



URBAN LAND VALUE CAPTURE IN SÃO PAULO, ADDIS ABABA, AND HYDERABAD: DIFFERING INTERPRETATIONS, EQUITY IMPACTS, AND ENABLING CONDITIONS

ANJALI MAHENDRA, ROBIN KING, ERIN GRAY, MARIA HART, LAURA AZEREDO*, LUANA PRISCILA BETTI*, SURYA PRAKASH*, AMARTYA DEB*, ELLENI ASHEBIR*, ASMAA IBRAHIM

EXECUTIVE SUMMARY

Highlights

- Public and private actions can induce increases in land values. The process of land value capture (LVC) involves converting increases in the value of land driven by government investment or action back into public revenue that may be used for a variety of public purposes.
- LVC mechanisms like property taxes, charges for building rights, and development fees exist in cities around the world, but many of these remain ineffective due to lack of strong institutions and land-governance structures and subversion by political or private development interests.
- This paper examines LVC experiences across three cities in the global South—São Paulo, Brazil; Addis Ababa, Ethiopia; and Hyderabad, India—to identify factors that lead to both successful LVC and positive equity and economic benefits for the community, as well as failures or negative equity and economic impacts.
- From case studies conducted in 2018, we find that LVC mechanisms delivered positive economic and mixed equity outcomes in São Paulo and have so far delivered very few observable economic and equity benefits in both Hyderabad and Addis Ababa.
- Our analysis highlights the relevance of legal and planning processes (especially with respect to land tenure), available financial instruments, real estate market conditions, and government capacity in harnessing the economic benefits of LVC in ways that enhance equity.

CONTENTS

Executive Summary	1
Introduction	4
Research Methods and Approach	7
Case Studies	11
Case Study Synthesis and Findings	32
Limitations and Further Research	38
Appendix A. Methodological Guidance	39
Appendix B. List of Interviewees	42
Endnotes	43
References	44
About the Authors	47

Working Papers contain preliminary research, analysis, findings, and recommendations. They are circulated to stimulate timely discussion and critical feedback and to influence ongoing debate on emerging issues. Working papers may eventually be published in another form and their content may be revised.

Suggested Citation: Mahendra, A., et al. 2020. “Urban Land Value Capture in São Paulo, Addis Ababa, and Hyderabad: Differing Interpretations, Equity Impacts, and Enabling Conditions.” Working Paper. Cambridge, MA: Lincoln Institute of Land Policy. Available online at <http://www.wri.org/publication/urban-land-value-capture>.

* These authors contributed equally to the case studies in this paper

Context

Some of the fastest growing cities in the global South have the fewest resources at their disposal to provide basic infrastructure and services for a growing urban population. LVC serves as an important mechanism for these cities to generate public revenue for basic infrastructure and service delivery and to advance sustainable urban development goals. LVC involves the city government capturing a portion of increases in the value of land (often driven by government policies or infrastructure investment as well as private development) and investing it back into communities to further improve infrastructure and services like streets, piped water, sewerage networks, schools, and green spaces. Beyond its potential to generate much-needed revenue for a city, LVC can also advance social equity goals by tapping into new and expensive development projects to distribute the increase in land value more equitably across a city's population.

There are many LVC tools available to cities, including property taxes, development fees, negotiated payments, betterment contributions, charges for building and air rights, and land readjustment schemes. The challenge for cities lies in ensuring that revenue from land value capture is actually invested back into communities and meets public needs. Often private entities disproportionately benefit from rising land values, leaving low-income people and communities excluded from any economic benefits generated by urban development projects.

This paper sets out to explore what worked and what didn't work in implementing LVC mechanisms in three cities across Latin America, Africa, and South Asia: São Paulo, Brazil; Addis Ababa, Ethiopia; and Hyderabad, India. These growing cities represent a range of incomes, urbanization patterns, maturity of land regulations and governance structures, and experiences implementing LVC. The case studies were conducted by experts on the ground who are familiar with the projects studied in each city and who are connected to local decision-makers and project stakeholders.

About This Working Paper

This working paper was developed as a part of a series of LVC papers commissioned by the Lincoln Institute of Land Policy. The goal of this paper was to understand the fiscal and equity benefits brought about by LVC mechanisms in urban areas in the global South that are

experiencing rapid urban growth. The following primary research questions guided each of the case studies: ***What are the fiscal and equity impacts, or equity considerations, of implemented urban LVC schemes and projects integrating some form of LVC in each city? What specific institutional arrangements involving public and private stakeholders, as well as national and local policies, led to the observed impacts?***

The case studies were based largely on interviews with government officials and urban development professionals in each of the case study cities, along with secondary data sources. Several indicators that were used in evaluating the impact of these LVC mechanisms included local resources raised, contribution of revenues to infrastructure and service investments as part of urban growth plans, and, to the extent possible, equity indicators capturing the benefits and costs from land value gains for different population groups.

Due to lack of data and incomplete development projects, the only case study that could be defined as successful in delivering some public economic or equity benefits is the São Paulo case. More data collection is needed to fully understand the economic and equity impacts of LVC in Addis Ababa and Hyderabad.

Case Study Findings

São Paulo, Brazil

In São Paulo, the city government used Certificates of Additional Construction Potential (CEPACs)—a form of charges issued by the city and sold in auctions in the stock market—to generate revenue for public infrastructure projects. One such project was the Água Espraiada Urban Operation project (OUCAE), which was targeted at a highly heterogeneous area with a *favela*, or informal settlement, situated next to a stream. The OUCAE project aimed to address the informal housing and drainage problems in the area by dedicating revenue raised from the sale of CEPACs to reinvestment in public infrastructure, while facilitating urban development that was occurring in the nearby more commercialized area of Faria Lima.

The OUCAE raised a total value of BRL 2.9 billion by selling 3.4 million CEPACs in auctions between the years 2004 and 2012. This signifies that the economic goals of the LVC mechanism were reached. The equity impact is less positive. Only 33.7 percent of the total increase in

value has been directed to urban services that directly benefit low-income families, while 59.6 percent has been channeled to road infrastructure that benefits higher-income vehicle owners. Additionally, many lower-income families who were displaced during construction did not receive sufficient alternative social housing.

Addis Ababa, Ethiopia

In Addis Ababa, Ethiopia, the government currently operates what is essentially a leasehold system to generate public revenue for infrastructure. In the mid-1970s, a socialist military rule was established in the country, and privately held land was transferred to government ownership. This was overturned in 1995, although all land titles ultimately still belonged to the government. Similar to property taxes, by leasing land to private actors and businesses, the city can now generate revenue to invest in public infrastructure and low-cost housing for residents.

One area targeted for this kind of redevelopment was the small, centrally located subcity of Lideta, which was meant to benefit from new affordable housing, space for stores and businesses, and open green space. The project was supposed to be financed through land leasing, the sale of apartments and commercial buildings, and property taxes, but few of these LVC mechanisms have been successfully implemented. Much of the Lideta development area today remains unfinished and dominated by higher-end condominiums that are still under construction, having pushed many lower-income families out. The lack of clear property records and ineffective leasing payment collection has resulted in very little public revenue generation. In this case study, the LVC mechanism was not fully implemented, and therefore the city derived few economic and equity benefits.

Hyderabad, India

The case study of LVC in Hyderabad, India, represents the intermediate case of the three, with a functioning private land market, administrative capacity to collect basic fees and taxes, and government support for LVC. This case study looked at land development around the Outer Ring Road (ORR), a road that circles the city and connects to more than 30 radial roads, allowing cars to bypass the crowded city center and travel more efficiently. To promote development around the ORR, the city planned to use three LVC mechanisms to raise revenue: special development charges (SDCs) managed by the city government, which charge up to 1.5 times the normal fee

for building permissions; development deferment charges (DDCs) managed by local villages, which are levied on site owners who keep a lot vacant; and area development plans (ADPs), including land pooling and development schemes that benefit both landowners and the local government. So far, only SDCs and DDCs are in place, with the enforcement of enabling policies for ADPs beginning after our case study period in June of 2020. As of now, revenue from these fees has been shown to benefit the Hyderabad Metropolitan Development Authority (HMDA), but increased land value from any new development is yet to be captured or recorded, and no equity benefits were either planned for or achieved. Transit connectivity and growth around the ORR is concentrated around wealthier, more developed parts of the transit corridor, and many poorer areas along the periphery await basic infrastructure and services like roads and sewerage. Although the ORR is set up more as a traditional transportation project than a functioning LVC mechanism, the potential for revenue generation is there. The experience of other cities such as São Paulo in designing LVC schemes to deliver both economic and equity benefits can be instructive for decision-makers in Hyderabad.

Conclusions

Although results from the case studies are mixed, we find that with the right enabling conditions in place, the potential for successful LVC exists in each of the cities we studied. The cases show the importance of the following enabling factors as key to implementing LVC in an equitable manner and in a way that benefits the city:

- Planning for equitable financing that supports fair valuation and avoids contributing to market distortions
- Considering risk mitigation from the beginning and not during or after implementation
- Prioritizing transparent valuation based on updated property cadasters
- Investing in local capacity building and integrated planning
- Building a long-term vision and political support
- Sharing responsibility and trust among public and private actors

These enabling factors will apply differently depending on the local context. Cities will have to take into account the state of their legal and planning processes, real estate market conditions, financial instruments available, and government capacity in order to establish the appropriate enabling conditions to implement LVC effectively.

Box 1 | List of Abbreviations

ADP	area development plan
BRl	Brazilian Real
CEPACs	<i>Certificados de Potencial Adicional de Construção</i> (certificates of additional construction potential)
CVM	<i>Comissão de Valores Mobiliários</i> (Brazilian Securities and Exchange Commission)
DDC	development deferment charges
ETB	Ethiopian Birr
FARs	floor area ratios
FLUO	Faria Lima Urban Operation
GHMC	Greater Hyderabad Municipal Corporation
HMDA	Hyderabad Metropolitan Development Authority
INR	Indian Rupee
LPS	land-pooling scheme
LVC	land value capture
O&M	operation and maintenance
OODCs	<i>Outorga Onerosa de Direito de Construir</i> (charges for additional building rights)
ORR	outer ring road
ORRGC	outer ring road growth corridor
OUC	joint urban operation
OUCAE	Água Espraiada Urban Operation
SDC	special development charges
ZEIS	<i>Zonas Especiais de Interesse Social</i> (special zones of social interest)

INTRODUCTION

With over 90 percent of the increase in urban population out to 2050 expected to occur in emerging economies, particularly Asia and Africa, there is a significant opportunity to understand how cities in these contexts, with some of the lowest public budgets per capita, can finance urban growth (Beard et al. 2016). Adequately serviced land is in short supply in many growing cities. Land value capture (LVC) is an important mechanism to raise local source revenues for public investments to finance, for example, infrastructure and service provision in growing urban areas. This includes projects like roads, piped water, schools, or green infrastructure. However, the returns from urban development and public investment in infrastructure may not always accrue to public-sector stakeholders. Private landowners are often the disproportionate beneficiaries of the land value increase resulting from these investments. Moreover, the fiscal benefits obtained through LVC projects may be accompanied by the dual challenges of maintaining affordability and ensuring equitable reinvestment of revenue. This paper aims to examine both successes and failures in LVC experiences across three cities in South America, Asia, and Africa—São Paulo, Brazil; Addis Ababa, Ethiopia; and Hyderabad, India—that have attempted to use land value increases to create serviced land for development.

The New Urban Agenda, a declaration endorsed by the United Nations and its member countries, promotes planned urban extensions, appropriate density and connectivity, and infill development to upgrade informal settlements, prevent urban sprawl, and revitalize inner-city areas (UN-Habitat 2016). To achieve these goals, the UN mentions the need for capacity building in the use of legal land-based revenue and financing tools, the enabling conditions needed for LVC, and an understanding of the magnitude and distribution of land value increments (UN-Habitat 2016). The New Urban Agenda has a strong equity focus, and this paper aims to at least partially address the crucial knowledge gap in how these actions might be implemented in an equitable way.

In terms of a technical definition, LVC comprises “an array of public finance instruments and initiatives that enable communities to recover and reinvest land value increases resulting from public investment and other government actions” (Germán and Bernstein 2018). It is the process of mobilizing land value increments by converting them into public revenue in the form of taxes and fees or through providing onsite land improvements that benefit

the community (Smolka 2013). The instruments used to extract the increase in land value vary across conventional property taxation, negotiated extractions, betterment contributions, charges for building and air rights, development impact fees, transferable development rights, requirements embedded in inclusionary housing and zoning policies, and land readjustment schemes (Petersen 2009; Germán and Bernstein 2018). These instruments can potentially be subverted by political or private development interests if the appropriate institutional enabling conditions are not present. Generating land value to the public is ostensibly the common goal of all these types of instruments (Germán and Bernstein 2018), and the objective of our study is to examine the extent to which this goal was met in the three case-study projects.

LVC mechanisms can help government agencies to recover costs of infrastructure provision and can also be used as a direct urban planning instrument to promote density, improve public spaces that increase property values, and mandate social housing in new development areas. These benefits can stimulate a city's economic competitiveness, mitigate environmental problems, and promote social justice by distributing benefits of land value increases in an equitable manner (Suzuki et al. 2015). Although government actions are assumed to be for public purpose, citizens do not always agree with interventions to implement LVC and may end up being disgruntled with how LVC fees are set, collected, and distributed (Suzuki et al. 2015). This could be due to ambiguity at implementation stage; dissonance of justification; and distrusting the government on how it uses the taxpayers' money.

In terms of equity,¹ we view this as both a process and an outcome, considering “fair and just inclusion . . . to ensure that all residents can access and take advantage of the region’s economic, social, and environmental assets” (Rose et al. 2011). The goals of capturing increments in land value for public purposes and ensuring equity in the distribution of these benefits can complement each other but can also be relatively difficult to achieve simultaneously. We explore how this might depend on the specific details of LVC instruments, the policies that enable their implementation, and the broader context of urban planning and land markets in the city. Comprehensive definitions of both LVC and equity are addressed further in the literature review section below.

In this paper, we evaluate three case studies of LVC projects to assess their fiscal and equity benefits. The case studies, based on interviews and secondary data sources, help assess whether the land value increase there has supported investment in public services. The case studies also help assess whether benefits from land value increases accrued equitably to public and private stakeholders. Indicators used for the evaluation include local resources raised, contribution to infrastructure and services investments as part of urban growth plans, and, to the extent possible, equity indicators capturing the benefits and costs from land value gains for different population groups. The case studies also explore the enabling legal, regulatory, and policy conditions needed to achieve the dual fiscal and equity benefits of LVC.

