

## IMPLEMENTING LAND VALUE CAPTURE IN A GLOBAL SOUTH CITY: EVALUATION OF THE EXPERIENCE IN THE CITY OF SÃO PAULO, BRAZIL

Eduardo Alberto Cusce Nobre\*

\*Universidade de São Paulo, Faculdade de Arquitetura e Urbanismo, São Paulo, SP, Brazil

### Abstract

*The use of land value capture (LVC) tools has been advocated by many authors as way of financing public investments in urban interventions. The rationale behind these tools is to capture part of the capital gains on land derived from public sector interventions in urban development, such as implementing infrastructure or changing land use regulations. They may be of great significance in very limited budget environments such as in countries undergoing rapid urbanization that need to provide a great amount of infrastructure and urban services in order to accommodate urban growth. Since the 1980s, the City of São Paulo, Brazil, has been implementing LVC through a wide range of different tools. The objective of this paper is to evaluate the implementation of two of these tools, the Building Rights Levy (OODC – Outorga Onerosa do Direito de Construir) and the Additional Building Rights Certificates (CEPAC – Certificado de Potencial Adicional Construtivo), from 1995 until 2020. Rather than evaluating these instruments just from a revenue viewpoint, the study also sets out to analyze how effective they have been in reducing social disparities, considering the location and type of investments undertaken.*

### Keywords

*Urban Planning; Urban Policy; Land Value Capture; São Paulo.*

## IMPLEMENTAÇÃO DA CAPTURA DE VALORIZAÇÃO IMOBILIÁRIA EM CIDADES DO SUL GLOBAL: AVALIAÇÃO DA EXPERIÊNCIA DA CIDADE DE SÃO PAULO

Eduardo Alberto Cusce Nobre\*

\*Universidade de São Paulo, Faculdade de Arquitetura e Urbanismo, São Paulo, SP, Brasil

### Resumo

*A utilização de instrumentos de captura da valorização imobiliária tem sido defendida por muitos autores como forma de aumentar o financiamento de investimentos públicos em intervenções urbanas. A lógica por trás desses instrumentos consiste em capturar parte dos ganhos da valorização imobiliária, advindos das intervenções do poder público no desenvolvimento urbano, como a implantação de infraestrutura ou mudanças nas normas legais de uso e ocupação do solo. Eles podem ser de grande importância em ambientes orçamentários muito limitados, como os países em rápida urbanização que precisam fornecer grande quantidade de infraestrutura e serviços urbanos para acomodar o crescimento urbano. A cidade de São Paulo vem implementando essa política desde a década de 1980 por meio de ampla gama de instrumentos. O objetivo deste artigo é avaliar a implantação de dois deles, a Outorga Onerosa do Direito de Construir (OODC) e o Certificado de Potencial Adicional Construtivo (CEPAC), de 1995 até 2020. Mais do que avaliá-los apenas do ponto de vista da arrecadação, este trabalho pretende analisar também a sua eficiência na redução das disparidades sociais, considerando o tipo de investimentos realizados e sua localização.*

### Palavras-chave

*Planejamento Urbano; Política Urbana; Captura da Valorização Imobiliária; São Paulo.*

# IMPLEMENTING LAND VALUE CAPTURE IN A GLOBAL SOUTH CITY: EVALUATION OF THE EXPERIENCE IN THE CITY OF SÃO PAULO, BRAZIL<sup>1</sup>

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## 1. Introduction

The use of land value capture (LVC) tools has been advocated by many authors as a way of financing public investments in urban interventions (BLANCO et al., 2016; MEDDA; MODELEWSKA, 2011; RYBECK, 2004; ZHAO, DAS; LARSON, 2012). The rationale behind these tools is to capture part of the capital gains on land derived from public sector interventions in urban development, such as implementing infrastructure or changes in land use regulations. In a context of strong budget constraints, LVC may prove to be a feasible alternative for financing public projects such as public transportation (MEDDA; MODELEWSKA, 2011).

Recently, some authors have addressed the importance of using these tools in countries undergoing rapid urbanization as a way of tackling the problem of scarce public investments and the need to provide a large amount of infrastructure and urban services in order to accommodate urban growth (AFRICITIES SUMMIT, 2012; SMOLKA, 2103). Since the 1980s, the City of São Paulo, Brazil, has been implementing LVC through a wide range of different tools (NOBRE, 2019). The objective of this paper is to evaluate the implementation of these tools, focusing on

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1. This paper presents the partial results of a research project entitled *Limits and Possibilities of Applying Urban Planning Tools in the Municipality of São Paulo: an evaluation and prospection* financed by the National Scientific and Technological Development Council (CNPq) and the São Paulo State Research Foundation (FAPESP).

two in particular: the Building Rights Levy (known as the OODC – *Outorga Onerosa do Direito de Construir*) and the Additional Building Right Certificates (known as CEPAC – *Certificado de Potencial Adicional Construtivo*). Rather than evaluating these instruments only in terms of revenue, the study also sets out to analyze how effective they have been in reducing social disparities, taking into account the location and type of investments undertaken. Hence, the paper is divided into 5 sections: 1. Introduction; 2. Material and methods; 3. Theory; 4. Results; and 5. Conclusions.

## 2. Material and methods

### 2.1 The Study Area

The City of São Paulo (MSP – *Município de São Paulo* in Portuguese) is one of the thirty- nine cities that forms Greater São Paulo (RMSP – *Região Metropolitana de São Paulo* in Portuguese), Brazil’s largest urban agglomeration, as presented in Figure 1. In 2022, the estimated population of the metropolis was 20.7 million (10% of the national population). However, most of the population (11.5 million) lives in the City of São Paulo (IBGE, 2023b)<sup>2</sup>. In 2020, the RMSP presented the second biggest gross regional product in Brazil,<sup>3</sup> after the State of São Paulo, accounting for 17% of the national gross domestic product, whereas the MSP was responsible for 10% of this<sup>4</sup> (IBGE, 2023a). While the services sector is responsible for 85.4% of the metropolitan economy, industry accounts for 14.4% and agriculture just 0.2%.

However, despite this large concentration of wealth, the income distribution in the metropolis is extremely uneven. In 2015, 42% of households stood below the three minimum wage monthly income bracket (SM – *Salário Mínimo* in Portuguese) (US\$ 583), thereby depending on public subsidies to access housing, and only 4% was above the twenty SM bracket (US\$ 3,891) (IBGE, 2023a). Nonetheless, these figures are better than the national figures, since 58% earns less than three SM and only 2% earns more than twenty (*ibid.*).

