural interactions. But it is also the place where there is an excessive growth of slums and informal work it is estimated that two in three people are living in slums or sub-housing. This is also the stage for dramatic changes where cities with more than 10 million people emerged and have concentrated much of the world population in the megacities of the 21^{rst} century

Most megacities have concentrated poverty and serious social and environmental problems from the lack of investments in infrastructure and sanitation. The importance of

megacities in the national and global economy is disproportionately high. According to the UN, in the future we will have many and new megacities – from the 16 existing in 1996, they will be 25 in 2025, many of them in the developing world (BURDETT; SUDJIC, 2008).

In this explosion of inequality, the "planet of slums", according to Mike Davis, concentrates 2 billion persons and grows 25% per year (DAVIS, 2006).

At the same time, emerges new territorial configurations such as the mega-regions: the BosWash stretch (from Boston to Washington, via New York), Chonqing, China, or the mega-region of SaoRio (São Paulo-Rio de Janeiro) according to a recent provocative study by Richard Florida (2008), the economist-guru of the creative class. He demonstrates that in the coming decades the global world will focus growth and innovation in a few spectacular places, peaks of excellence, the 40 most creative mega-regions (SaoRio is already the 26th in his ranking). These 40 mega regions are the drivers of world economy: they concentrate 1/5 of the world population, 2/3 of the GNP, and, incredibly, 85% of the innovation.

Economists, from Paul Krugman and Edward Glaeser to Hernando de Soto, the Peruvian economist and founder of the Institute for Liberty and Democracy, predict that the growth of cities is the economic model of development future. This is because megacities concentrate the greatest transformations of our time, generating an unprecedented demand for utilities, raw materials, products, housing, transport and jobs. It is indeed a great challenge for governments and civil society, which requires strong changes in public administration and forms of governance, forcing the world to review the standards of comfort typical of urban life – from excessive use of the car to carbon emissions (GLAESER, 2008).

Major challenges lie ahead, since in the next two decades the cities from underdeveloped or emerging countries will concentrate 80% of the urban population of the planet. The reality already signals this boom - Lagos, Nigeria, for example, had a population increase of 3,000%, from 1950 until today. In other words, against all bets set in the late 20th century, cities have not died, nor entered in decline. Quite the contrary, cities never

looked so crowded. In a planet increasingly digital and virtual, never have so many sought physical encounters, never before have cities been so attractive.

The more advanced innovations in information technology and distance connections become, the more cities become attractive. We will see that one thing only reinforces the other and physical interaction spurs innovation like never before. Cities are "the" agenda of the 21st century and the challenges are: sustainable development, socio-territorial inclusion, and intelligent management.

It is in the megacities of the future that the world needs to reinvent itself, divide wealth to achieve a well-balanced and more equitable pattern of development. More sustainable patterns, not only in the face of environmental challenges, but also in social and economic areas. - which can no longer be measured in financial indicators, but in human development and ecological footprints (HALL; PFEIFFER, 2001).

If we look at the history of cities, we would remember that cities have always been the place of innovation, but also the locus of the contradictions and conflicts in their societies. It would be an innocent thought that the technological innovations of the 21st century alone would provide greater social inclusion and sustainable democratic cities. An examination of São Paulo reveals the potential for social and cultural innovations necessary for the coming century (KOOLHAAS, 2009).

2. São Paulo

São Paulo today is paradigmatic of a megacity constituted by multiple localities in the global world. It is both a world city linked to global networks and a local city, where every-day space is often manifested as unjust and unqualified. According to Saskia Sassen (2008), São Paulo is one of ten "world cities," integrated into the network of global cities. In truth, the city presents opposing realities in contradictory ways. On one side are spaces defined by new financial capital and linked to new information technologies, which in turn are tied to the global economy. On the other side so-called banal spaces appear in a fragmented territory exposing all of the local deficiencies. We are confronted with a

"glocal" megacity, the repository of an urban area that faithfully portrays contemporary society, with all the contradictions of our time.