Central Research Questions

What are the fiscal and equity impacts, or equity considerations, of implemented urban LVC schemes and projects integrating some form of LVC in each city? What specific institutional arrangements involving public and private stakeholders, as well as national and local policies, led to the observed impacts?

We explored these central research questions through case studies of three projects in three countries of the global South. The case studies were also designed to answer these secondary questions:

1. Has the land value increase in the project area enabled investment in urban services?
2. Where was the LVC revenue raised, compared to where it was reinvested? Has the project benefited the project users as well as the larger community or city?
3. Has the distribution of benefits from these LVC projects been shared across public and private stakeholders in an equitable way? Did the wider community, especially marginalized people, receive the benefits?
4. Were provisions made to mitigate any anticipated gentrification and affordability issues associated with these urban development projects? Was the decision-making for the investment of LVC revenues inclusive and transparent?
5. What were the enabling legal, regulatory, and policy conditions needed to achieve the dual fiscal and equity benefits, and what conditions inhibited this?

To address these questions, the following framework was used to analyze each case study:

- Baseline context and enabling conditions
- LVC in action—as defined in policy and as applied in practice
- Equity dimension of LVC mechanism design
- Equity and fiscal impacts of the LVC mechanism

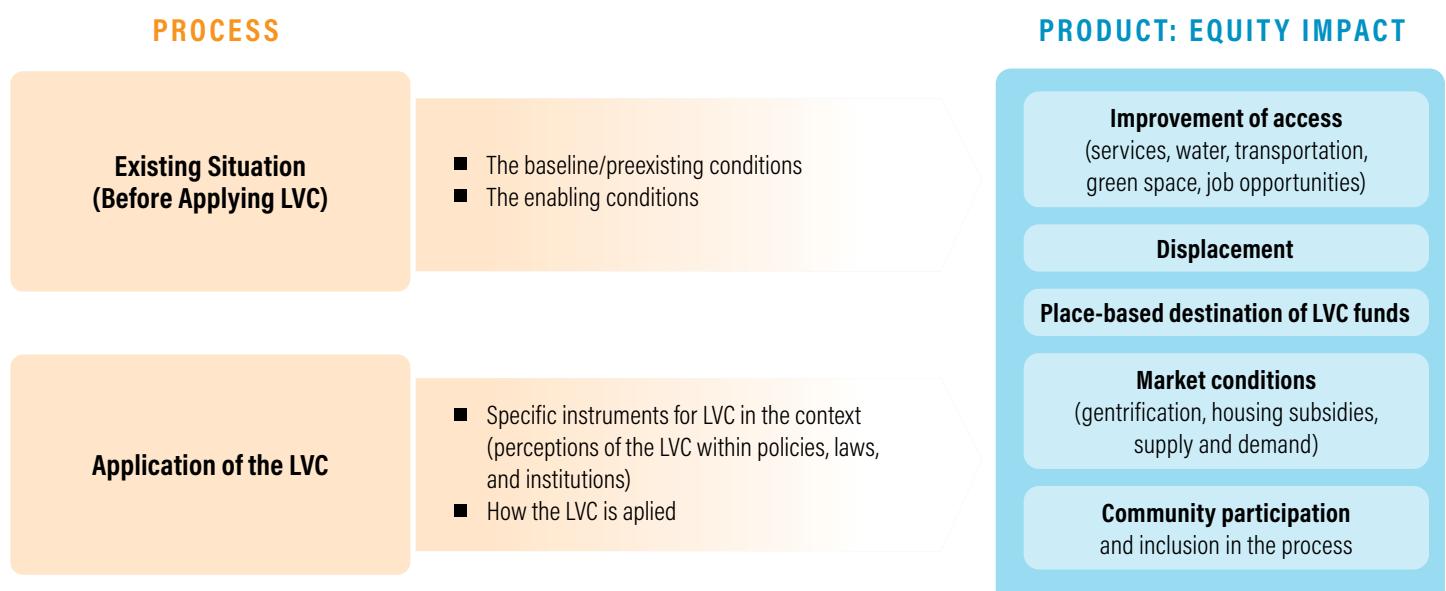
We note that LVC in and of itself should not lead to gentrification, unequal development, or decreased affordability in cities. Urban development projects, either financed by LVC or meant to generate LVC for reinvestment in public services, can lead to these challenges. We take both into account in this study, to understand the broader fiscal and equity impacts of LVC mechanisms and urban development projects financed by LVC.

It is also worth mentioning that equity variables are identified based on the availability of the data and on what can be derived from the local interviews conducted for the three case studies. The variables include improvement of access (services, water, transportation, green space, job opportunities), minimization of displacement, place-based destination of funds, community participation and inclu-

sion in the process, and market conditions (gentrification, subsidies, and supply and demand of housing segments). These analytical components inform the equity and fiscal impact analysis. Accordingly, the aim of this framework is to analyze and evaluate the LVC process before, during, and after implementation in terms of the fiscal and equity outcomes. This is illustrated in Figure 1 below.

To determine whether benefits of LVC were distributed equitably, we rely on quantitative analysis of the distribution of funds, improvements (if any) to access to services, and whether residents were displaced as a result of the urban development projects meant to generate LVC and under what conditions they were displaced. An ongoing challenge to evaluating the full equity and fiscal impacts of LVC in developing countries, as already mentioned, is lack of data. This makes it difficult to measure and quantify the benefits of LVC in a consistent way across cities, as well as to attribute improvements in the city directly to LVC investments. This research attempts to overcome these challenges by using data available on LVC expenditures, infrastructure investments, and displaced residents, combined with qualitative data gathered from interviews, to form a picture of how LVC expenditures are or are not benefiting a city.

Figure 1 | **Assessment of Applying LVC: Analyzing Fiscal and Equity Benefits**



Source: Authors.

RESEARCH METHODS AND APPROACH

This research is based on a thorough literature review, documented in the Case Studies section, and in-depth project case studies, based on the case-study methodology included in Appendix A. We were able to use the experience of field-based staff who were knowledgeable about the institutional context and perspectives of different stakeholders and who could gather detailed project-based data on land values and transactions, which is difficult to find in published sources.

We conducted case studies in low- and middle-income countries—Ethiopia, India, and Brazil—representing rapidly urbanizing and recently urbanized regions in the global South, where the World Resources Institute (WRI) Ross Center for Sustainable Cities has teams on the ground who are connected to local decision-makers and experts. The case-study countries were selected to represent varying levels of urbanization, incomes, maturity of land regulatory frameworks, and experiences with implementation of LVC. These are all countries where we know there is an interest in greater use of LVC instruments and where such instruments have been implemented with varying degrees of success. The cities of focus were Hyderabad, India; São Paulo, Brazil; and Addis Ababa, Ethiopia. In each city, specific urban projects were chosen for analysis, based on inputs from key informants. These projects had also been in existence long enough to draw lessons learned from successes and failures. Although the São Paulo case is the most robust, thanks to available data and maturity of the project, we wanted to include the Addis Ababa and Hyderabad cases to help paint a broader picture of what LVC looks like in different urbanizing contexts. In all cases, local officials consider LVC to be taking place.

The following key criteria were used for the selection of case studies:

- Implemented urban project, having been completed in 2016 or earlier (project should have been implemented a minimum of three years earlier)²
- Redevelopment project inside city or greenfield project on periphery of the city or major infrastructure project
- Project where captured land value (regardless of LVC mechanism used) aimed to finance service provision (main utilities such as water, sanitation, electricity

infrastructure, transportation, health, or social services) or be used for public purpose in general, perhaps stated in project objective or goal

- Good project finance and data on land transactions and revenues available from government Web sites and other secondary sources (both before and after project)
- Good disaggregated (neighborhood level) socioeconomic data on household income, occupations, population groups, and access to services

We developed a detailed case-study methodology and interview protocol (see Appendix A), including guidance on selecting interviewees across public, private, nonprofit, and technical expert groups and key interview questions for lead researchers in the countries to implement in a consistent way. The case studies were based on primary qualitative data in the form of interviews with up to 10 key informants and secondary data in the form of local plans for each project studied, socioeconomic data, applicable local legislation, available financial information, data on land transactions, compensation and relocation reports, and project funding statements. Secondary data also included literature and case studies published by other scholars.

Guided by the case study methodology, WRI's local staff in the international offices led the collection and documentation of primary and secondary data. This ensured that the cases appropriately represented the political, cultural, economic, geographic, and social context of the project and the city. The case-study write-ups contribute much needed knowledge on practical implementation of LVC projects. We expect that these case studies could be used directly by urban change agents in both public and private sectors in their search of good practices, as well as in capacity building and training efforts.

Each case study includes details on the geographic context, the specific project financed, the project objectives, LVC instruments used, date implemented, actors involved, among other relevant information. The methodological note in Appendix A provided a consistent structure to gather information for the case studies with detailed guidance on conducting interviews and using secondary sources.

The project team began by conducting desk research and a literature review to collect data before conducting interviews. The interviews were used to verify information and data collected and fill gaps in knowledge needed to

complete the case study. If quantitative data were not available, the interviews were used to obtain estimates, with reasonable assumptions. Key informants were selected from the public, private, and civil society sectors in each city, and included residents from the projects in some cases. They included people likely to have information about the project, such as representatives at municipal authorities, academics or researchers, property developers, technical experts, nongovernmental organizations (NGOs) and other organizations that work on urban land and informal settlements, private consultants, brokers and real estate agents who were involved with the project, and project financiers. The goal was to select key informants who represented the diversity of stakeholders associated with the project.

Our interviews revealed a wide range of perceptions about what LVC is, as well as the differing legal, regulatory, and market contexts in which LVC is applied. While officials in some cases boasted of their LVC efforts, the contrast between the policy ambition and the implementation reality highlighted the importance of enabling and baseline conditions in the success of LVC. The literature review that follows reinforces this importance, along with the need for a close study of how different LVC mechanisms are implemented in varying political, economic, and cultural contexts, along with their links to equity. Data were often inconsistent and incomplete, when available, and thus the analysis reflects our attempt to interpret the data within the broader description provided by interviewees.

The next section presents our literature review, followed by a synthesis of findings across the three case studies, and last, some conclusions and opportunities for further research to enhance equity outcomes when LVC is implemented, particularly in cities of the global South.

Literature Review and Basic Concepts

We conducted a literature review to better understand the extent to which other research has examined equity impacts from LVC projects and the evaluation methods the researchers used, both theoretically and with application in various case studies. The literature review also sought to better understand the different elements included in this framework for achieving fiscal and equity benefits (and, conversely, inhibiting conditions for failed projects), and hone in on the tricky issue of land valuation, a key challenge in all cases.

The findings of this literature review frame how we interpret our case studies, with the acknowledgment that literature is quite scarce in two of our cases. We examined (English only) peer-reviewed literature as well as reports from relevant research institutes and urban service and infrastructure investors (i.e., development banks) from the past 10 years using Google, Google Scholar, and Ebsco Host.

Land Value Capture

In this analysis, LVC refers to giving communities the opportunity to recover and reinvest land value increases as a result of public investment and other government actions (Germán and Bernstein 2018). LVC incorporates six main mechanisms or policies:

1. Betterment contributions and special assessments: a fee paid to the municipality by specific owners who benefit from a public improvement or service.
2. Charges for building rights: fees paid to the municipality by developers, to fund infrastructure or other public improvements in return for additional development rights.
3. Exactions: fees paid by the developers to fund additional public services required by new development, in return for specific approvals or permission for this new development. Such exactions can take the form of cash, land, or other in-kind revenues (e.g., services, infrastructure, etc.).
4. Impact or linkage fees: the developers pay such fees to the municipality once to compensate for the development's impact on certain public services and infrastructure. The municipality can use these fees to fund other public services and infrastructure (Germán and Bernstein 2018).
5. Land readjustment: the collective pooling of land, in conjunction with a city or private developer, and re-parceling it to fit a new land-use objective. This can allow the city to set aside land in the area of interest for implementing basic infrastructure of services (instead of having to purchase it at a higher cost separately) while requiring that landowners receive a new parcel of land of equal size or value to their original (Hong and Brain 2012).
6. Property tax: a real estate tax that is based on the value of the land and the assets on the land.

Accordingly, for the purposes of this paper, and as noted earlier, LVC is the process of mobilizing land value increments by converting them into public revenue in the form of fees, betterment contributions, taxes, and other fiscal means or through providing on-site land improvements that benefit the community (Smolka 2013). While the number of LVC case studies is growing, LVC impacts are considered ill-understood and under-used, especially in newer contexts (Huxley 2009; Blanco et al. 2017).

At the national and local level, promotion of LVC principles can be seen through enabling legislation. In Latin America, for example, many countries have passed legislation that directly supports the implementation of LVC policies (Smolka 2012). In North America, property taxes, impact fees, and development charges have been in place for multiple decades (Smolka and Amborski 2000).

At the international level, increased attention to alternative financing mechanisms like LVC can be seen in the New Urban Agenda (UN-Habitat 2016). At the regional scale, multiple development banks, including the Asian Development Bank, Inter-American Development Bank, and the World Bank, have issued reports highlighting the important role that LVC can play in meeting urban service and infrastructure needs (Abiad et al. 2019; Blanco et al. 2017; Suzuki et al. 2015).

Equity

Beyond its economic efficiency and revenue generation appeal, LVC is often heralded as a means for achieving greater social equity in cities (Abiad et al. 2019; Blanco et al. 2017; Smolka 2012, 2013; Smolka and Amborski 2000). With the revenue generated from LVC, cities can reinvest in public services and infrastructure that improve accessibility and quality of life for all residents. LVC also helps to tap into new and expensive development projects to share the added value with lower-income groups. The New Urban Agenda supports the use of LVC in its focus on equity and government policies to address growing inequality seen in cities. Governments can, for example, sell developers' rights to build at a higher density than normally allowed and use this revenue to finance affordable housing or urban transit projects (Smolka 2012).