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2. In 2022, the populations of BRASIL, RMSP and MSP were respectively 203,062,512; 20,684,947; and 11,451,245, according to the preliminary data of the 2022 Brasil Census made by Brazilian Institute of Geography and Statistics (IBGE) (IBGE, 2023b).

3. In 2020 the GDPs of BRASIL, RMSP and MSP were respectively US\$ 1.9 trillion; US\$ 321 billion; and US\$ 185 billion (IBGE, 2023a).

4. All values have been calculated in US dollar at a rate of BRL 4.05 for US\$1.00, according to the Brazilian Central Bank exchange rate for January 3, 2020. The decision not to use a more recent rate is due to the great economic instability worldwide, and specifically in Brazil, after the Covid-19 pandemic. Available at: <https://www.bcb.gov.br/conversao>.

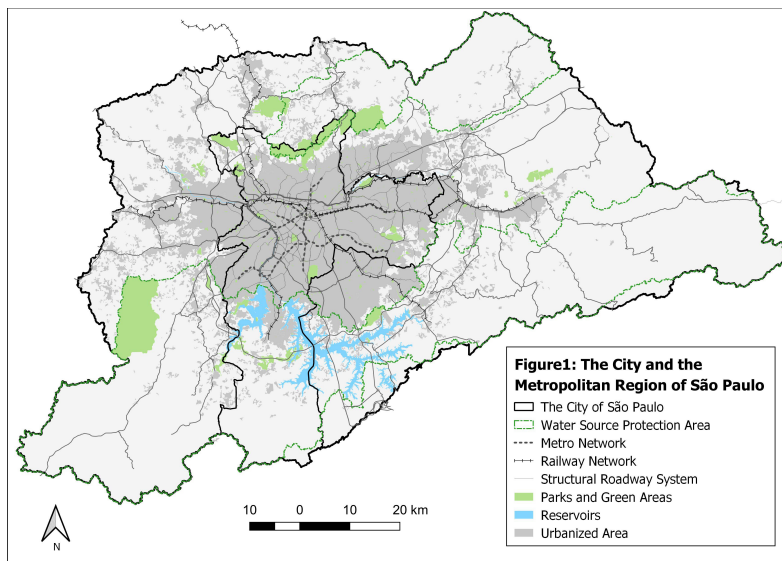


Figure 1. São Paulo City and Metropolitan Region

Source: Own elaboration, based on Emplasa (2018).

From an urbanization viewpoint, this metropolis formation occurred very quickly throughout the twentieth century, resulting in a typical Global South metropolis: extremely uneven, fragmented and segregated, with the higher-income groups occupying the central areas, mainly in the City of São Paulo, better endowed with infrastructure, accessibility, jobs and services, while the low-income population was ‘expelled’ to the peripheral regions, with huge deficits and shortages of these items (VILLAÇA, 1998), as may be observed in Figures 2 and 3. Despite these problems, the real estate market has been very dynamic in accommodating population growth, either formally or informally.

In 2019, the MSP budget was the largest municipal budget in the region, amounting to US\$ 15.5 billion (1/6 of the City of New York’s for the same year), of which 53.9% resulted from municipal taxes and fees, although only 17.8% came from IPTU (the acronym for *Imposto Predial e Territorial Urbano*, Portuguese for Urban Land and Building Tax) (CIDADE DE SÃO PAULO, 2020). Of this budget, 42.2% is committed to the payroll of public servants and their social benefits.<sup>5</sup> With regard to the areas of spending, 41% was spent on compulsory expenditure: public health and education.<sup>6</sup> Only 20% of the municipal budget was spent on items related to

5. In Brazil, once successful candidates have been selected from a public competition and appointed to an effective position, public servants enjoy job stability.

6. The 1988 Brazilian Federal Constitution (BRASIL, 1988) and complementary legislation require municipalities to spend at least 40% of tax revenues on public education and health (15% for the first and 25% for the latter).

urban development (housing, urbanism, sanitation and public transport). Hence, the importance of LVC tools resides in creating specific funds for these expenses, apart from the main general budget.

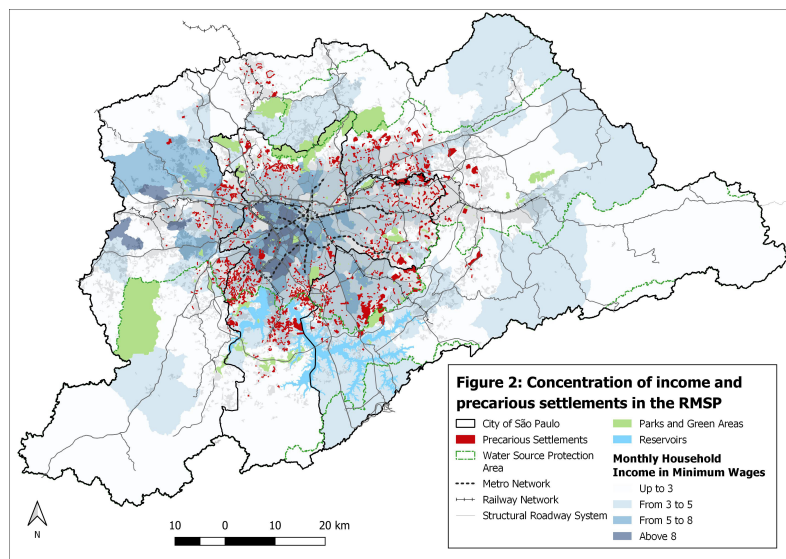


Figure 2. Concentration of income and precarious settlements in the RMSP  
Source: Own elaboration, based on Metro (2017), IBGE (2010), and Emplasa (2018).