In this way, the potential of São Paulo lies in its vast territory full of an array of contemporary mutations. Paulistas live in an era of accelerated transformation. Territorial dynamics have never been so dramatically unleashed in the history of cities. When architecture is inserted into this context it is lost within the territorial transformations of greater dimensions. The megacity materializes in its fragmented territory as points of rupture without traditional city consciousness. The consequences of the rapid transformations in the post-industrial megacity are varied and heterogeneous. Complex, unfit spaces emerge in cities, residues of older productive areas: vacant lots, urban dysfunctions. Transformations in architecture are present in the territorial environment and vice-versa.

BOX 1: São Paulo contradictions in numbers

- Population: 19.8 million

- Area: 3,120 sq. miles

- Density: 6,400 p/sq. miles

- Population growth: 0.5% per annum (5% during the 70´s)

- Population in 1900: 0,2 million (grew 27,000% in 100 years)

- Urbanized area growth: 40,000% in 100 years

- % Population living in slums: 20% (1.3% in 1973)

- GDP: US$ 381 billion (= Austria)

- GDP/person: US$ 19,050 (= South Korea)

- IDH: 0,828 (= Slovenia)

- Metro network: 71.5 km (5 million passengers daily)

- Number of cars: 7 million

- Murder rate: 35 per 100.000

- Energy Generation: 100% Renewable (hydropower and waste)

- Climate Change Policy Since 2009: 2005-2012 30% GHG emissions Reduc.

- Headquarter More American Companies Among Any Other City Outside Us
- The Most Crowded Air Space In Latin America And The Southern Hemisphere
- Highest Per Capita Helicopter Ownership

São Paulo constitutes a territorial palimpsest, where the successors always built over what existed, making the city mutable and polynucleated, The megacity, which resulted from these almost 500 years of existence through a painful process of negating history now confronts the challenge of restoration.

Global society enters the twenty-first century with parallel concerns including a strong inclination toward environmental preservation and recycling existing resources. Agenda 21 places new demands within the territorial realm that architecture can no longer avoid in its new context of principles.

The future transformation of environments — on the scale of the territory and of the building — is set within this new demand for sustainable development. Like other resources, existing built environments cannot continue to thrive without recycling and transformations. It is more intelligent to transform existing and under-utilized spaces rather than ignoring or replacing them.

Within this extremely complex situation, architecture continues to be a fundamental alternative for the transformation of the territory: an essential instrument of spatial intervention. The challenge to contemporary architecture is its confrontation with the existing city, beginning with its infrastructure, without negating it.

Theoretical and conceptual analyses, in both international discussion, and in the local territorial context, should nourish methodological debate in the area of urban interventions but not cancel out the innocent nature of local actions. While many cities around the world promoted the large-scale redesign of downtown areas, this was until recently rejected in São Paulo, the city has finally turned to urban requalification processes in its center. In spite of the delay, and perhaps taking advantage of it, requalification in São Paulo can be positioned in a more coherent manner against

contemporary reality without committing the errors of earlier processes of discarding obsolescent districts of the city.

Finally, the impossibility of operating a total process of urban design in a megacity of this immeasurable territorial scale seems clear. Today it is evident that instead the potential of government power is to use urban design to stitch together territorial logics and to requalify disconnected public spaces. On the one hand, to design everyday spaces, to promote the best use of banal space, and on the other, to make possible urban connections and the linking of fragmented metropolitan territory: to use the potential of empty spaces to promote links that articulate the territory and effect a restorative urban planning process.

Can the megacity territory in a process of accelerated large-scale global transformation be confronted by local actions? In this sense, can urban design still assist the rescue process of immense historical but degraded areas without creating scenic simulacra? At the other end of the problem, can large urban projects be configured as an instrument for the re-articulation of fragmented territory, on an immeasurable scale? Should planning be managed as an instrument for the legitimatization of the illegal, although real, sectors of the city such as informal urbanization in environmentally protected areas? Finally, how can an urban project confront wastelands, *terrain vague*, without constituting itself as an instrument of omnipresence, but rather as a possibility for the re-articulation of the territory?