Yet equity is a term that means slightly different things to different audiences. Equity broadly calls for treatment of equals (Musgrave 1959) and for recognition of claims that are due (Rescher 1966). It concerns what is fair (Rawls 1971) and is referred to as an issue of distributive justice

(Lucy 1981). Equity planning pays attention to the needs of poor and vulnerable populations (Krumholz and Forester 1990). Another set of authors defines equity as "fair and just inclusion with specific focus on social equity as an important goal in its own right to ensure that all residents can access and take advantage of the region's economic, social, and environmental assets" (Rose et al. 2011). Equity thus implies two dimensions to assess: whether a plan identifies an equity goal in relation to underprivileged groups and whether this plan adopts policies or activities that clearly expand choices for such groups (Zapata and Bates 2017).

From here, we can refer to equity as a process and as a product. The aim then is not only to guide the principles of the work via equity, but also to conduct policy analysis and evaluate implementation along fairness lines (Krumholz 1982). Equity planning involves cost-benefit analysis, together with the evaluation of resource allocations, to ensure their fair impact on all groups (Metzger 1996). This constitutes the baseline for our equity impact assessment for LVC across the three cases, per the definition by Rose et al. (2011) quoted earlier.

Critics of LVC have expressed concerns over the privatization of urban planning, as well as the possibility that LVC could result in reduced affordability and availability of services in cities if the right enabling conditions are not met (Smolka and Amborski 2000). For example, a review and comparison of LVC projects in North America and Latin America that aimed to capture benefits from high-income areas and invest in improvements to underserviced low-income areas found that LVC resulted in a reduction of urban infrastructure provided. According to Smolka and Amborski (2000), "The reason for this outcome has to do with the feedback effects of such policies in the reiteration of intra-urban differences responsible for these imbalances in the first place. More specifically, the use of such funds to regularize unserviced occupations or service areas yet to be occupied in effect represents an opportunity for private landowners to impose a premium on the price of land supplied in the informal market." In cases like this, LVC investments in formal services can outprice people who rely on the informal market or low-cost underserviced land for a living. Where LVC is used for urban infrastructure financing, it can lead to situations where municipalities require developers to provide higher-quality services than they would have otherwise or to situations where developers provide services that do not meet the needs of the communities (Smolka and Amborski 2000). To avoid

these pitfalls, cities must embrace inclusive processes, set targets for equitable outcomes, and actively invest in improving accessibility for the underserved.

Overall, our literature review found very little evidence of studies that explicitly analyzed the equity impacts of LVC projects. The majority of studies reviewed concentrated on estimating revenues or potential revenues that could be captured by LVC, focused primarily on the transportation sector (Walters 2012). While understandable given the revenue-generation focus of this tool, within the broader context of the New Urban Agenda, equity considerations in LVC implementation are increasingly important.

One study explicitly considered equity impacts through a comparison of two density bonus (increased building allowance) LVC projects in São Paulo, Brazil, and Toronto, Canada, both of which focused on trading development rights for community benefits (Friendly 2017). The main differences between the two programs were that Toronto's program (under Section 37) did not have a specific equity objective, required that benefits (cash or in-kind) be distributed close to development locations and had a negotiated decision-making process with city planning staff in consultation with the councilor and developer to determine what would be exchanged for the density bonus. Meanwhile, the São Paulo program, Outorga Onerosa de Direito de Construir (OODC), had a specific equity objective, allowed for revenues gained to be distributed throughout the city and required that developer fees be deposited into a special fund overseen by public-sector staff and civil society representatives. To assess distributional and equity impacts, Friendly (2017) reviewed spatial data on where funds were collected and spent, distinguishing between those with many LVC agreements and those with few, and then overlaid socioeconomic data, such as mean household income and unemployment rate, to these neighborhoods. One finding was that São Paulo showed less of a socio-spatial division in distribution of benefits than Toronto, with lower-income households benefiting more from the program. To improve equity outcomes, Friendly (2017) recommends pooling LVC benefits such that they can be distributed to needed neighborhoods or frontline communities, depoliticizing LVC processes (e.g., avoiding a negotiated process between developers and elected officials) for calculating revenue and working with developers, improving accountability and trust within government and enhancing community consultation, making reporting mechanisms transparent, and using a

standardized or formula-based approach to calculate the value of community benefits.

Other studies have highlighted that the selection of an LVC tool is highly context-specific, and should depend on the technical, political, and administrative capacity of city officials, as well as local market conditions (Medda 2012; Smolka and Amborski 2000; Walters 2012). In the global south, national and regional conditions and regulations set the context within which cities are often constrained (Siba and Sow 2017; African Centre for Cities 2015). One review of cases of different LVC projects in practice noted that enabling conditions vary by the type of LVC tool employed (Walters 2012). In general, it is important that practitioners clearly define the LVC policy objective and that the public be engaged in the decision-making processes.

A review of LVC tools for transportation accessibility states that both public and private stakeholders need a practical understanding of theoretical and empirical analyses related to LVC revenue gains (Medda, 2012). Additionally, Medda notes the importance of setting appropriate objectives from the outset (specific to accessibility in the case of transportation), having a supportive planning and fiscal framework for LVC to function once in place, having a recursive process of stakeholder engagement for the selection of the appropriate LVC mechanism, having multi-stakeholder engagement throughout the LVC process (e.g., involving local authorities, developers, businesses, and individuals), and having appropriate monitoring of short- and long-term effects of the LVC mechanism.

Valuation Challenges in the Global South

To implement LVC effectively, cities must meet certain prerequisite conditions, including having a complete cadastral system,³ well-defined property rights, and a well-functioning property tax system. Without mechanisms in place to accurately evaluate and record the initial value of land, cities will not be able to capture any increase in value to reinvest in communities. This is a challenge for many cities in the global South. Another particular challenge in implementing any LVC mechanism is the valuation of assets, as most developing-country governments—and even plenty of developed countries—are not able to capture the true variation in land and property values. Black markets, nontransparent processes, and rapidly changing values present particular challenges.

Broadly, there are four main methods of asset valuation used throughout the world: capital market value assessment, rental value assessment, area-based assessment, and points or proxy-based assessment (Collier et al. 2018). A key issue is how to match valuation to current or projected capacity, especially in rapidly changing markets. In cities like Kigali, Rwanda, appraisal methods based on computer-aided methods would increase accuracy for valuation as they already have high existing registration levels (Murray et al. 2016). Another challenge is that of underestimation. For example, in Bogotá, Colombia, the valuation is 20 to 30 percent lower than the market value (Lozano-Gracia et al. 2013). It is worth mentioning that land values often increase faster than incomes, which can make land unaffordable if valuation is combined with a fixed tax rate over time. In all cases, transparent local governments are crucial to ensuring legitimacy and accountability.

Of our three cases, São Paulo is clearly the most developed and organized. In Hyderabad, data show that land registries and cadasters are being established, but land-use plans are only sometimes respected by private developers. While these data are not available for Addis Ababa, other African cities show evidence that land registries are forming. Many African cities face basic challenges of identifying ownership, which is an even more fundamental challenge than valuation (NYU Stern 2016).

An additional challenge in the global South⁴ is the preponderance of informal landholdings and their uneven transition to formality. One five-stage evolutionary model describes this transition as it ranges from bureaucratic land transition to complex recognition of informal-driven market forces. This requires building capacities for local property market participants to create awareness of the risks of informality versus the advantages of formality (Williamson and Wallace 2007). Establishing a functional valuation system that gains public and investor confidence is important for supporting fair taxation and land-use control policies (Turner 2010). It is clear that the perceptions of LVC as a mechanism, theoretically and empirically, differ from one place to another, depending on different tools and preexisting and enabling conditions. In addition, given the lack of evidence on potential equity benefits for vulnerable groups in the global South, more empirical analysis is needed to better understand LVC and its impacts. It is hoped that this study will contribute to this effort.

As mentioned earlier, we conducted case studies of three projects based on desk research and key informant interviews on the ground. The projects were in Addis Ababa, Ethiopia; Hyderabad, India; and São Paulo, Brazil. Very little literature was found on the Addis Ababa and Hyderabad cases, while there is extensive literature on the São Paulo case. Brazil has been an innovator in using LVC mechanisms, while Ethiopia and India are only more recently introducing such tools. We think that it is useful to include details on each case, however, to try to draw out some findings and lessons learned from the three very different contexts.

We work from the idea that LVC as a revenue-generating mechanism is progressive in theory (i.e., it has the potential to produce equity benefits) but that the broader development context and revenue allocation and spending largely determine the level to which an LVC mechanism supports or hinders equity in a city. This paper aims to explore enabling factors and equity and fiscal impacts of LVC projects in three different urban geographies. We define successful LVC as a project that generates revenue that is in turn invested in public services that benefit the wider community, especially marginalized people. Measuring success is a challenge and is rarely black and white, but we use these case studies to further understand the barriers and enabling factors that allow for some projects to achieve more of the goals of successful LVC than others.

CASE STUDIES

In this section, we present details and findings from our research on three LVC mechanisms used in Brazil, Ethiopia, and India.

Brazil Case Study: Água Espraiada Joint Urban Operation, São Paulo

Baseline context and enabling conditions for the Água Espraiada Joint Urban Operation Project

LVC as a revenue generating mechanism has matured over the years since its early introduction in Brazil in the 1970s. It has taken time for the idea that land value increases from public investment should benefit communities as a whole, rather than private property owners individually, and should be codified in law. The principles of LVC were first integrated into the 1988 Federal Constitution and later regulated by the Urban Development Act or City Statute (Estatuto da Cidade) in 2001. The city of São Paulo

based its 2002 Strategic Master Plan and its 2004 Land Use Law on the federal city statute, which introduced the first official LVC mechanism used in the city: Charges for Additional Building Rights (Outorga Onerosa do Direito de Construir—OODC). The OODC tool enabled the city government to generate revenue by charging developers for new building rights.

During this time, the city also instituted land-use regulations through floor area ratios (FARs), which set different allowances for building development based on social function, ownership, and existing infrastructure around the project area and limited the new building supply within the city, providing a policy environment that allowed the government to generate significant revenue from new development. In addition to a favorable regulatory and policy environment, São Paulo's booming real estate market, private-investor interest in join urban operation (OUC) areas, and strong institutional support and transparent process that guaranteed the implementation of investments in the area were all enabling factors for successful LVC in the city.

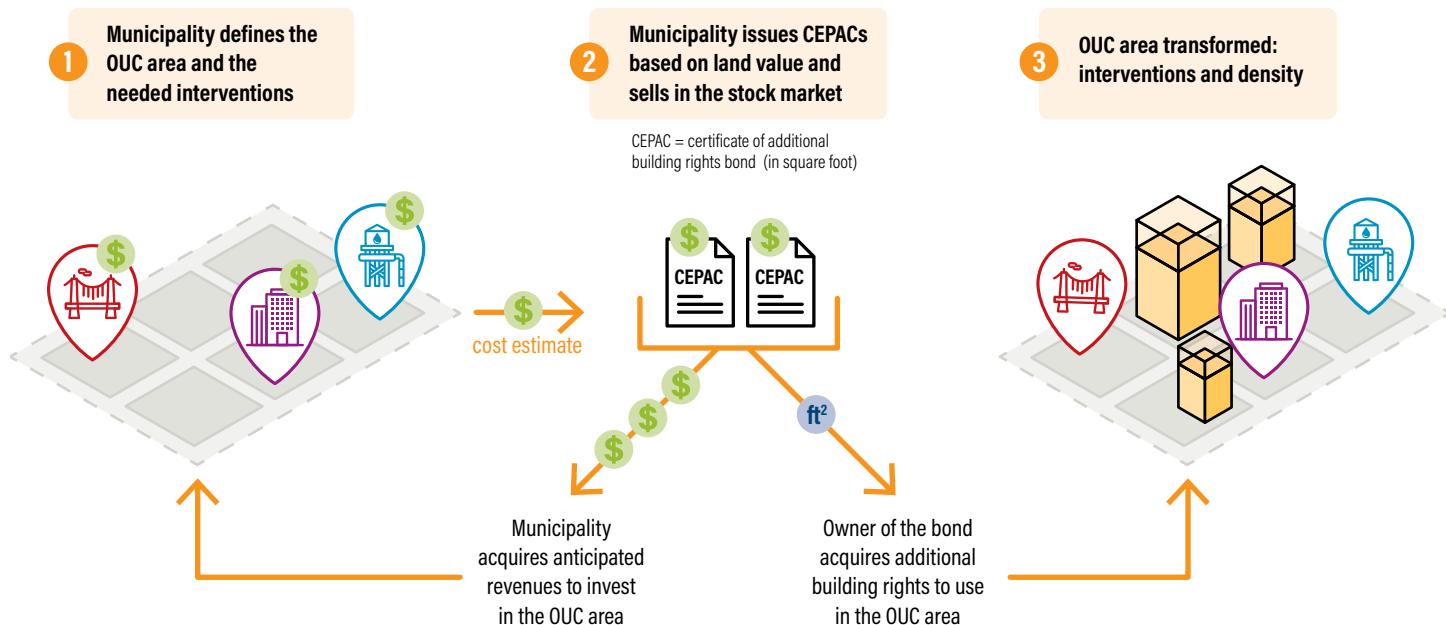
LVC in Action

CEPACs AS DEFINED IN POLICIES, LAWS, AND INSTITUTIONS

Derivative LVC mechanisms of the OODC charges that have been implemented in São Paulo are the Certificates of Additional Construction Potential (CEPACs), a form of charges issued by the city and sold in auctions in the stock market. Like OODC charges, CEPACs were officially approved in the federal city statute enacted in 2001, although they were not implemented until later (Government of Brazil, 2001). Under this law, CEPACs emerged as a financing mechanism for local OUC projects—projects regulated by the city statute that focus on interventions that improve social and environmental conditions in a defined urban area and are implemented jointly by public officials, private land owners, and investors. These OUC projects allow for special zoning and building rules in the defined area, including the sale of higher FARs in the purchasing of CEPACs (Government of Brazil 2001).

Land value is captured from CEPACs through changes in zoning (or air rights, the ability to build up on a piece of land) that increase the monetary value of the land and provide revenue needed to implement public projects in the area (Sandroni 2010). With the construction of infrastructure, social housing, and other development

Figure 2 | The Functioning of OUC and CEPACs



Source: Authors.

projects, the value of land per square foot tends to rise. By issuing new CEPACs, the city may capture not only land value increases from changes in zoning but may also partially recover up-front investments in the land. In this way, CEPACs are based on both the initial cost of land plus the projected value of created land, based on the sale of FARs (Germán and Bernstein 2018). Revenue obtained through the sale of CEPACs goes to a specific urban operation fund that can only be invested in the predetermined interventions proposed in the OUC project area. These areas are chosen by the municipal government, based on where it thinks real estate development is most needed. (Both public and private interests can come into play in these decisions.) The owner of a CEPAC can either convert the charge into additional building rights in the OUC area or can resell it in the stock market. Because CEPACs are a security, they are subject to regulation and monitoring by the Brazilian Securities and Exchange Commission (CVM), thereby ensuring transparency in the CEPAC sale process and in the building of infrastructure in the OUC area (CVM 2003).