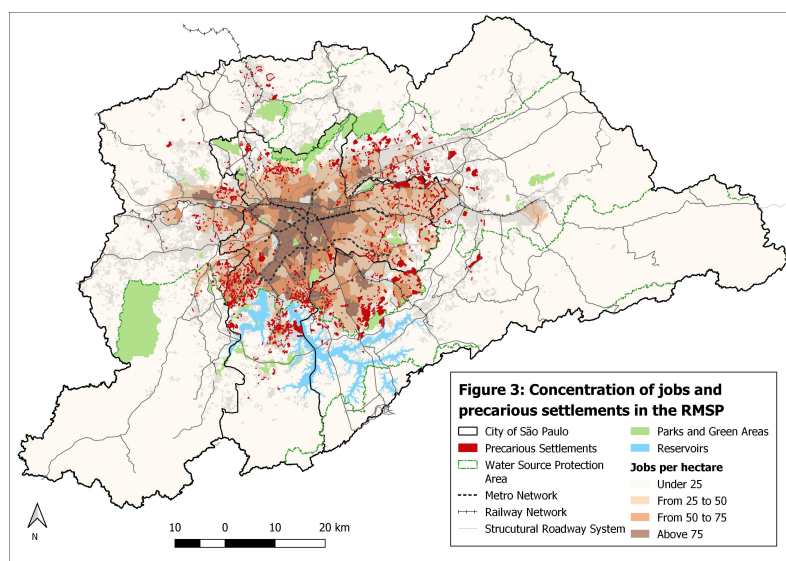


Figure 3. Concentration of jobs and precarious settlements in the RMSP  
Source: Own elaboration, based on Metro (2017), IBGE (2010), and Emplasa (2018).

## 2.2 The LVC tools

Since the 1980s, the São Paulo City Hall (PMSP – *Prefeitura do Município de São Paulo* in Portuguese) has implemented LVC tools. This paper focuses on just

the main two, both of which are based on additional building rights charges. The Zoning Law (CIDADE DE SÃO PAULO, 2016) establishes basic and maximum floor area ratios (FAR)<sup>7</sup> for each zone of the city, and if developers wish to build more than the basic FAR, up to the maximum FAR, they are required to pay a fee according to the amount of additional area. The value of the additional area is calculated based on existing land values. It is called the “virtual lot” calculation. The rationale behind this is to charge the developer an amount of money that would be necessary if they had to buy another plot to build the same amount of additional area, but without increasing the FAR. However, some discount factors are introduced, generally resulting in 40 to 50% of a new lot. The two selected tools for this paper are: the OODC (acronym for *Outorga Onerosa do Direito de Construir*, Portuguese for Building Rights Levy) and CEPAC (acronym for *Certificado de Potencial Adicional de Construção*, Portuguese for Additional Building Rights Certificate).

### 2.3 Data collection

Most data are available on specific PMSP internet pages at a district level:<sup>8</sup> CEPAC and OODC revenues, and data on Consortium Urban Operation projects (OUC – acronym for *Operações Urbanas Consorciadas* in Portuguese), household income, etc. For this study, the time period analysed ranges from 1995 to 2020. The socioeconomic data were collected from the Brazilian Census (IBGE, 2011; 2023a), the National Accounts and the PNAD (acronym for *Pesquisa Nacional por Amostra de Domicílios*, Portuguese for Sample of Households National Survey) covered by the IBGE for several years (IBGE, 20023a), and the 2017 POD (METRÔ, 2017) (acronym for *Pesquisa Origem-Destino do Metrô*, Portuguese for Metro Origin-Destination Search). All these data were georeferenced and mapped with geographical information system (GIS) software according to the divisions of São Paulo districts.

## 3. Theory

### 3.1 The LVC rationale

The use of LVC tools has been advocated by many authors as a way of financing public investments in urban interventions (BLANCO et al. 2016; HUXLEY, 2009; MEDDA; MODELEWSKA, 2011; RYBECK, 2004; SMOLKA, 2013; ZHAO, DAS; LARSON, 2012). The rationale is to capture the capital gains on land, derived from public sector

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7. Floor Area Ratio (*Coeficiente de Aproveitamento* in Portuguese) is the ratio of a building's total floor area to the size of the plot of land.

8. Although the IBGE arranges data in the smallest spatial subdivisions in the Brazilian Census, districts were chosen because they are the smallest municipal administrative division used in São Paulo.

interventions on urban development. As the price of land depends on the potential benefits that it may generate for those who use/own it, public interventions, such as implementing infrastructure or changing land use regulations may increase these benefits for the impacted properties (BLANCO et al., 2016). These benefits may result in an increase in land prices, called by some authors *plusvalias* in Spanish and *mais-valia* in Portuguese (surplus).

When analyzing the Latin America context, Smolka (2013) recalled many examples where there was a huge increase in land values due to public interventions. The valorization varied from 20% (implementation of public transportation) to 100% (building rights increase) or even to 400% (converting rural land into urban land). As this valorization in private assets is a result of public interventions, the rationale is that the public sector should capture part of the valorization it has brought about, if not all. Smolka advocates the use of LVC tools to continue financing public works as may be observed in the following:

The objective is to draw on publicly generated land value increments to enable local administrations to improve the performance of land use management and to fund urban infrastructure and service provision (SMOLKA, 2013, p. 8).

In their study for the Warsaw metro construction, Medda and Modelewska (2011) defended the adoption of these mechanisms as an alternative source for financing high-capacity public transport projects, due to their high cost and the economic difficulties which the public sectors in many countries are currently experiencing. They based their study on Huxley's LVC positive feedback loop scheme (HUXLEY, 2009) as in Figure 4.

According to this schema, first, there is an under-used asset, generally land. The first stage is value creation after public sector intervention, generally implementing infrastructure (i). After private sector investment, e.g., the construction of a building, this value is realized when this asset is sold or let (ii). This results in a private sector gross profit (iii). In the next stage, it is necessary for the public sector to capture part of this profit partially generated by public intervention, resulting in a private sector net profit and in an increased public sector return (iv). This increased return enables the public sector to reinvest in the infrastructure of new areas, thereby completing the loop (v).

According to Huxley (2009), adopting these mechanisms could result in a virtuous growth cycle. However, some authors consider that this process may cause an overconcentration of public and private investments in a determined area, resulting in a vicious cycle. Flint (2018) stated that critics consider tax increment



financing (TIF), an American example of an LVC tool, to be a subsidy for the private sector, thereby diverting revenue away from schools and other important services and neglecting needier areas, and that many TIF programs lack transparency.