Several environmental problems can be noticed in São Paulo, with its high number of vehicles and buildings. With approximately seven million automobiles, the city discharges 5.6 ton of pollutants per day in the atmosphere - 90% from vehicles. The impact of this, especially in the winter, is a climatic inversion that keeps air pollution at the lower strata intensifying respiratory diseases.

Although the city serves 92% of the households with water supply, only 65% are connected to the sewerage system. As a result of this lack of domicile collection, plus industrial sewerage and storm water, the conditions of the two main rivers in the city are precarious.

What could be an opportunity for leisure and water transportation in the water bodies of the megacity that are perceived by the *Paulistas* as degraded open sewers.

The deficit of green space in the city is observable by the ratio green area per inhabitant. São Paulo has only 7m^2/inhab., while the minimum suggested by the world health organization (WHO) is 12m^2/inhab. In comparison, Rio de Janeiro has 60m^2/inhab, Curitiba 55m^2/inhab, and Brasília 120m^2/inhab.

São Paulo is aggravating this problem by devastating the Atlantic tropical rainforest that goes from the city to the ocean at an alarming ratio. Since 1990, the Atlantic tropical forest has lost 1,700ha.

At the same pace, there should be noted the problems of water contamination and deforestation of the surrounding watersheds of the reservoirs in the southern part of the city, mostly by the illegal formation of informal settlements in supposedly environmentally protected areas.

3. URBAN INTERVENTIONS

When it comes to the realization of major urban interventions, São Paulo is lagging behind other world cities. Buenos Aires, our closest neighbor, has with Puerto Madero succeeded in creating a high-end development on brownfield industrial land, which attracts business and visitors, despite its lack of integration within the city.

Sites identified by the city authorities for urban regeneration, Operações Urbanas (urban interventions), include areas often – but not always – adjacent to existing transport infrastructure.

But who wins and who loses in these projects? How are these projects delivered? What institutional arrangements impact on design quality and the creation of sustainable environments? How many jobs are created? And for whom? These are the questions that São Paulo's political, design and development communities need to address to formulate a

new urban policy and to deliver a strategy to implement high quality urban design that works with the grain of the city.

Many of the international success stories in the regeneration of large-scale sites — such as redundant ports, railway, manufacturing and transport areas — suggest that considerable levels of public investment and management are necessary to make them work. In Brazil the private sector has historically taken the lead due to the lack of public funding or involvement in urban regeneration. Yet, a long-term perspective is a prerequisite of sustainable planning as opposed to the short-term returns on investment required by any commercial operator. The establishment of a delivery vehicle – an administrative structure with strong public as well as private sector representation – that manages and implements the project from inception to realization is critical to its success in promoting economic development and generating new activities.

The compact city model, with its reduced energy footprint that promotes intensification of well-connected inner city sites, has become the central objective of many European cities. Urban containment, smart growth and sustainable development within a defined urban footprint are central components of this new urban vision that not only drives the identification of individual sites – often highly contaminated areas near the center – but also shapes policies that promote sustainable living such as the introduction of the Congestion Charge in London or the Velib public bicycle in Paris. This approach has driven the development of a new urban hub at Paris Rive Gauche on the Eastern edge of the city — coordinated by Semapa (Société d'Economie Mixte de Paris) — which has attracted 60,000 jobs, counterbalancing Paris's better-known financial center at La Defense in the West. Urban containment as a smart growth urban policy, have to work within more defined limits: urban territory occupation should be rational, careful and sustainable.

Paris has developed its urban interventions within a clear regional and metropolitan perspective of economic restructuring that prioritizes the international service sector, while London has focused some of its spatial policies on the creative industries through the actions of the Mayor's London Development Agency. These interventions were instrumental

elements of a successful marketing strategy that has promoted the city as tourist destination, placing it in competition with world capitals.