Despite the fact that OUC projects have been used in Brazil since 1990, the first use of CEPACs to finance an OUC project occurred after the passing of the city statute, with the Água Espraiada Urban Operation (OUCAE) in the city of São Paulo in 2004.

It is worth mentioning that CEPAC-related developments created an increase in property tax revenues that ranges from 2.7 to 4.4 times the pre-development base level (Biderman et al. 2006; Sandroni 2010). In addition, the integrated nature of LVC within and outside the OUCs through strategic master plans and planning laws allowed the city to increase revenues, improve its land-management efficiency, and promote social equity (Sandroni 2011a, 2011b). This included reserving a portion of LVC expenditures and land plots in the project area for low-income residents, as well as championing a participatory process for setting investment priorities and monitoring expenditures. Without this integrative process, challenges can arise, as was seen in the Faria Lima Urban Operation (FLUO) in 2004 when most of the potential land available for development had already been sold through the OODC mechanism, so investors did not feel the need to purchase additional CEPACs. Also, CEPACs were less expensive in the nearby Água Espraiada project area, so some investments were diverted from the FLUO area. Coordination among different development projects across the city, analysis of preexisting conditions, and alignment of goals

is key to avoiding harmful competition and uneven results. Capacity building is another tool that the city has used to enhance and develop the expertise required to manage the whole process. Investment in capacity building does not come without risk, though, as was seen when the newly elected mayor in São Paulo was critical of CEPACs practices, causing a loss of confidence in the financial market (Kim 2018).

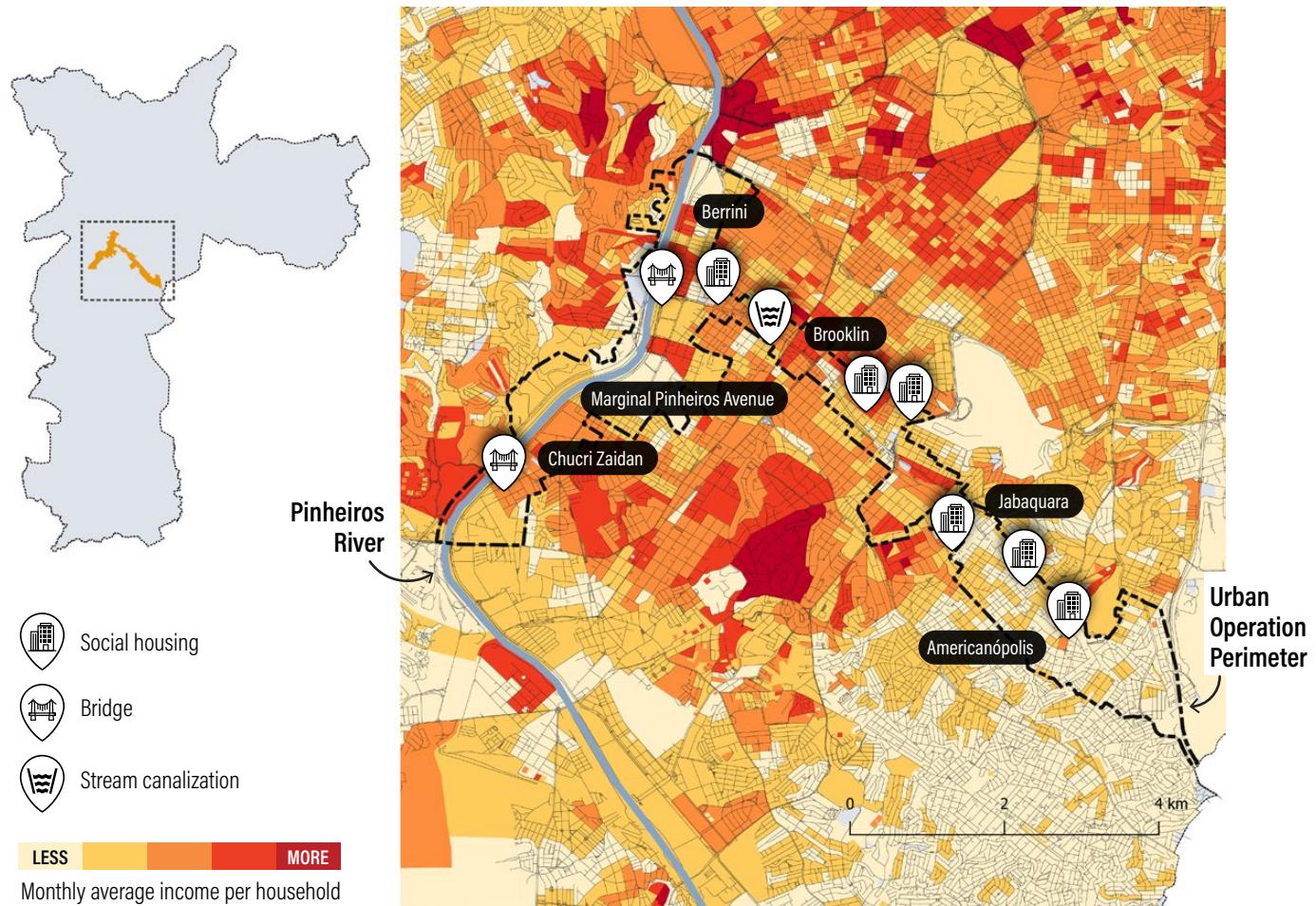
CEPACs APPLIED IN THE ÁGUA ESPRAIADA OUC PROJECT

São Paulo's use of CEPACs was innovative in its explicit incorporation of equity targets from the conception of the Água Espraiada project, although results have been mixed. Before the implementation of the Água Espraiada Urban Operation project (OUCAE), the Aguas Espraiadas region was highly heterogeneous, an area of low density located next to a high-value commercial area, interspersed with irregular settlements near a stream. The Faria Lima Avenue's business center sat on one side of the stream with an industrial area of factories and large industrial plants on the other side. In the *favela* area, informal and irregular residences have dominated the area next to the Água Espraiada stream since the 1970s, with no drainage infrastructure in place.

The OUCAE project aimed to address the informal housing and drainage problems in the area (by dedicating revenue raised from the sale of CEPACs to reinvest in public infrastructure) while facilitating urban development that was occurring near Faria Lima. The project was approved in 2001, and implementation began in 2004, only after the CVM reviewed the CEPACs and an environmental impact study was completed on the area. The OUCAE outlined two essential interventions: road and stream drainage infrastructure, including construction of the iconic Octavio Frias de Oliveira Bridge (the cable-stayed bridge) and the resettlement of 8,000 informal houses that were located in a flood risk area (Fajersztajn 2019).⁵ Additional, smaller projects included a few public infrastructure installments like parks, public schools and health care centers.

Spanning nearly 1,400 hectares of land, the Água Espraiada project area was large and diverse, both socio-economically and physically, making for a challenging development process (Maleronka 2019). The project area was divided into six sectors, four of which were a clear target for real estate investment: Berrini, Brooklin, Chucri Zaidan, and Marginal Pinheiros. These regions were close to the Faria Lima Avenue, making them appealing areas for the expansion of the business district. The other two

Figure 3 | Spatial Characterization of the OUCAE Area by Household Income and Finished Interventions

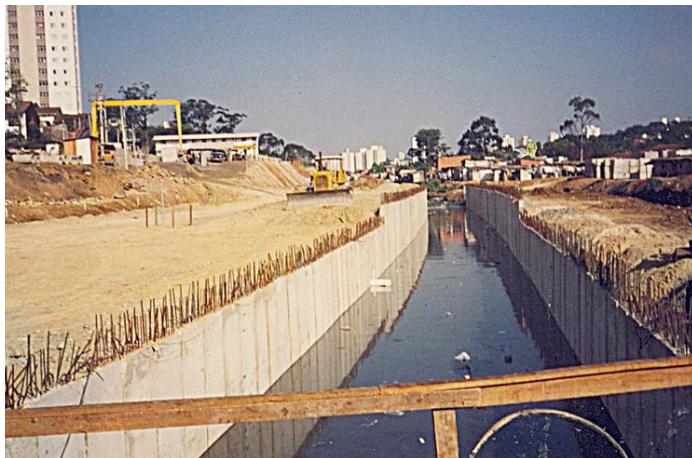


Source: Authors, based on Brazilian Census of 2010.

areas, Jabaquara and Americanópolis, were further from the business district and represented less LVC potential. Even with one CEPAC equaling three times the building rights in the Jabaquara sector, real estate developers were not interested (Ignatios 2019). Furthest away from the business district, the Americanópolis region was the main target of social housing investment.

To the municipality of São Paulo, the biggest challenge of the OUCAE was posed by the stream banks occupied by *favelas*. Compounding the challenge was the fact that many of the local roads were interrupted, creating an urban fabric that inhibited intra-city connection. The OUCAE aimed to solve this by fixing roads, creating a canal out of the stream, and providing social and housing assistance to the families that were living along the stream. To finance these interventions, the OUCAE used the newly legalized CEPAC mechanism.

Figure 4.1 | **Avenue Roberto Marinho Works, with Stream Infrastructure**



Source: Rodrigo Gomes.

Figure 4.2 | **Octavio Frias de Oliveira Bridge (Cable-Stayed Bridge)**



Source: Arnaud Matar.

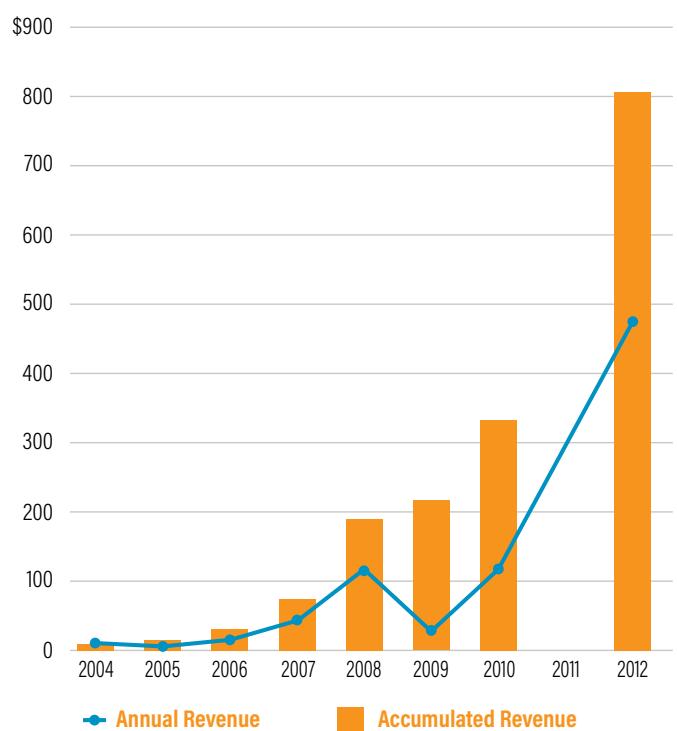
Equity Dimension of the OUCAE Project

IMPROVEMENT OF ACCESS TO SERVICES

The influx of resources from the 3.4 million CEPACs sold in auctions between 2004 and 2012, totaling BRL 2.9 billion in revenue (equivalent to US\$806 million; see Figure 5),⁶ allowed for the construction of two cable-stayed bridges connecting both sides of Pinheiros River (Real Parque Complex and the Octavio Frias de Oliveira Stayed Bridge) and six social housing buildings, as well as other projects in the area, recording a total disbursement of BRL 3.7 billion (São Paulo City Hall-SP Urbanismo 2019b). Implementation of the Roberto Marinho Avenue, which included the construction of a formal canal (see Figure 4), as well as investment in some public spaces in the area (such as Parque Chuvisco) and a partial extension of the metro line, represent incremental access improvements for residents in the area.

The OUCAE project had a clear equity focus in its attempt to address the informal housing problem (São Paulo City Hall 2001), but the benefits generated by urban renewal have not been distributed equally. From the total of BRL 3.7 billion realized expenditure to date, only 34 percent of the total value has been directed to infrastructure and urban services that directly benefit low-income families (see Table 1). This percentage includes social housing, public transportation (expansion of the metro line), and public spaces. In contrast, the largest part of the invest-

Figure 5 | **Revenue Leverage by CEPACs, OUCAE, 2004-2012 (US\$ millions)**



Source: Authors, based on São Paulo City Hall-SP Urbanismo 2018.

Table 1 | Total Investments Expenditure of OUCAE by Type, 2004–January 2019 (\$)

CLASSIFICATION	TOTAL (A+B)		FINISHED INVESTMENTS (A)		ONGOING INVESTMENTS (B)	
	TOTAL (\$ MILLIONS) ^a	SHARE (%)	TOTAL (\$ MILLIONS)	SHARE (%)	TOTAL (\$ MILLIONS)	SHARE (%)
Road System Infrastructure ^b	608.4	59.6	97.0	62.8	511.5	59.0
Social Housing	228.8	22.4	47.3	30.7	181.5	20.9
Public Space	9.0	0.9	—	—	9.0	1.0
Public Transportation–Metro Line 17	106.7	10.4	—	—	106.7	12.3
Administrative Costs	68.4	6.7	10.0	6.5	58.4	6.7
Total	1,021.4	100.0	154.3	100.0	867.1	100.0

Notes:

a. Rounded to millions of US dollars. Values converted by the annual average exchange rate of 2018, R\$/\$.3.65.

b. Finished stayed bridges: Laguna Bridge, road system connections Berrini Corridor. Unfinished: Avenues Jornalista Robert Marinho (includes stream canalization and tunnel) and Chucri Zaida.

Source: Authors, based on São Paulo City Hall-SP Urbanismo 2019a, 2019b, 2019c.

ments (60 percent) has been channeled to road infrastructure that enhances individual transportation with avenues, tunnels, and the cable-stayed bridge, which only cars—not even public transportation, let alone pedestrians—can use. This type of infrastructure primarily benefits car owners, who tend to be higher-income.