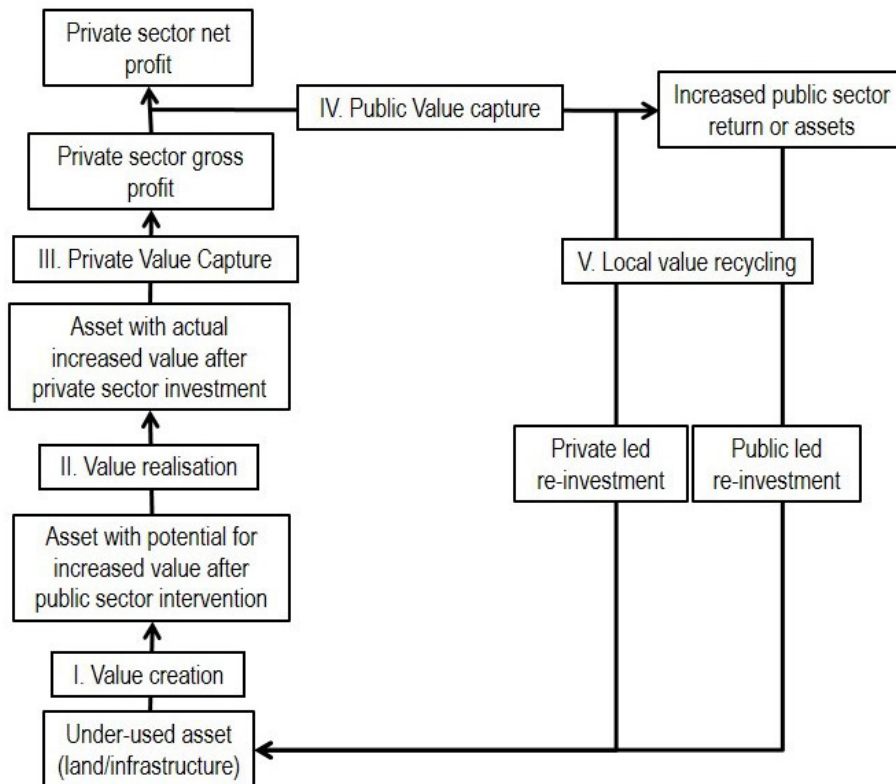


Figure 4. An idealized LVC positive feedback loop

Source: Huxley (2009).

### 3.2 Implementing LVC

Smolka and Amborski (2000) affirmed that LVC tools rely on three broad categories: (i) taxes, (ii) fees and (iii) regulations. Accordingly, the first category, tax on land value, is a form of value capture since, by definition, land values are made up of accumulated land value increments. However, property taxes are generally not related to any particular public intervention and are used to finance part of the municipal expenditure. One exception to this would be the attempts to use temporary increment on property taxes to finance specific infrastructure projects or urban renewal, such as the TIF in the USA.

Property taxation may be traced back to Ancient Greece, through the Middle Ages and on to the Modern Age (MONCAIO, 2011). In Brazil, as in some other Latin American countries, property taxes date from colonial times, when the “*décima*”

(a tenth) of all property values, production, rent and wages had to be paid to the Portuguese Crown. However, due to the size of the country, land was given in concession to farmers who were exempt from taxes since they made it productive, resulting in a “culture” of low collection and high exemption.

In the second category, fees are imposed onto landowners benefiting from some type of public investment and are the most commonly recognized form of capturing land value increment, since many countries have introduced betterment levies on infrastructure implementation. In the USA, Development Impact Fees (DIF) have been charged since the 1950s.

In Brazil, even though the betterment levy was ruled in 1946, cities have rarely implemented it. However, other LVC tools have been implemented since the 1970s and 1980s. Studies from public and private agencies defending the adoption of the *Solo Criado*<sup>9</sup> (literally, Created Soil) a very similar tool to the French PLD (Acronym for *Plafond Legal de Densité*, Maximum Legal Density in French), date from the late 1970s (AZEVEDO NETTO, et al., 1977; CAMPOS FILHO, 1979; MOREIRA et al., 1975). Since the 1980s, many Brazilian cities have implemented LVC tools as a way to finance work during a period of reduction in public spending due to the international financial crisis.

The City of São Paulo is particularly outstanding as one of the pioneers in this experience (REZENDE et al., 2009). In 1986, the City Hall enacted Law No. 10,209 (CIDADE DE SÃO PAULO, 1986), known as the Interconnected Operation, which enabled changes in the urban parameters, such as an increase in the FAR for plots occupied by favelas, as long as the owners built or financed social housing for the resident population in these and other locations.

In 1995, the first Consortium Urban Operation<sup>10</sup> was approved establishing a collection of works for the expansion of Faria Lima Avenue. In order to finance this, CEPAC auctioned off an additional building area of 2.25 million square meters for the plots contained within the area of influence. However, the use of CEPAC was only allowed after 2001, when the City Statute (BRASIL, 2001), Federal Law No. 10,257/2001 that regulated the 1988 Federal Constitution Chapter on Urban Policy (BRASIL, 1988), defined its regulation. This law also established a definition for OODC, as well as other planning tools, and which should all be ruled by the

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9. *Solo Criado* is the built-up area that exceeds a certain proportion of the plot area that could be acquired upon payment or exchange for another piece of land by the developer (MOREIRA et al., 1975).

10. The City Statute defined the Consortium Urban Operation as the set of interventions coordinated by the city hall, with the participation of owners, residents, users and private investors that aims at urban, structural, social and environmental improvements of a determined area (BRASIL, 2001, article 32, paragraph 1).

city master plans. The City of São Paulo defined and regulated OUC, OODC, CEPAC, FUNDURB<sup>11</sup> (acronym for *Fundo Municipal de Desenvolvimento Urbano*, Portuguese for Urban Development Fund), for the first time in its 2002 Strategic Master Plan – Law No. 13,430/2002 (CIDADE DE SÃO PAULO, 2002), revised in 2014 – Law No. 16,050/2014 (CIDADE DE SÃO PAULO, 2014).

Thus, São Paulo has consolidated the implementation of LVC, as will be observed in the following sections. Several authors have already analyzed this experience from different viewpoints (REZENDE et al., 2009; SANDRONI, 2011; SMOLKA; MALERONKA, 2018).

Rezende et al (2009) analyzed the foundations and theoretical matrices that guided the proposal of LVC tools within the Brazilian context, accessing the influence of similar international instruments in its formulation and the first experiences of implementation. Having evaluated the economic and legal issues, they argued in favor of applying LVC tools, considering them a significant victory for cities in implementing urban policies and public interventions. At the time, it was considered important for further research to be conducted into the instrument's impacts on the land and real estate markets, and on its effective capacity to recover part of the capital gains in urban development.

In subsequent research, Sandroni (2011) assessed the experience of São Paulo and argued that charges in additional building rights had not affected the profits of developers. On the contrary, increasing the maximum FAR in some areas of the city contributed to enhancing the rates of return for developers. He also concluded that the São Paulo experience of implementing OODC and CEPAC was a success in terms of revenue, which at the time, together, reached a value of US\$ 1.3 billion.<sup>12</sup> However, he drew attention to the fact that, “unlike property tax revenues that recur annually, revenues from the sale of building rights will fade in time as the additional building potential is exhausted” .