The evidence from these projects points to the development of new management tools and the involvement of a wider range of social agents to better define successful urban regeneration. A key element is public transport, a critical component of sustainable urban development. The success of the Kings Cross development and the London 2012 Olympics site in the Lower Lea Valley are also highly dependent on their location next to major rail-based transport hubs that will create higher density clusters of a polycentric nature. In Milan, the viable redevelopment of ex-industrial sites at La Bovisa and La Biccoca into major office and residential neighborhoods were predicated on their proximity to the city's extensive public transport network. In common: high densities are much welcome if connected to TOD (Transit orientated development model).

By analyzing international case studies, it becomes clear that the state has played a key role in their implementation, despite the high level of private sector investment. Even in the United States there is evidence of substantial public investment — at federal, state and city level — to implement infrastructure, transport, public spaces and cultural institutions in major urban projects. Another lesson is that solutions to urban problems depend on the involvement of local actors, civil society and the active participation of government at many levels. On balance it can be observed that highly centralized traditional planning tools, which regulate land, use and urban development — as they are currently implemented in Brazil — have become obsolete (SOMEKH; LEITE, 2010).

4. REINVENTION

São Paulo's strategic plan – the Plano Director Estrategico — is a case in point. The PDE 2000 determined that 20 per cent of its built-up area should become sites for Operações Urbanas (urban interventions). To date these have been the subjects of repeated criticism with piecemeal results, which lack a comprehensive vision of urban design. There is no vision for a sustainable urban model with clear environmental objectives, nor has there

been any public debate about public space and rebalancing the role of public transport and the private car in the city's future.

The crisis of contemporary Brazilian urbanism reflects the weakness of the system of large-scale "strategic masterplans", which wrongly assume that all urban problems can be solved by one single instrument. The successful strategy for city-level "urban interventions" must be considered as an instrument of structural transformation, built on a partnership between the public and private sectors. It is a process that requires the participation of landowners, investors, residents and representatives of civil society, which identifies particular urban areas for transformation as part of a wider metropolitan strategy. To be implemented successfully, such a strategy requires a series of medium and long-term measures, including land tenure reform, evaluation of real estate potential, strict land use regulations and public space interventions.

The São Paulo experience has since the 1990s failed to deliver an effective and democratic urban vision for the city. The major reason for this failure is the absence of a proper management and implementation vehicle that takes into account the full social and economic costs and benefits of projects of this scale and complexity. Any intervention of this sort must embrace the various actors and agents involved in the production of city space, constructing a communal fabric that values the individual citizen. Yet, this approach assumes public engagement to achieve a shared objective. Demolition of entire pieces of city and their replacement by "model" projects will do little to improve the lives of existing urban dwellers, and will simply cause displacement and erosion of its existing social and urban fabric.

Given the extreme levels of social inequality found in most Brazilian cities we would argue that a more subtle and sophisticated approach to urban regeneration is necessary: one that is based on a collective effort and broad participation, and that aims to promote local development and social inclusion. To this end we would suggest that São Paulo adopts a new system for the implementation of its urban interventions founded on the following principles: require a clear political commitment to implementation, innovation and inclusion through a metropolitan masterplan that integrates the development potential of

urban sites with public transport provision; establish a legal framework that promotes social inclusion and public participation (by creating a Participatory Management Forum for individual urban projects); establish an independent local development agency to implement specific urban projects, that includes all key stakeholders and is responsible for project management and delivery, inward investment, funding and project financing; develop an integrated mobility plan that optimizes public transport use incorporating metro, bus, bicycle and pedestrian movements and minimizes private car dependency; establish a metropolitan-wide development fund that can capture value of future return on investments; promote a sustainable environmental approach that integrates the remediation of water and river systems with redevelopment of brownfield land; propose mixed-use centers that provide housing and employment and support the 'new economy'; and identify special conservation areas across the city that take into account the historic value and architectural merit of buildings and spaces(SOMEKH; LEITE, 2010).