DISPLACEMENT OF RESIDENTS

To combat gentrification that commonly occurs around LCV projects, the OUCAE outlined three priority actions:

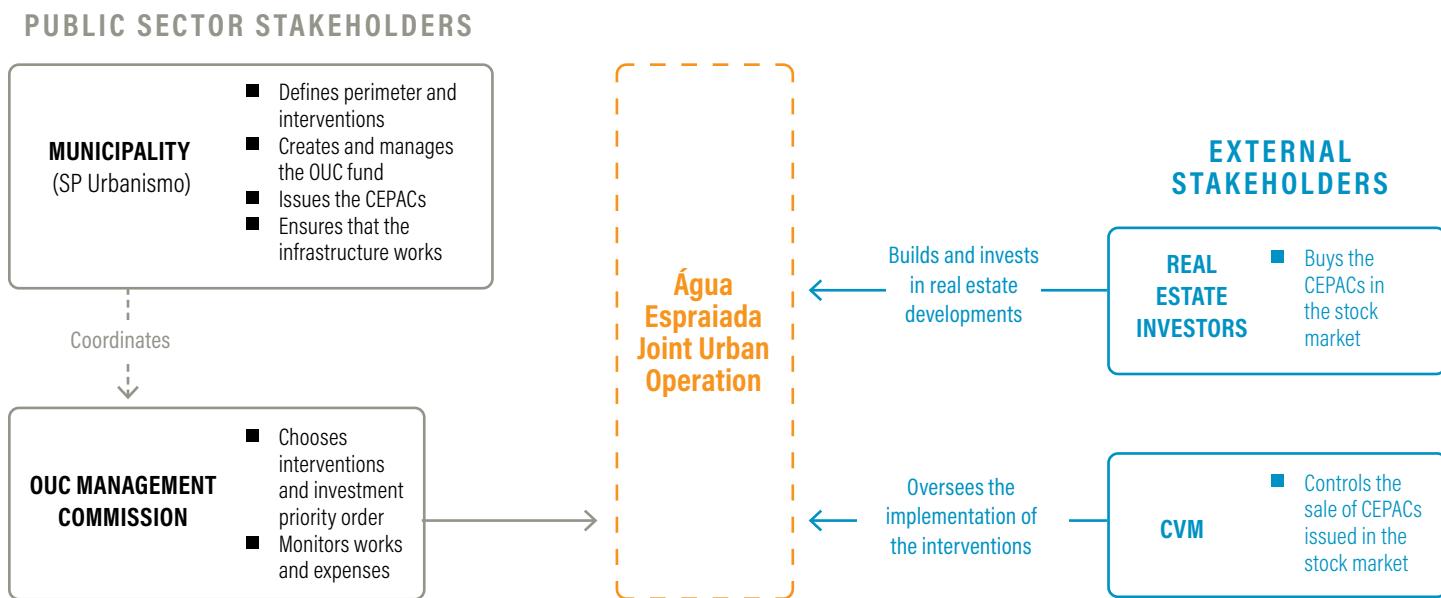
1. All displaced families should be resettled inside the OUC area;
2. A fixed share of the total revenue raised with CEPACs should be invested in affordable housing and slum urbanization (10 percent in 2004, growing to 30 percent in 2018); and
3. A portion of land plots inside the OUC area should be dedicated to affordable housing, known as special zones of social interest (ZEIS) (São Paulo City Hall 2001, 2011, 2018).

These efforts have not been enough to prevent the expulsion of low-income families, however. Despite 21 percent of the raised revenue being spent on social housing, at

least 8,000 families have been displaced by construction in the area; many of these families have returned only to continue to live in slum-like conditions along the stream (Fajersztajn 2019, Rolnik et al. 2017).⁷ As of January 2019, only 778 social housing units had been built, and about 79 percent of the total amount spent on social housing was invested in what are now unfinished projects (São Paulo City Hall-SP Urbanismo 2019a, 2019b, 2019c).

With increased land value also comes the increased cost of provision of services, making equitable access to services for the urban poor even more challenging. Once land is privately owned and there are no mechanisms for land price controlling for public investment purposes, the municipality must purchase land at the higher rate to provide public infrastructure and services and to resettle families in the area (Partezani 2019). In the OUCAE, almost half of total expenditures on social housing (45 percent) were made by expropriation, costing the government money and dispossessing private property owners of access to land for development (São Paulo City Hall-SP Urbanismo 2019a, 2019b, 2019c). If cities fail to take into account the potential increase in cost of services on or around developed land, the potential gains of LVC for the city can be negated.

Figure 6 | OUCAE Stakeholders Organization and Process of OUCAE



PLACE-BASED DESTINATION OF FUNDS AND INCLUSIVENESS OF PROCESS
 By OUC law, the revenue obtained through the sale of CEPACs goes to a specific urban operation fund that can only be invested in the predetermined interventions proposed in the OUC project. Strong institutional oversight in São Paulo has helped to ensure fair and transparent disbursement of funds to the project area.

The OUCAE Management Commission consisted of local government representatives, private investors, community members, and civil society groups who were responsible for setting investment priorities and monitoring financial expenditures. The commission's discussions, financial reports, and investment decisions were released publicly (São Paulo City Hall-SP Urbanismo, 2019c), allowing for low-income, vulnerable communities to openly participate in conversations about public interventions that directly affected them.⁸ This participatory process became a reference for social inclusion in the strategic master plan of São Paulo (Fajersztajn 2019).

In addition to the commission, the external CVM also helped to ensure transparency in the process of selling CEPACs and the expenditure of their revenue. The CVM allows new distribution of CEPACs only when the

investments outlined in the previous distribution have concluded, thereby assuring real estate developers and the public that projects will be seen through.

MARKET CONDITIONS

The development promoted by the OUCAE project transformed the area, increasing land values, and achieving mixed-use development. But gentrification has led to higher-end businesses moving in whose products are too expensive for many of the original lower-income residents to enjoy (Fajersztajn 2019, Ignatios 2019, Partezani 2019).

Equity and Fiscal Impacts of the LVC Mechanism

The OUCAE was an innovative project that aligned public and private interests around local urban development. Although not fully successful in avoiding displacement of residents, OUCAE was novel in its approach to addressing informal housing issues by reserving a portion of expenditures as well as land plots for low-income housing (known as ZEIS). The management commission embodied inclusivity and participatory governance principles in its decision-making processes. The successful alignment (at least in principle) of public and private interests in the OUCAE project has inspired other LVC projects in Brazil.

In 2011, for instance, Rio de Janeiro implemented the OUC Porto Maravilha using the CEPAC financing mechanism, a project that was followed in 2011 by the OUC Linha Verde in Curitiba.

The OUCAE failed, however, to achieve one of its main objectives: to improve conditions for those living in informal housing through LVC (São Paulo City Hall 2001). Despite clear improvements to the project area, the distribution of benefits was not channeled in a balanced way across socioeconomic groups. Gentrification and high infrastructure and urban service provision costs for the city have plagued the area, and families remained displaced after completion of the project (Fajersztajn 2019).

LVC alone does not guarantee equitable gains for a city. However, cities can take actions to improve equity outcomes around LVC projects by directing revenues gained directly to vulnerable communities, setting regulations that minimize gentrification (for examples, see Suzuki et al. 2015), and dedicating specific land for public investments to avoid cost provision pressures.

EQUITY IMPACTS OF THE OUCAE PROJECT

Revenue raised by CEPACs, although originally intended to benefit all residents, was not distributed evenly across income groups. Only 33.7 percent of the total increase in value has been directed to infrastructures and urban services that directly benefit the low-income families, while 59.6 percent has been channeled to road infrastructure that focuses on individual transportation like big avenues, unfinished tunnels, and the cable-stayed bridge that can only be used by cars. Additionally, despite attempts to avoid gentrification as a result of the OUCAE project, the provision of social housing was insufficient in quantity to support the large number of lower-income families who had to leave their homes to make way for construction in the area. Up to 8,000 families were displaced by the project and not resettled properly (i.e., many of them ended up back in *favelas* in the area) (Fajersztajn 2019). This is more a failure of equitable spending (or project implementation) of LVC revenue than it is a failure of equitable or effective design of the LVC mechanism, but because we are considering both the fiscal and equity impacts of implemented urban LVC schemes *and* associated urban development projects, we cannot claim successful LVC if the benefits of the project were not equitably shared.

FISCAL IMPACTS OF THE OUCAE PROJECT

The OUCAE raised a total land value of BRL 2.9 billion (equivalent of \$806 million⁹) by selling 3.4 million CEPACs in auctions between 2004 and 2012¹⁰ (São Paulo City Hall-SP Urbanismo 2019a, 2019b, 2019c). With the revenue from the financial remuneration of the OUCAE fund, the resources totaled BRL 3.9 billion between 2004 and January 2019 (São Paulo City Hall-SP Urbanismo 2019a, 2019b, 2019c). The use of CEPACs was considered a success for this project as the total revenue raised exceeded what could be raised by traditional LVC mechanisms like the OODC, which recorded BRL 2.7 billion in the same period (São Paulo City Hall-SP Urbanismo 2019b).¹¹

With these projects and other private developments, land value in the area increased over time.¹² The average unit price of a CEPAC in 2004 was BRL 305. By the last offer in 2012, the value of one CEPAC reached, on average, BRL 1,271, bringing in BRL 1.7 billion of total revenue (São Paulo City Hall-SP Urbanismo 2018). This represents an increase of 317 percent in the CEPAC unit price and about 50 times the yearly revenue from 2004 to 2012. It should be noted that no new auctions have been held since 2012 due to the city government's stipulation that an urban operation project must be completed before the next auction is held. (The interventions listed in the 2012 auction were numerous, so no new auction has been planned as of yet.) Land value was captured successfully in the case of the OUCAE project and signifies the potential of CEPACs to generate future funds for public investments, but the inequitable redistribution of revenue to the public leaves room for improvement.

Summary

São Paulo represents the most successful of our cases, with regulations combining both revenue capture and equity considerations. Three primary enabling factors for the effective leveraging of CEPAC financing emerged in this case: a robust and dynamic real estate market in São Paulo; private-investor interest in the urban operation area; and strong institutional support and a transparent process that guaranteed the implementation of investments in the area. The importance of market conditions, institutional context, and capacity emerge in this case, as does the need for more equitable distribution of revenue raised across income groups.

Ethiopia Case Study: LVC in the Lideta Project, Addis Ababa

Baseline context and enabling conditions for urban land leasing system

As the city of Addis Ababa in Ethiopia grows and modernizes, the government is experimenting with LVC mechanisms to invest in improvements to public infrastructure and affordable housing and to revitalize the real estate market. Addis Ababa is the largest city in Ethiopia, a country which is growing faster than any other in Africa (Gray 2018). Addis Ababa is currently on pace to double in size within the next 15 years and is growing outward faster than it is growing upward, creating challenges for the provision of public services like water and electricity (Mahendra and Seto 2019). The demand for land in the city is high and offers great potential for revenue to be generated for public services by capturing the increase in land value in the city, but a weak land market and poor land management are making LVC challenging to implement.

Land in Addis Ababa is technically owned by the government and is leased out to private landowners. To enable an effective land-leasing system, the city set benchmark pricing—estimating the value of land parcels—in the 1990s by calculating the development cost of installing basic infrastructure (utilities, roads, and drainage) for the area. The city then demarcated grades within the city to define different benchmark pricing regions, enabling a progressive land-leasing system to be put in place. Addis Ababa currently has 14 land grades,¹³ yet much of this benchmark pricing is out of date; and the city lacks a robust land information system to accurately track and record benchmark pricing and land use changes (City of Addis Ababa 2003).

Despite the existence of property taxes (in the form of roof taxes and permit holding fees) in Ethiopia, limited state capacity in the efficient operation of this system hinders potential revenue collection (Franzsen 2003; Franzsen and McCluskey 2017; Goodfellow 2015; Roy 2000). Only a fraction of the total revenue of Addis Ababa comes from land leasing. The fact that only serviced land (or rather, what the city claims to be serviced land but oftentimes is not fully serviced) can be leased also hurts the state's ability to implement LVC and leads to inefficient supply, despite there being a cycle of collection and investment in place (Goodfellow 2015). The state has the potential to encourage sustainable development in the city, but this

would require bolstering both technical capacity to oversee efficient LVC processes as well as governance capacity to conduct fair and legitimate processes. In Ethiopia, the occupants of land that is taken to be leased to developers are seldom willing participants in the process. Large-scale land leasing as an LVC mechanism has limited application beyond Ethiopia, primarily because it requires that the land be owned by the state and that the state and city have a high degree of control over the way the land is allocated for lease. Many cities do not have as much control over land as Addis Ababa does.

LVC in Action

LVC AS DEFINED IN POLICIES, LAWS, AND INSTITUTIONS

When the Ethiopian national government transitioned from a feudal system to socialist military rule in 1974, all privately held land was transferred to government ownership under the proclamation, Government Ownership of Urban Land and Extra Urban Houses (Government of Ethiopia 1975). This new law gave the national government and municipal-level governments the power to allocate land for investments, including residential properties. Land transfer between private actors was banned, which stripped the land of value and restricted land value revenue flows to the municipal government.

In 1995, at the end of a civil war and with a newly drafted constitution, Ethiopia reestablished private land ownership rights, including the right to buy, sell, or transfer land between private actors, though all land titles still ultimately belonged to the government. Regulations for leasing land have been enforced since 1993 with regulations complementing the existing Civil Code,¹⁴ which has allowed for the private transfer of land between actors, in effect restoring value to land across the country and setting in place the basic conditions necessary for LVC (Government of Ethiopia 1993). In many ways, the leasing system in Ethiopia acts more like a freehold than a leasehold system in that many of the land rights are bundled for transfer on the market, but it is technically a leasehold system with different lease periods dependent on use (Government of Ethiopia 1993). Similar to property taxes, by leasing land to private actors and businesses, the city can now generate revenue to reinvest in infrastructure and low-cost housing for residents.