Smolka and Maleronka also analyzed the implementation of LVC in São Paulo focusing on revenues. After assessing the case studies of several real estate developments, they concluded that despite the imperfections in the calculations, the city experience demonstrated that the potential payoffs were indeed substantial,

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11. FUNDURB is a municipal fund, with resources from the OODC collection, and that must be invested in the implementation of programs, urban and environmental projects defined by the City of São Paulo's Strategic Master Plan, in: social housing projects; public transport, cycle-lanes and pedestrian ways; urban sprawl works; the construction of public facilities; protection and restoration of the landscape, cultural and historical heritage; the implementation of environmental protection areas (CIDADE DE SÃO PAULO, 2014).

12. It should be noted that the average exchange rate at this time was BRL 2.00 to US\$ 1.00 (SANDRONI, 2011)

and that the fees imposed a fairer distribution of the costs and benefits of urbanization. They also affirmed that the improvement and adequacy of financial data and the elimination of unjustified discount would result in greater accuracy and higher revenues from implementing value capture tools.

By analyzing the CEPAC experience, they affirmed that, over a period of ten years, revenues attained a level of US\$ 2.7 billion. These figures differ considerably from those included in this study. However, it should be considered that the Brazilian Real has devalued considerably against the dollar, presenting a 50% devaluation since 2011. Nonetheless, unlike the previous study, the conversion rate was not used, which makes it difficult to compare their results with the present work.

However, despite the fact that revenues are increasing and developers are now paying for the costs of urbanization, none of the abovementioned studies analyzed the LVC implementation experiences in São Paulo (especially CEPAC and OODC) in terms of the redistributive aspect. Thus, the importance of this work resides in assessing the differences, impacts and similarities of implementing these two tools, considering their possibilities of promoting a more socially just environment and a less segregated city.

Lastly, according to Smolka and Amborski (2000), the final form of capturing land value would be the regulations, which are legal requirements made to real estate developers at the time of project approval. As an example, they cite Brazilian Federal Law No. 6,766/1979 (BRASIL, 1979) which requires developers to donate 35% of the total area of new subdivisions to the municipalities as a public area to accommodate the roadway system, green areas and public equipment.

## 4. Results

### 4.1. Implementing CEPAC

The CEPAC is an additional public bond for the right to build issued by the PMSP, through SP Urbanism, a municipal public company responsible for implementing the city's renewal projects (SP URBANISMO, 2021e). The bonds grant the buyer the right to build above the basic FAR up to the maximum FAR in OUC areas, and are issued for specific, very well delimited urban renewal projects. The idea is to capitalize the City Hall with future capital gains on land value so that works inside the OUC perimeter may be carried out beforehand. The works are defined previously by a management group for each OUC, since the revenues obtained are exclusively for the payment of these interventions within its perimeters. The revenues from CEPAC auctions are deposited in a specific bank account for each OUC.

Each CEPAC is equivalent to a determined square meter value for use in an additional built area when approving a new building. The amount of CEPAC issued is calculated for each OUC, according to the FAR established inside the OUC, the amount of developable area and the costs of the projected public works. The minimum value of each CEPAC is established according to market research conducted in the area, considering existing land values.

Its primary public offering takes place through BOVESPA (São Paulo Stock Exchange), although once disposed of by auction, CEPACs may be freely traded on the secondary market until they are used for the approval of a new building on a plot within the OUC perimeter. It is also possible for CEPAC to be used as a means of payment for interventions through private placements. In this case, CEPAC's value is updated by the General Building Index, published monthly by the Municipal Finance Department in the City of São Paulo Official Gazette.

The City Statute (BRASIL, 2001), the federal law that regulates urban planning nationwide, defined that CEPAC may only be used inside the OUC areas. This law defined the OUCs as a set of urban interventions coordinated by the municipal government, with the participation of owners, residents, users and investors, aiming at the physical transformation of a determined area, with social and environmental improvements. They must be defined in the City Master Plan and each operation must have its specific law, defining its perimeter, the set of works to be carried out, social and environmental compensatory actions, the financial values to be paid by investors to purchase the CEPAC or other benefits, and the ways of social control with community participation.

Currently, there are four valid urban operations in São Paulo: (i) the Água Branca OUC (OUCAB), (ii) the Água Espraiada OUC (OUCAE), (iii) the City Center Urban Operation (OUC) and (iv) the Faria Lima OUC (OUCFL). However, the City Centre Urban Operation (OUC) is the only one that is not a consortium, signifying that it may not issue CEPAC and that the additional building rights need to be acquired by the OODC. In order to understand the success of the CEPAC auction and its use, it is important to analyze the characteristics of each urban operation.

The two most successful operations, in terms of revenue, are the OUCFL and the OUCAE, both of which are located in the so-called Southwest Zone of São Paulo, an area comprising the highest income districts where new commercial business districts (CBDs) have been flourishing, as seen in Figure 5. The main rationale of both operations was to complete the city structural roadway system.

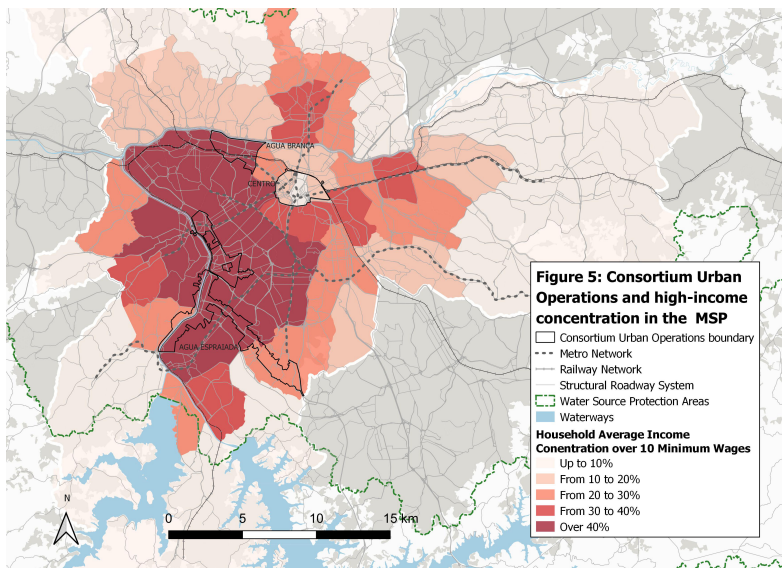


Figure 5. Consortium urban operations and income concentration areas

Source: Own elaboration, based on IBGE (2021), and Geosampa database.