5. MASSIVE CHANGES

Envision São Paulo's sustainable urban future by imagining it composed of many cities inside the megacity, each with different territorial contexts, densities, qualities, issues, opportunities, and demands through a smart city management.

The top challenges would be: Mobility, Housing, Environmental Issues, Exclusion, Governance, and Opportunities.

Massive Changes 1: compacting cities inside the megacity.

We could create sustainable city development through a network of well-connected compact nuclei. Compact, dense and mixed-use city cores would be connected by an efficient mobility system: efficient collective transportation; efficient urban design that encourages walking and cycling; efficient new forms of individual transportation. The compact city model optimizes the use of urban infrastructure and promotes greater sustainability — energy efficiency, better use of water resources and reduces pollution. Dwellers has increased opportunities for interaction and improved the sense

of public safety, since it sets up the best sense of community (proximity; mixed uses; collective use spaces) (ROGERS, 2001).

Massive Change 2: repopulating downtown.

We could connect downtown densification and urban sprawl with Social Housing. Repopulating downtown through the reactivation of existing empty buildings and stopping peripheral sprawl over protected environment (green and water). We should remember that in megacities like São Paulo, the main task here would be in opening opportunities for the informal sector to give access to the formal system of housing ownership. According to Hernando de Soto, the Peruvian economist founder of the Institute for Liberty and Democracy, "the lack of an integrated system of property rights makes it impossible for the poor to leverage their informal ownerships into capital, which would form the basis for entrepreneurship" (MAU; LEONARD; INTITUTE WITHOUT BOUNDARIES, 2004, p. 127).

Massive Change 3: city for people, not for cars (aka, let's create new city smart cars).

We could imagine the city for people and not for cars. Leaving more street space for people will improve livable and sustainable cities, so the challenge for future urban mobility is using less space. Bruce Mau has pointed out: "the radical success of the car has brought about its failure: all the world embraced traffic. New personal mobility projects should deliver maximum freedom with minimal impact in cities" (MAU; LEONARD; INTITUTE WITHOUT BOUNDARIES, 2004, p. 37).

Massive Change 4: We could go beyond governments'.

This is the century of the city. Citizens are creating new forms of city management. Replicating good practices: NGOs', Networks, Wiki. Sharing, City Information Centers. The 21st Century informal city is a welcome component of the megacity society if we deliver systems of integration through projects for different slums drawn up by architects of recognized worth with participation of local community leaders.

Massive Change 5: We could think the city as an intelligent system of systems trough innovation.

Making cities more instrumented, interconnected and intelligently managing land information
and efficiently operating systems, which mitigates waste planet's resources. We redefine *Smart Cities* as arrived at not only through new smart technologies, but more importantly by the face-to-face social contact of different persons working and living together. The smart city challenge asks how we could go beyond governments' dominating decision-making. If this is the century of the city, how are citizens creating new forms of city management and design. We think of the city as an intelligent "system of systems" and are seeking to make cities more instrumental, interconnected systems, which mitigates waste and respects the planet's resources as well as human dignity.

Obviously, in most megacities of the contemporary world, the challenge must incorporate informality, so we should face the smart informal territories, though the dynamic-territory, urban mutations and pre-existing potentialities, trying to map spatial-externalities, do not neglecting the existing city, do not substituting it, but, instead, upgrading it, recycling it.

The real challenge maybe is to see the megacity as a territorial continuous recycling process.

6. URBAN DESIGN ECOLOGIES?

Smart compact megacities concentrate: diversity, opportunity, knowledge, culture density as well as informal city of 21st Century externalities.

They consume less, optimize infrastructure, generate innovation and wealth and connects polycentric networks through efficient mobility systems.

They are the engines of the new economy by generating development with sustainability.

They are the major agenda of the 21st Century.

Want to be sustainable? Live in a megacity.

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