Another important regulation outlined in the constitution is that of compensation for expropriated land. When land with a use right is held by a private entity but is needed for public purposes, the government retains the right to seize

the land with the stipulation that it provide appropriate compensation to the owners (Government of Ethiopia 1975, 2005).¹⁵

LEASE HOLDING SYSTEM APPLIED IN ADDIS ABABA'S LIDETA PROJECT

Addis Ababa has been experimenting with three LVC mechanisms to generate revenue for development projects, all of which have seen mixed results:

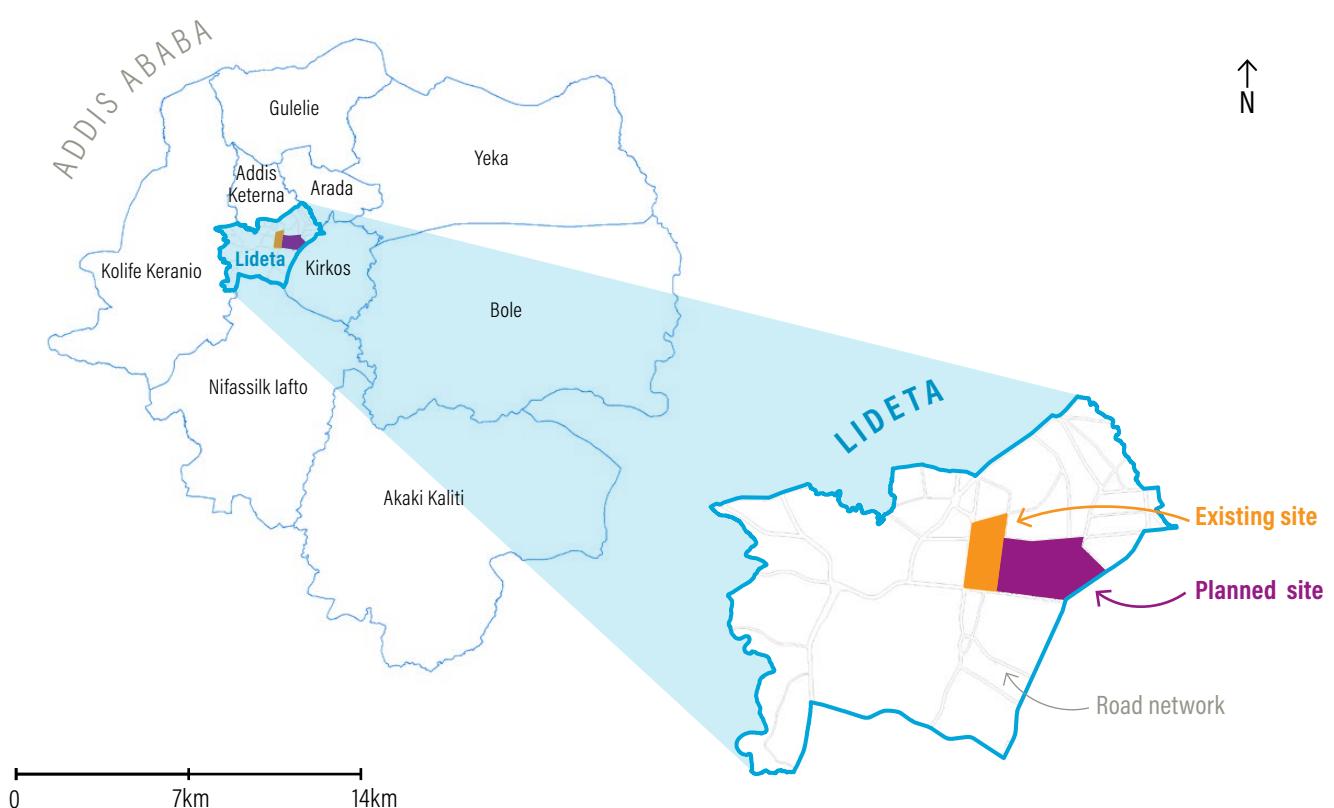
- 1. Roof Tax¹⁶ and Permit Holding Fee:** This LVC mechanism acts as a substitute for a formal property tax system and was put in place in the 1970s when private property was abolished to attempt to generate revenue for city governments.¹⁷
- 2. Leaseholding System:** This LVC mechanism was introduced in the 1990s to restore land value and create bundled property rights. Although the leaseholding system has the potential to generate significant revenue for the city, institutional implementation challenges (such as less developed land regulations,

financial markets, and administrative capacity) have inhibited its LVC potential (Kebede 2019, Zeluel 2019).

- 3. Capital Gains Tax:**¹⁸ As the city invests more in public infrastructure and development projects around the city, property values are expected to rise. The city could capture revenue from these value increases through its capital gains tax, which is currently levied as a percentage of the selling price of a property during transaction (usually around 7 percent). The assumption behind this tax is that it would capture value created by public infrastructure investments. In the absence of a functioning land record, the percentage is applied to a blanket assessment on the property value.

In 2003, Addis Ababa passed the City Structure Plan, which laid out a citywide urban renewal program, designating 2,000 hectares of land (200 hectares designated over 10 years) for redevelopment (City of Addis Ababa

Figure 7 | Lideta Project Area



Source: Adapted by the authors from the Addis Ababa Planning Commission, May 2018.

2003). The city had two primary objectives for this plan: improving the quality of life for residents by revitalizing dilapidated inner-city neighborhoods and increasing affordable housing across the city.

Lideta, the third smallest subcity in Addis Ababa (see Figure 7), was one of the first areas selected for redevelopment under the City Structure Plan (Kumera and Sitotaw 2005).¹⁹ The area's proximity to the city center; Merkato, the largest market in the country; and its relatively low density of development made it a good candidate for early intervention. The site, named the Senga-tera Ferd-Bet Redevelopment Project, covered a total area of about 89 hectares, with the first phase tackling about 26 hectares (Bekele 2019). The redevelopment project's focus on road network improvements and additional development were expected to improve the urban fabric, with positive impacts affecting the neighborhood, subcity, and Addis Ababa as a whole.

In 2008, a new mayor of Addis Ababa was elected, having campaigned on the platform of improved participatory and transparent processes in the city's development planning (Alemu 2019; Bekele 2019; Tesfaye 2019; Zeluel 2018, 2019). One new practice put in place by the city council under the new mayor's administration was that of prioritizing development projects in communities that ask for them. Lideta was one such community, and local officials held multiple discussions about development plans for the area. This included a total of 12 meetings with the mayor and city manager, who set priorities for green and open space and made decisions about residents' choice of relocation areas while redevelopment construction was happening. All of these meetings and discussions have been made public.

The project's key components were on-site relocation, densification, and land readjustment. All of the development costs of these components were meant to be recovered through land leasing, the sale of residential apartments and commercial buildings, and property taxes. Land readjustment and densification in particular were introduced to regularize city blocks and road networks to make it easier to lay out infrastructure and to pool land, the sale of which was meant to recover the cost of public investments in the area. The initial plan proposed to sell 22 hectares of land (out of 89 hectares) with the assumption that 1 m² of land, zoned for commercial use, would be sold at ETB 2,500, generating about ETB 560 million for the city (Kumera and Sitotaw 2005).

Equity Dimension of the Lideta Project

IMPROVEMENT OF ACCESS TO SERVICES

The objective of land leasing in Addis Ababa was to improve access to services and affordable housing in the city. Before the project intervention started, the site was predominately residential, with around 5,000 inhabitants living in 1,454 housing units, of which 323 were private and 1,094 were government houses (Zeluel 2018).²⁰ A socioeconomic survey conducted for the larger site showed that the majority, 932, of the houses were owned by Kebele, a government affordable housing provider; and 61 percent were in a state of dereliction, with limited access to basic infrastructure, including road and drainage lines (Kumera and Sitotaw 2005).²¹ Although access to utilities was better in Lideta than in other areas, the quality of service was still poor. This survey also showed that more than 80 percent of the households had a monthly income lower than ETB 600, making relocation especially challenging.²²

Land readjustment in Lideta, an integral part of the redevelopment process, allowed for additional land to be leased and revenue collected. Except for new structures and buildings of historical significance, all buildings in the site area were demolished, redesigned, and built with stronger and better infrastructure. The City Structure Plan promoted mixed land use, increased density, and amenities that included parks and open green spaces. Blocks considered desirable for private investment were leased in auction.

The Lideta project proposed allocating significant portions of land for condominium housing, including apartment buildings with businesses on the ground floor (see Figure 8 and Table 2). A large portion of the redeveloped area was reserved for open green space and public infrastructure. The Lideta neighborhood design, however, reflected city standards and building codes, which resulted in the construction of high-rise buildings by private developers and a large-scale housing project, with the condominium housing project targeting low- to middle-income households. Houses were then sold through a lottery system of registered applicants (Zeluel 2019; UN-Habitat 2011).²³

Despite efforts to make the neighborhood more livable, gentrification has hurt the original residents, as most displaced government housing residents did not return to the new high-rise condominiums due to the sizable down payment required.

Figure 8 | Lideta Neighborhood Design



Source: Adapted from PACE Consulting Architects, 2014.

Table 2 | Land-Use Zoning for the Lideta Project

LAND USE	COVERAGE IN HECTARES	PERCENTAGE SHARE
Mixed use (for auction)	5.1	19.6
Onsite relocation (residential)	0.6	2.3
Reserved land for apartment housing (phase one and two)	9.1	34.8
Administrative and social services	2.8	10.7
Recreation and green spaces	0.7	2.7
Others (utility and road network)	7.8	29.9
Total	26	100

Source: Zeluel 2018.

DISPLACEMENT OF RESIDENTS

Residents and private property owners in the Lideta redevelopment area were given the choice of relocating or staying in the area. Out of the 323 property owners, only 81 chose to remain; while the others relocated outside of the project area (Zeluel 2018).²⁴ Almost all residents living in government (kebele) houses chose to relocate for fear that the construction of condominium housing would take longer than planned or that they would incur additional costs of paying higher rent for the interim accommodation (Bimora and Mulat 2012; Zeluel 2018). Residents who did choose to relocate, including informal and cohabiting residents (who were, in this case, considered illegal), could rent another kebele or condominium house of their preference in a different part of the city. The ability to pay a deposit of 10–30 percent of the total cost up front determined the size of the condominium that families could occupy under a long-term lease, with the title deed (or, more appropriately, the use rights) prepared under the name of the owner after the full mortgage was legally paid, over a 10- to 20-year period of time (UN-Habitat 2011). This shift to condominiums rather than rental was a pro-equity component, yet the lack of trust in the government and the need to come up with a substantial down payment minimized its positive effect. Unique to the Lideta project was a program supported by an NGO named NEWA that assisted female-headed low-income households with paying the deposit needed for condominiums.²⁵

PLACE-BASED DESTINATION OF FUNDS AND INCLUSIVENESS OF PROCESS
 Unlike the case in São Paulo, revenue generated from land leasing in the Lideta project was not directly reinvested in the project area but, rather, the city at large. Although this does not necessarily increase inequality (e.g., if the funds are directed to other vulnerable communities), the lack of the transparent, place-based destination of funds created challenges for ensuring equitable distribution of the benefits of LVC in the city. This was especially true for the vulnerable populations who were displaced by construction on the site and/or could not afford to resettle in the more expensive, developed area. Without the guaranteed, place-specific reinvestment of funds from LVC, it is possible that gentrification has exacerbated inequality in the city.

The municipal government's commitment to participatory governance in the management of development projects was a promising sign initially. But the extent to which this commitment was fully upheld in the Lideta project and beyond is unclear. Critics claim that the inclusivity element of the project was more about information sharing than community engagement. Without transparent and inclusive processes for implementing LVC mechanisms, equity goals cannot be achieved.

MARKET CONDITIONS

A stated primary objective of the development project was improving housing conditions for low-income residents in the Lideta neighborhood. Allocating the largest portion of land within the project to residential building was good practice, and it prioritized low- and middle-income residents with its focus on mixed-use, high density apartments. Yet these practices did not prevent gentrification from happening. The overall quality of housing has improved, but the beneficiaries are different from the intended low-income population. Many of the low-income families who had been living in government housing in Lideta were not able to afford apartments in the renovated high-rises.

Equity and Fiscal Impacts of the LVC Mechanism

As the center of one of the world's fastest growing economies (Gray 2018), Addis Ababa holds huge potential for LVC revenue to fast-track development projects in the city. But challenges remain, as we see in the case of the Lideta project. Educating city officials about the benefits of LVC and how to best use market forces to capture increases in land value is needed to shift the city away from the traditional practice of allocating land, with some uses such as public services and condominium housing receiving it free of charge. In order to accurately update benchmark pricing that reflects the social and economic realities of land parcels, accurate registering and tracking transactions and allocation of land parcels and their owners is needed. Having good data and information is key to achieving equitable outcomes. Land redevelopment projects can be an entry point into land registration processes, which are part of the broader land-management and administrative-capacity issues that have limited progress in the city. Additionally, formalizing the property tax system would create much-needed revenue to kick-start all of the redevelopment efforts that have stopped almost as soon as they started across Addis Ababa.

EQUITY IMPACTS OF THE LIDETA PROJECT

One of the primary objectives of the Lideta redevelopment project was to improve the quality of life in the neighborhood. The neighborhood has transformed from an informal and organic design to a formal and planned one. Walking around the neighborhood gives one the sense of a viable and economically active environment. However, officials have yet to come to many residents with an official property tax rate (Mohamod 2019), which signifies remaining bureaucratic inefficiencies that will inhibit the city's long-term ability to generate revenue through LVC.

As of today, the Lideta project remains unfinished, and gentrification plagues the area. Although the original plan aimed to allocate a large portion of development to affordable apartment housing, poor project management has resulted in private developers constructing additional expensive high-rises in the area; and no formal resettlement or subsidized housing for displaced residents exists.

FISCAL IMPACTS OF THE LIDETA PROJECT

The Lideta neighborhood plan designated about five hectares of land to be auctioned off to cover the cost of development, with the Sengatera-Ferd Bet Local Development Plan (2005) estimating that the land would be leased for an average of ETB 2,500 per m² (Kumera and Sitotaw 2005). Land was actually leased for double the estimation at ETB 5,000 per m², meaning that the development cost was recovered from about three hectares of land sold in auction, as seen in Table 3.

The initial investment for this project was provided by the city budget, with revenue generated from land leases going to the city treasury. Table 3 also shows that more than ETB 831 million was spent on land acquisition and infrastructure provision, and about ETB 342 million was generated (with a potential to generate ETB 816 million). The price of condominium housing did not incorporate the price of land and locational advantage, only the construction cost, which led to an underestimation of potential revenue. Additionally, the government does not currently have a system to collect remaining payments from residents, as the condominium housing mortgage payments are collected by the banks holding the mortgages, representing a lost opportunity for additional LVC for the city (Kebebe 2019; UN-Habitat 2011; Zeluel 2019).