In the OUCFL, approved by Law No. 11,732/1995 (CIDADE DE SÃO PAULO, 1995) and revised by Law No. 13,769/2004 (CIDADE DE SÃO PAULO, 2004), the main works involved the completion of Faria Lima Avenue and its connection to two other important avenues (Pedroso de Morais and Helio Pelegrino), connecting two of the city's flourishing CBDs. Besides this connection, proposals have also been put forward for the construction of two tunnels underneath the avenue, one public transport intermodal station, public space improvements (the urban reconversion of Largo da Batata – a public square), favela upgrading programs, with the construction of 1,252 housing units and the construction of cycle lanes.

The second, the OUCAE, first approved by Law No. 13,260/2001 (CIDADE DE SÃO PAULO, 2001) and revised by Law No. 15,416/2011 (CIDADE DE SÃO PAULO, 2011), proposed the construction of the Água Espraiada Avenue, aimed at completing the São Paulo inner ring road in an area expropriated for this purpose in the 1960s, and which had been occupied by many favelas. The project proposed the relocation of 20,000 favela residents to new housing units to open room for the construction of the main road interventions aimed at connecting the River Pinheiros Expressway (the Marginal do Rio Pinheiros) to the Imigrantes Highway (the Rodovia dos Imigrantes), which connects the cities of São Paulo and Santos, the main Brazilian port. Besides these works, the project also proposed two flyovers connecting the avenue to the expressway and the construction of 8,500 social housing units to accommodate the population that would be removed from the favela.

Despite forecasting a huge amount of social housing, until 2017 the municipality had only delivered 710 housing units, financed with CEPAC resources. Clearly, the families attended have been housed in one of the most valued areas of the city, although the amount represents less than 10% of the demand. On the other hand, there are no guarantees that these families will not sell their units as soon as they finish paying for them.

The OUCAB was first approved by Law No. 11,774/1995 (CIDADE DE SÃO PAULO, 1995) and revised by Law No. 15.893/2013 (CIDADE DE SÃO PAULO, 2013). Its main rationale was to promote the urban redevelopment of derelict industrial land in the Barra Funda district. The main works were related to creating new roadway connections in a fragmented urban fabric, brought about by industrial use and the presence of the railways, as well as macro and micro drainage works, implementing public spaces and equipment and constructing 630 social housing units.

The OUC, relating to the city center, was approved by Law No. 12,349/1997 (CIDADE DE SÃO PAULO, 1997) and its main rationale was to encourage the real estate sector to promote the redevelopment of this degraded area and to retrofit historical buildings in order to reverse the ongoing urban decline. For this purpose, this operation allowed the highest FAR within the city for new mixed-use developments, 12:1, whereas the maximum FAR within the city is 4:1, and the transfer of development rights (TDR) for listed buildings. The main works involved improvement work in the main public spaces (Dom Pedro Park, and the Patriarca, Dom José Gaspar, Roosevelt and Sé squares), the expropriation of land in order to construct a new arts center (Praça das Artes) and the expropriation and retrofit of the Sampaio Moreira listed building so as to house the Municipal Culture Department.

Despite the fact that CEPAC was first proposed in the 1995 Faria Lima Urban Operation Law (CIDADE DE SÃO PAULO, 1995), the first CEPAC auction only took place in 2004, for the OUCAE, after its use had been regulated through the City Statute (BRASIL, 2001). Since then, there have been ten auctions in which almost 3 million CEPACs have been sold for the three OUCs, bringing in US\$ 1.5 billion for the 6.2 million square meters of additional building area, an average of US\$ 240 per square meter. Nevertheless, these values may vary considerably according to the auction and to the OUC. On average, the price varies from US\$ 217 per square meter in the OUCAE to US\$ 352 per square meter in the OUCFL.

However, CEPAC represents only 64% of the revenue in the urban operations, as presented below in Table 1. As the urban operations laws were recently revised in order to fall in line with the City Statute regulation (BRASIL, 2001), 11% of the revenue comes from the OODC levy. On the other hand, high interest rates and a

delay in implementing the projects signified that 24% of the revenue came from the financial investments of the collected, unused resources.

Revenues	OUC	OUCAB	OUCAE	OUCFL	Total
CEPAC auctions	-	2	714	774	1,490 (64%)
OODC	8	135	-	115	258 (11%)
Net financial income	10	110	252	186	557 (24%)
CEPAC (private selling)	-	-	14	35	48 (2%)
Others	-	-	-	4	4 (0)
Social Security	-1	-	-11	-20	-33 (-1%)
Total revenue	17 (1%)	246 (10%)	969 (42%)	1,093 (47%)	2,325 (100%)

Table 1. Urban Operation Revenues (US\$ million)

Source: SP Urbanismo (2021a; 2021b; 2021c; 2021d).

According to this table it may be observed that, financially speaking, the OUCFL and the OUCAE were the most successful, and were responsible for 89% of the revenues and 99% of the CEPAC auctions. This is partially related to the fact that OUCAB was revised very recently (2013), although there was little interest from the real estate sector, since only 10% of the offered CEPAC were purchased at the first auction, and that OUC is not a consortium operation and therefore is unable to issue CEPACs.

Based on SP Urbanismo reports (2021a; 2021b; 2021c; 2021d), Table 2 demonstrates that there was a huge concentration of investments (68%) in road works and expropriation, to the detriment of investments with a more social return, such as the improvement of public spaces, public transport and social housing, which accounted for only 24%. As the OUCAE and the OUCFL had the highest revenue, it was these urban operations that also invested more, 95% of the total revenues.

Expenses	OUC	OUCAB	OUCAE	OUCFL	Total
Road Works	-1	-58	-351	-233	-643 (42%)
Expropriation	-1	-2	-298	-92	-394 (26%)
Social Housing	-	-	-145	-89	-234 (15%)
Public Transport	-	-	-96	-49	-146 (9%)
Administration Fees	-1	-10	-55	-36	-102 (7%)
Public Space Improvement	-6	-	-	-	-6 (0%)
Others	-	-2	-	-8	-10 (1%)
Total expenses	-9 (1%)	-73 (5%)	-945 (62%)	-508 (33%)	-1,535 (100%)

Table 2. Urban Operation Investments (US\$ million)

Source: SP Urbanismo (2021a; 2021b; 2021c; 2021d).



#### 4.2. Implementing the OODC

The OODC is a charge that developers have to pay to the municipality in order to receive planning permission for when they wish to build over the basic FAR, up to the maximum FAR, inside high-density zones, except in the areas of an OUC, where they must buy the CEPAC. Unlike CEPAC, the OODC is plot related and is approved for each project. The OODC was first established in the 2002 City of São Paulo Strategic Master Plan (Law No. 13,430/2002; CIDADE DE SÃO PAULO, 2002) and revised in 2014 (Law No. 16,050/2014; CIDADE DE SÃO PAULO, 2014), which defined the general formula for calculating the value that needed to be paid, as presented in equation below. The formula takes into account the plot size and built up areas, the specific land value, as published by the Municipal Finance Department in the Official Gazette of the City of São Paulo, and certain factors that vary according to the zoning requirements.<sup>13</sup>

$$C = (At/Ac) \times V \times Fs \times Fp$$

C = financial compensation per additional square meter built;

At = plot area in square meters;

Ac = built area in square meters;

V = land value in R\$ per square meter;

Fs = social factor;

Fp = planning factor.

Prior to being granted planning permission for the new building, the values calculated by this formula must be deposited into FUNDURB.

However, while OUC resources are acquired *a priori* and must be spent within the OUC areas, as defined by the City Statute (BRASIL, 2001), OODC resources are collected at the very moment that each developer's project is approved at the City Hall, and are deposited in FUNDURB to be spent in any area of the city, according to decisions made by its Management Council. However, they may only be used to finance social housing, transport (preferentially public), infrastructure, public facilities, and historic and environmental preservation projects.

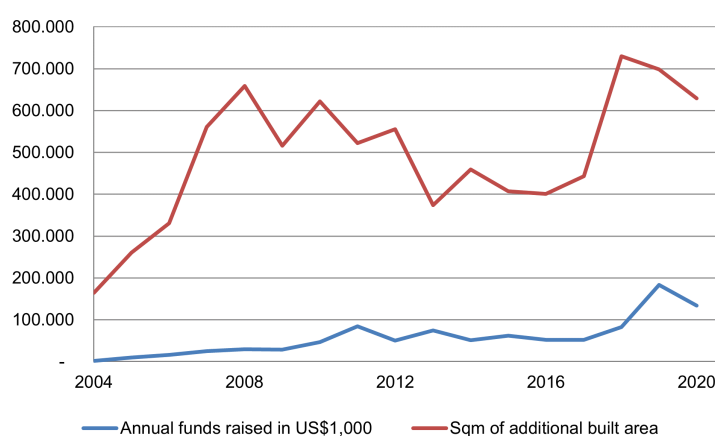
The committee is composed of technicians from municipal departments related to urban development (such as planning, housing, transport, etc.) and

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13. These may be factors linked to either planning or social interest and are set out in the Master Plan and the Zoning Law for each zone of the City. For example, planning factors may take into account the need to promote land use diversity in Mixed-Use Zones and give discounts for some uses that the area is lacking. The social interest factor may provide a discount or exemption from payment of additional building rights for social housing or public services.

representatives from civil society. Unlike CEPAC, whose auctions immediately provide the Municipality with a considerable amount of money, FUNDURB revenues are incremental and depend on granting planning permission for new buildings.

Recent changes in the OODC formula have brought about a considerable increase in its collection, from US\$ 90 per square meter to US\$ 213 per square meter between 2012 and 2020, thereby tripling the annual total from US\$ 50 million to US\$ 134 million, as presented in Graph 1. However, these values are still very low compared to the highest values practiced in the purchase of CEPACs, such as US\$ 4,195 per square meter in the last Faria Lima auction. The accumulated value of resources raised by OODC since 2002 amounts to US\$ 963 million.



Graph 1. Annual collection of OODC in US\$ million x square meters of additional built area  
Source: Own elaboration, based on São Paulo City Hall data (CIDADE DE SÃO PAULO, 2022).

Since 2013, the expenditure of FUNDURB resources has been defined for a specific project, and no longer to a rubric (CONSELHO GESTOR DO FUNDO MUNICIPAL DE DESENVOLVIMENTO URBANO, 2013). This has increased the control over resources, since a project has a beginning and an end, while rubrics are permanent. At that time, the criteria for prioritizing eligible projects were:

1. Projects that impact the development of a neighborhood.
2. Paradigmatic projects that induce urban and social development.
3. Projects defined by the government's Targets Program..

Between 2013 and 2020, US\$ 272 million was spent (CIDADE DE SÃO PAULO, 2022), as follows:

- 25% for public transport works, bicycle paths and improvements for pedestrians;
- 24% for land expropriation, building acquisition and social housing construction;
- 17% for favela upgrading, drainage and slope containment works;
- 14% spent on contracting technical services and projects;
- 9% for the renovation/construction of cultural and educational facilities;
- 4% for roadway system works;
- 7% other.

It may be observed that the territorial concentration of investments vary according to the administration in office. Left-wing administrations tend to invest more in the peripheral fringes, whereas neoliberal governments tend to invest in the central areas, as presented in the maps indicating the resource locations for the years 2015 and 2019 in Figure 6 (CIDADE DE SÃO PAULO, 2015; 2019).