Figure 9 | Before and After Intervention



Source: Cordaid 2014.



Source: Authors.

Table 3 | Development Cost and Revenue Generated in Lideta Project

TYPE OF EXPENSE	AMOUNT SPENT (ETB) ^a	AMOUNT COLLECTED (ETB)	NOTES
Land acquisition/compensation	179,638,955	20,120,935	Lease revenue (3.6 ha of land, 10% of 201,209,350.20) collected
Infrastructure development (road, water, power, and telephone lines)	154,503,798	242,645,272	Resale of 128 space for shops (commercial use)
Housing construction of 51 buildings (inputs + consultants fee)	497,642,793	79,401,614	Sale of Condos (21.32% of 372,371,776.0) collected
Total	831,785,547	342,167,821	

Note: a. These numbers are from 2014 when the exchange rate was \$1 to ETB 19.63.

Source: AA City Administration Land Development and Management and Lideta Subcity Land Development and Renewal Office Evaluation Report on Implementation of GTP, 2014.

From our interviews, it was obvious that formal LVC mechanisms were not designed as part of the infrastructure improvement plan for the city. However, the pricing for land leasing at auction emerged as high as 10 times the original benchmark price, leading to the conclusion that LVC potential in the city of Addis is high (Alemu 2019; Gebremariam unpublished; Tesfaye 2019; Zeluel 2019).

Summary

Addis Ababa represents the other end of the spectrum, compared to our first case, with relatively less developed land regulations, financial markets, and administrative capacity to implement even basic value-capture mechanisms such as property tax, let alone a more complex LVC tool that centers around equity. There is also strong government control over land, making development especially bureaucratic. Land readjustment did, however, prioritize the generation of additional leased land for affordable housing and the city made attempts at an inclusive process. There were also nongovernmental provisions for low-income and female-headed households to acquire condominiums in the readjusted plots, signifying a potential for future equity goals to be championed as a part of LVC in the city. However, for LVC to live up to its full potential, the enabling conditions need to be strengthened.

India Case Study: Outer Ring Road (ORR), Hyderabad

Baseline context and enabling conditions for development charges

Between 2001 and 2011, Hyderabad's population grew from 5.7 million to 7.7 million, putting pressure on inner-city transportation infrastructure (Das 2015). This has been accompanied by an increasing demand to upgrade and expand existing infrastructure, which falls under the responsibility of the urban local bodies and is funded by three traditional sources: current surplus, higher government-level grants, and borrowing (Pethé et al. 2009). All three of these sources face several limitations and challenges, so there has been a growing desire to explore land-based financing. But implementation of tools like LVC has been very limited in most Indian cities (Ahluwalia and Mohanty 2014).

In Hyderabad, the Greater Hyderabad Municipal Corporation (GHMC) and Hyderabad Metropolitan Development Authority HMDA levy a variety of taxes, fees, and charges to generate revenue. They use several land-based financing mechanisms that include urban land value tax (as per Government Order No. 538), place-based development charges, impact fees, betterment charges, regularization of unauthorized developments, auctioning

of land, and a vacant land tax. Property taxes are only applied inside the city limits (not outside municipal limits, where a lot of new development is happening along the peripheries). For the place-based development charges, a variety of fees are levied at the time of development:

- a. fees for subdivision layout when the developer wishes to sell land for construction or development;
- b. building permit fees paid at the time of a building application;
- c. development charges for any change of land use;
- d. open-space contributions, paid by persons applying for development permission to ensure that 40 percent of the area is set aside for roads and open spaces; and, similarly,
- e. rainwater harvesting charges, which cover all types of buildings if such water amenities are not provided.

Typically in the city, the impact fees are levied on commercial buildings and on all buildings above 15 meters or above five floors to finance on-site and off-site public infrastructure. The betterment charges are collected when applying for a building permission to finance internal amenities. This does not capture any incremental increase in land value. The regularization of unauthorized development mainly incorporates the compounding fee when building regulations are violated. Finally, the HMDA has auctioned many plots of land and thus raised revenues that are used to finance a variety of development projects. The specific application of LVC (i.e., capturing an increase in land value over time) has been limited, however. Development around the Outer Ring Road (ORR) shows early evidence of LVC implementation and is the focus of this case study.

The ORR that circles the city of Hyderabad, India was conceived in 2004 with the goal of relieving congestion in the city center, reducing road accidents, and promoting development in the outer parts of the city (see Figure 10). Hyderabad has used three mechanisms that it considers LVC to raise revenue to invest in development around the ORR: special development charges (SDCs) managed by the city government, development deferment charges (DDCs) managed by local villages, and area development plans (ADPs), for planned extension of the city and value capture for city agencies. SDCs and DDCs are the two LVC tools currently in place in Hyderabad, although ADPs have the potential to bring in significant revenue for the city if implemented. At its conception in 2004, the ORR

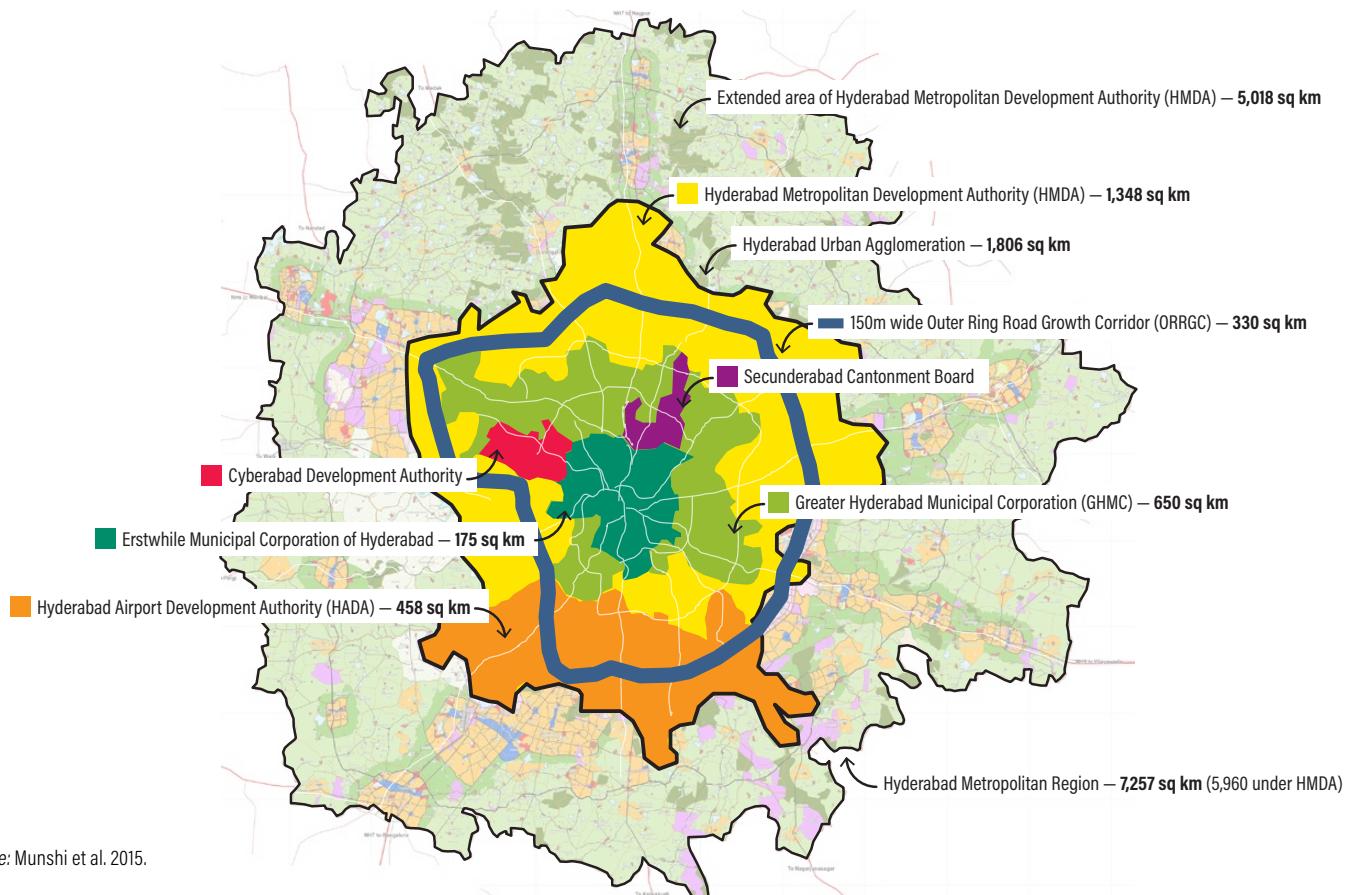
was established to lessen pressure on the inner city by moving traffic (and the development that would follow) to the 7,257 km² of less dense space in the outer region of the HMDA that encircles the 625 km² of the city center (HMDA n.d.). Since then, both infrastructure and land policy reforms have been put in place to boost the region's contribution to both state and national GDP.

Effective government coordination and access to up-front financing for the road itself were key enabling factors for LVC mechanisms to be implemented successfully. The Hyderabad Growth Corridor Limited (HGCL) was established as a special-purpose joint venture between the HMDA and the Infrastructure Corporation of Andhra Pradesh, a government initiative, and is responsible for the construction, operation, and maintenance of infrastructure around the Outer Ring Road Growth Corridor (ORRGC). The total cost of the 158 km-long ring road was INR 67 billion (approximately \$1.5 billion), which includes the cost of land purchased for road development.²⁶ The construction of the ORR was carried out in two broad phases and 13 smaller projects. Phase I tackled the 24.38 km (two projects) between Ghachibowli and Shamshabad and was funded by a consortium of five national banks that put forward INR 6.99 billion (Mohan 2019). The HMDA mortgaged land to help fund this phase. Phase II of the project took on the rest of the length of the ring road and required the lion's share of resources to complete. Five projects in Phase II (62.33 km) cost INR 24.39 billion, and six more projects (71.3 km) were funded by the Japan International Cooperation Agency, costing INR 35.58 billion (Ravindar 2019).

LVC in Action

SDCS AND DDCS AS DEFINED IN POLICIES, LAWS, AND INSTITUTIONS
The ORR itself consists of a 150-meter-wide series of roads, including an 8-lane access-controlled road with 2-lane-wide service roads on either side, that circle the city of Hyderabad and connect to a network of 33 radial roads projecting out of the city (HMDA, n.d.). These roads allow cars to bypass the crowded city center and to move around the city more efficiently, lessening traffic, noise, and pollution in the urban center (HMDA n.d.). The ORR was designed with future public transit systems in mind, and the construction of one stretch of metro from the high-tech city area to the airport was planned to begin in 2020 (as of this writing in 2019). A 1 km buffer on either side along the length of the ORR is demarcated as the ORRGC. The HMDA assigned special regulations in this zone to accelerate development and increase LVC. Except for land

Figure 10 | ORR Plan



parcels that have been declared environmentally fragile, the ORRGC is considered a multipurpose land-use zone. While the expressway is under purview of the HGCL, the development in the growth corridor is administered by the HMDA. The ORRGC is a part of Hyderabad's Metropolitan Development Plan 2031, which makes HMDA responsible for the provision of master plan facilities and services in the corridor (MAUD 2008).

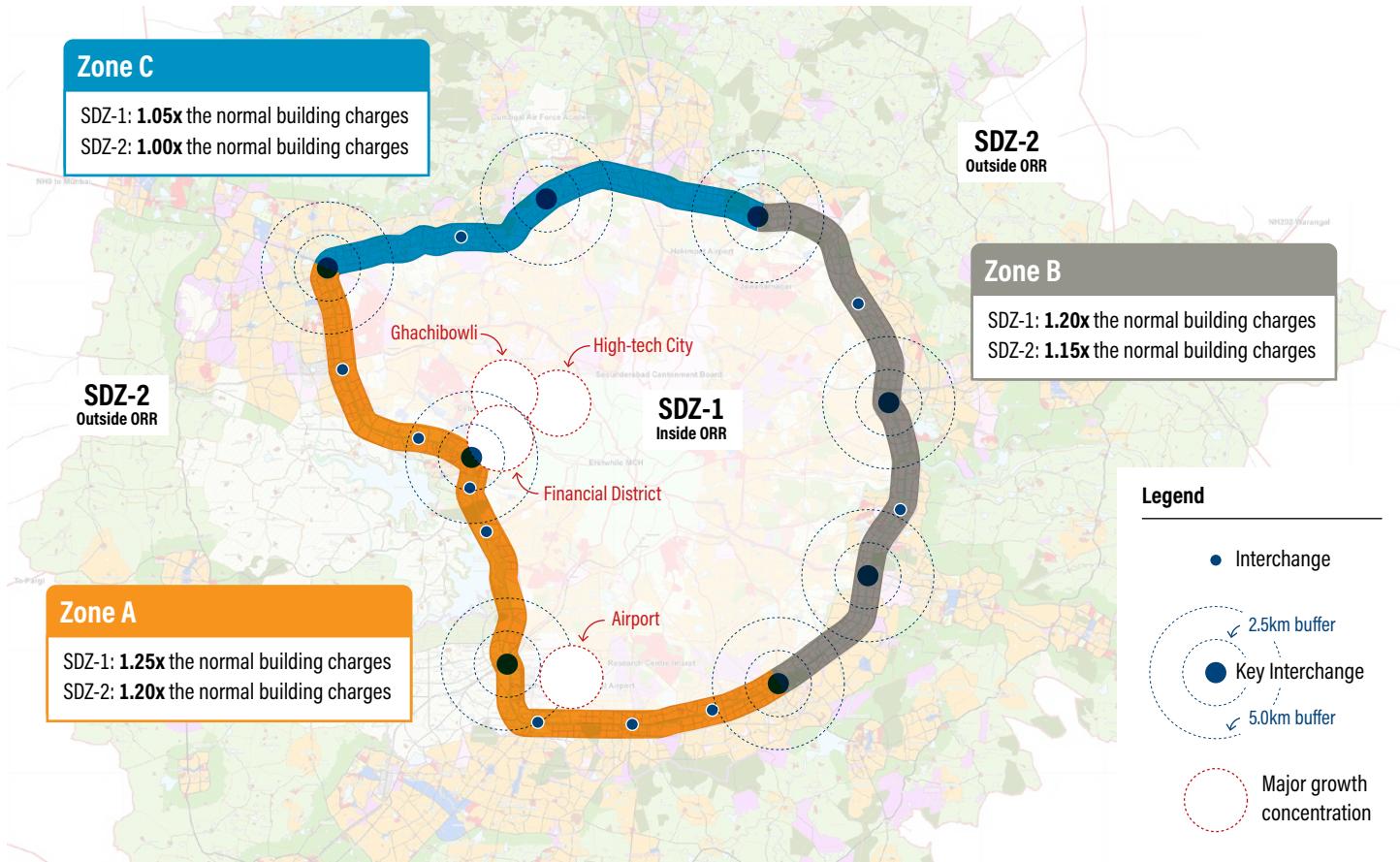
SDCs AND DDCs APPLIED IN THE ORR

SDCs are a fee-based value capture mechanism: The city charges up to 1.5 times the normal fee for building permissions along the ORRGC, depending on the structure's height and its location along the corridor (MAUD 2016). SDCs are higher along the side closer to the city, SDZ 1, and are lower along the outer ring, SDZ 2 (Girish 2019). DDCs are also a fee-based value capture mechanism that charges site owners for keeping a lot vacant or undeveloped. The fees are collected by the HMDA on behalf of village local bodies and transferred back to them. DDCs have become a major source of revenue for local govern-

ment development projects. ADPs, on the other hand, are a development-based value-capture practice (i.e., instead of charging a fee for development, ADPs are meant to create shared value through development schemes that bring benefit to the landowners as well as the local government). Although the city has yet to implement ADPs, the HMDA region plans to implement this LVC mechanism in the future.²⁷ Landowners would enter negotiations with the local government on development projects and would then be considered joint developers or equal shareholders in the project.