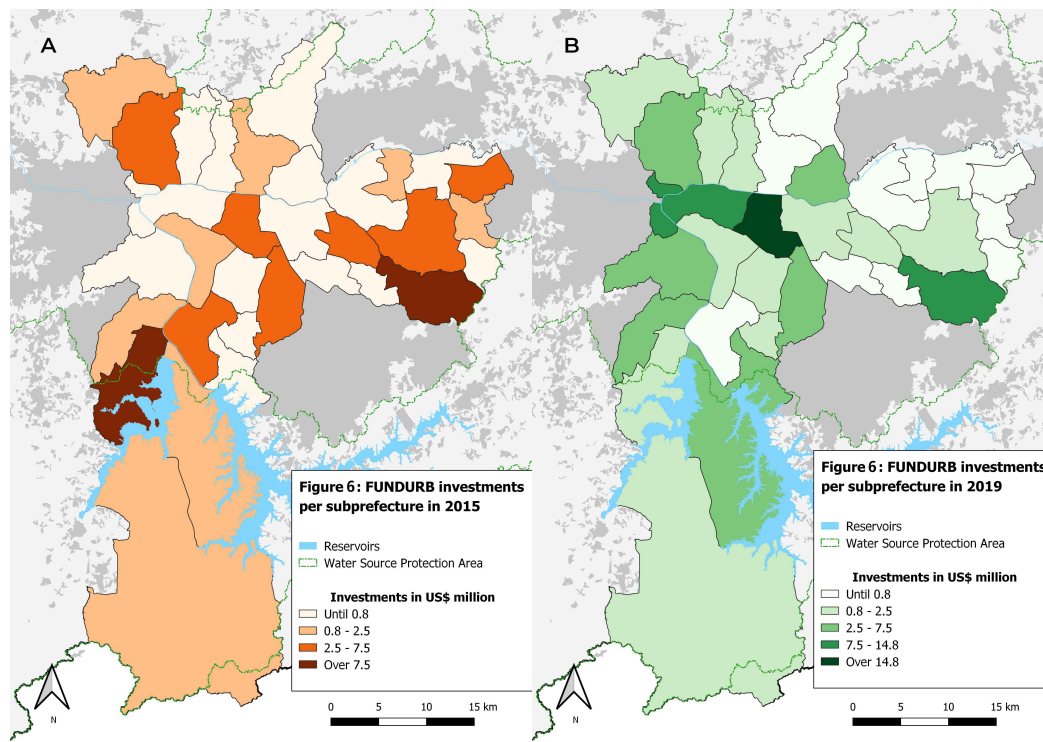


Figure 6. Locations of FUNDURB resources invested in 2015 and 2019

Source: Cidade de São Paulo (2015; 2019).

The maps illustrate that in 2015 there was a concentration of more than US\$ 7.4 million of FUNDURB investments in the peripheral sub-prefectures of M'Boi Mirim and São Mateus. In 2019, more than US\$ 14.8 million were invested in the Sé sub-prefecture alone, which comprises the City Center. Most of these resources were invested in the redevelopment of the Vale do Anhangabaú, the main central public space, which consumed US\$ 25 million over three years.

## 5. Conclusions

Various theories in the field of urbanism have defended the use of land value capture tools as way of recovering part of the real estate valorization derived from public investments, and to provide the public sector with funding in order to address the urbanization process. Most existing studies on the São Paulo experience have concluded that, in terms of revenue, it has been a success. This paper has sought to evaluate the use of two of these tools in the City of São Paulo: CEPAC and the OODC, in terms of both revenues and expenses, considering social redistribution and the promotion of a less segregated and more socially just city.

With regard to the potential of these tools as fund raisers, since 1995, they have both collected US\$ 2.5 billion. Thus, the São Paulo experience has proved to be a success in relation to other Brazilian cities. Another point is that currently, developers also pay for the urbanization costs and the city possesses specific funds for urban development works and social housing. However, the amount is still small considering other municipal taxes, since it is equivalent for one year of IPTU (Land Property Tax). Annually, LVC revenues represent less than 1% of the Municipal Budget. Undertaking a review of the calculation formula, and avoiding undue discounts, could raise this value to more significant figures.

From a comparison of the total raised by CEPAC and OODC between 1995 and 2020, it is possible to conclude that CEPAC collected twice as much for the equivalent additional areas than OODC. While CEPAC collected US\$ 1.5 billion for 6.2 million square meters (at an average value of US\$ 242 per square meter), the OODC raised US\$ 963 million for an additional 8.3 million square meters (at an average value of US\$116 per square meter).

Hence, the City Hall had US\$ 1.5 billion to spend on only 3% of the city's urbanized area (the sum of all urban operation areas is 3,143 hectares) and US\$ 963 million to spend on the remaining 97%. Thus, the city's administration was in possession of fifty times more resources to spend in each square meter of urban operation than for each square meter in the rest of the city. This demonstrates that CEPAC, despite being a successful fund raiser, concentrates an enormous

amount of resources within the city's wealthiest areas, thereby strengthening socio-environmental disparities, and proving itself to be an extremely regressive fiscal tool.

With regard to the investments undertaken, once again the use of CEPAC funds is also more regressive than FUNDURB. Most of the OUC resources were spent on expropriation and road works that privileged the motorized elite of the city and their neighborhoods. Obviously, there were also investments in public transport, social housing production and favela upgrading programs inside the OUC, however, the amount spent on these was less significant and, considering the housing demands, these investments were ineffective. Hence, in the case of OUC, CEPAC seems to have promoted a vicious" rather than a virtuous cycle, since public authorities must spend more and more money on expropriations to carry out improvement works.

On the other hand, FUNDURB investments seem to have been more redistributive from a social viewpoint, considering both their location and the types of work financed. However, defining these two points depends very much on the ideology of the mayor in office, which may be more or less progressive according to the position taken. For example, the current mayor has proposed spending all FUNDURB resources on repaving roads and even in exchange for the cash payments for the works.

It is essential to consider the differences between the design of the tools, which function in different logics. While the OODC charges function more within a rationale of raising funds to be distributed throughout the city, CEPAC is a funding instrument for specific projects in a specific area (OUC) and is collected in advance through auctions, which enables a project to take off and to be executed considerably quicker. Nevertheless, in order for the OUC and CEPAC to have a greater social return, greater attention must be paid to the impacts and social demands of the areas for which they are designed, involving the community to be affected.

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### **Eduardo Alberto Cusce Nobre**

Architect and Urban Planner (FAU-USP, 1989), holds a Master of Arts degree in Urban Design (Oxford Brookes University, 1994), and a PhD in Architecture and Urbanism (FAU-USP, 2000), and a Post-Doctorate in Urban and Regional Planning (IPPUR-UFRJ, 2016). Associate Professor of Urban and Regional Planning at the Faculty of Architecture, Urbanism and Design at the Universidade de São Paulo (FAU-USP), where he has been teaching since 2001, and a Senior Researcher at the Universidade de São Paulo Núcleo de Apoio à Pesquisa: Produção e Linguagem do Ambiente Construído (NAP/PLAC-USP). He was president of the National Association of Graduate Studies and Research in Urban and Regional Planning (ANPUR) from 2017 to 2019. He is author/editor of *Sports Mega-Events and Urban Legacies: the 2014 FIFA World Cup, Brazil* (Palgrave Macmillan, 2017) and *Do Plano Diretor às Operações Urbanas Consorciadas: a ascensão do discurso neoliberal e dos grandes projetos urbanos no planejamento paulistano* (Annablume, 2019, honors mention in the 5th Ana Clara Torres Ribeiro Books Award by ANPUR).

**Email:** eacnobre@usp.br

**ORCID:** 0000-0002-8127-5510

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