Both the fee-based and development-based LVC mechanisms were intended to work together to bring revenue in for development projects, but ADPs require more coordination and are harder to implement. The HMDA originally proposed ADPs as a way to channel funds incrementally over a 20-year period to development projects (Sista n.d.). In these schemes, the HMDA would pool together, develop, and then redistribute smaller but more valuable parcels of land to the original landowners while keeping

Figure 11 | SDC Zones and Major Growth around ORRGC



Source: Authors, based on HMDA reports.

a share of the land under HMDA authority. Within the ORRGC, ADPs were estimated to be able to generate a revenue of INR 1,145.50 billion, about 100 times the total revenue of the HMDA between 2017 and 2018 (MAUD 2018). According to a retired executive of the HMDA, an ADP was planned but never implemented, primarily due to lack of political will and insufficient resources (Sista 2019).

Our research revealed a conflict between how these mechanisms are used versus their original objectives. For example, levying charges for unauthorized development does not incentivize the government to enforce development regulations. In addition, some of these mechanisms are often introduced in an ad-hoc manner through government executive orders without requisite laws. In addition, there is great dependency on the sale of land and lease premiums, which might not be a sustainable strategy in the long run as the land bank will eventually be exhausted. It is also not always clear how revenue from land-based financing is distributed. In this case, it is used

for infrastructure provision and to finance capital expenditures. However, in order to assess the fair distribution of revenue, there should be a clear analysis of the type of communities that benefit from such infrastructure and whether this affects affordability for low-income inhabitants. In most cases, the data for this analysis are not available (Gandhi and Phatak 2016).

Equity Dimension of the SDCs and DDCs around the Outer Ring Road

IMPROVEMENT OF ACCESS TO SERVICES

The broad vision of ORRGC was to provide the regulatory and administrative framework for development to take off outside of the inner-city area of Hyderabad. Between 2008 and 2016, the government considered three different growth priorities (MAUD 2008, 2013, 2016). The first focus was on large-scale, private development that would provide affordable housing, social infrastructure, and amenities. The second and third shifts tended toward

weaker regulations around affordable housing provisions and weaker regulations around small- and large-scale private development. When the government took control of all master plan facilities as part of Hyderabad's Metropolitan Development Plan 2031, it decided to levy tolls on the ring road to generate revenue to maintain the project.

Although the ORR development project itself is considered self-sustaining in terms of operations and maintenance, so little revenue is generated from LVC mechanisms that an improvement in access to services has not yet been realized for most of the region's residents. As seen in Figure 11, most of the growth around the ORRGC is concentrated around key interchanges and wealthier areas like the airport and financial district. Many poorer areas around the ORRGC await basic infrastructure and services like roads and sewage.

DISPLACEMENT OF RESIDENTS

Efficient land acquisition (5,500 acres) was key to meeting the ORR's cost and timeline goals. In Phase I of the project, 67 percent of land needed for construction was private, and in Phase II, 82 percent of land was private (Nallathiga 2014; Lata 2019). To assist families that were being displaced by the project, the government offered generous relocation packages to more than 3,000 projected affected families (Lata 2019). For agricultural land users affected by the project, the government paid double the land value for their property, with a new minimum offer price set at INR 800,000 per acre (US\$17,777), and additionally offered newly developed 400 square-yard plots per every acre to those who stood to lose more than 80 percent of their land to the ORR (HMDA 2007). Other landowners, including those who owned plots, shops, schools, and graveyards, were given compensation for any structures on their land as well as alternative land plots of equal size or of slightly reduced size on which to develop. Because the HGCL formed a dedicated task force to handle land acquisition and resettlement, the project was carried out efficiently, with infrastructure operational within six years from the start and minimal litigation brought against the project. Some landowners remained unsatisfied, however (Nallathiga 2014).

PLACE-BASED DESTINATION OF FUNDS AND INCLUSIVITY OF PROCESS

So far, revenue raised from levying SDCs in the ORRGC is only, on average, 1.5 percent of HMDA's total revenue per year, and the HMDA is not mandated to reinvest the SDC revenue back into the ORRGC region. The revenue raised could benefit the region as a whole if invested back

into needed public services and infrastructure, but as of now there is a lack of transparent data about revenue expenditures in the city, so it is unclear if communities along the ORR are benefiting from these expenditures. Disaggregated data records and accurate reporting would improve government accountability for the equitable use of LVC expenditures.

Revenue raised from DDCs is directed back to local villages where the charges were collected, so, in principle, this type of LVC mechanism empowers decision-makers at the local level to spend revenue on what they see as priority investments for their community. This is inclusivity in process at its best. To maximize the benefit to local communities, municipal-level governments should direct funds raised from both SDCs and DDCs back to areas surrounding the development project. This can help to ensure the provision of basic services and affordable housing and avoid gentrification. ADPs, if implemented properly, would also improve inclusivity in the development process as they would involve landowners in the negotiations themselves.

MARKET CONDITIONS

So far, revenue raised around the ORRGC through SDC is minimal, compared to its potential, but the effect it has had in both the public and private sectors is significant. The State Revenue Department, Water and Sanitation Board, GHMC, and the real estate, hospitality, and tourism industries have all benefited, but these benefits have primarily been directed to the HMDA region or the state government rather than ORRGC communities in particular. Land rents have gone up but not evenly across the development area. Peripheral areas along the ORRGC await much-needed infrastructure such as roads, drainage, and sewage systems. Accurate reporting for LVC is required for accountability and equitable distribution of revenues.

Equity and Fiscal Impacts of the LVC Mechanism

The only two LVC mechanisms currently implemented in Hyderabad are SDCs and DDCs, and these make up only a small fraction of the city's revenue stream. Because there is a lack of accurate and publicly available accounting, it is hard to track and predict the early fiscal and equity impacts of these LVC mechanisms in the city. The full potential of LVC around the growth corridor cannot be achieved without the integration of urban planning with transportation management (Sista 2019). Without an effective ADP, some say the ORR project is

less an LVC project than simply a transportation project (Mohan 2019). Positive signs exist for Hyderabad's implementation of an ADP, however, with several purported pilot exercises taking place. Around 75 percent of the ORRGC is made up of agricultural land and small villages that are well suited for ADP (Sista 2019). A dedicated task force charged with creating clear plans for area development and road development is needed before an ADP can be fully implemented. Political will and proactive leadership are needed to move forward with an ADP.

Fee-based LVC mechanisms are easier to implement as the policy and infrastructure framework is already in place for Hyderabad to levy SDCs and DDCs around the ORRGC. However, SDCs contribute only about 1.5 percent to overall HMDA revenues. The vast amount of land yet to be developed between the ORR and the GHMC offers good potential for higher LVC by SDCs going forward.

EQUITY IMPACTS OF SDCs AND DDCs

As of now, the direct equity impacts of LVC in Hyderabad are unclear. The potential is great for both revenue generation and the equitable redistribution of LVC benefits in the form of infrastructure and services to vulnerable groups across the city, but commitment at the HMDA level is needed to realize this full potential. We aim to focus on the equity impacts of the LVC mechanisms themselves and the development that has sprung up around the ORRGC, not the prior construction of the ORR itself.

Today, primarily expensive high-rise and high-density apartment buildings are being constructed along the corridor. These are concentrated around Ghachibowli, a relatively wealthy neighborhood with corporate offices, and do not extend more than 2 km beyond the ring road. A real estate executive mentioned that these developments are driven more by the high-tech city, the financial district, and Shamshabad International Airport than the ORR itself, although the ORR did help to reduce commuting time in these zones, which facilitated development (Girish 2019). Even in Zone A, which has levied the highest SDCs, development is concentrated around interchanges along the road, and growth along the corridor is uneven. There is a general upward trend in development around the ORRGC, although it is unclear if the road or outward expansion is causing this. One senior real estate expert estimated that it could take 15 to 20 years to see growth along the ORRGC that matches successful growth seen around the ring road in Bangalore (Girish 2019). This is

partly due to the location of the ORR in Hyderabad, which is 15 to 20 km away from the city center, compared to 7 to 8 km in Bangalore.

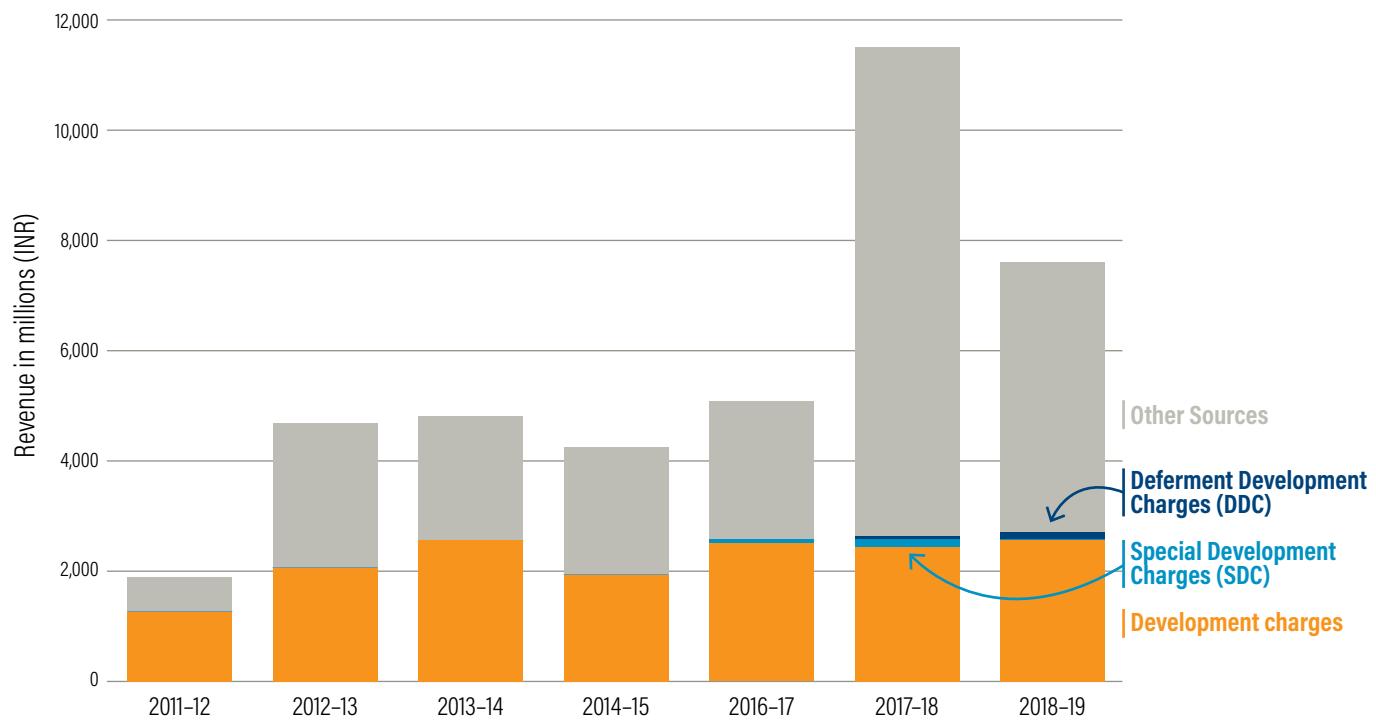
To avoid unsustainable outward expansion, the local government must plan for high density compact growth along the corridor. In doing so, it must first and foremost, be fair and transparent in the way it collects and redistributes revenue generated by both ADP and development fees to ensure that low-income populations benefit as much as wealthy developers might. If residents know they will be benefiting from the schemes, they will be more willing to support them. From interviews carried out for this LVC study, it is clear that Hyderabad is well positioned to make the most of LVC with its shift toward a free-market economy and the presence of developers who are willing to invest in housing projects that cater to a variety of socioeconomic groups in the city (Girish 2019; Mohan 2019; Sista 2019). Hyderabad should continue to prioritize small-scale projects to facilitate equitable growth along the corridor and lay out a clear road map for the HMDA to reinvest in development projects that support the most vulnerable communities.

FISCAL IMPACTS OF SDCs AND DDCs

ADPs have yet to be implemented as an LVC mechanism for the city of Hyderabad, but SDCs have seen some success in generating revenue for the city's development projects. The majority of HMDA's revenue comes from the planning department (more than 50 percent). SDC receipts form about 3–4 percent of total planning receipts and contribute about 1.5 percent to net revenues of the HMDA (see Figure 12). Records and data from the HMDA are irregularly maintained, however, so it is difficult to compare data over time. The large jump in total receipts in 2017–2019 is attributed to the state government's formalizing layouts and buildings, which were plotted layouts or constructions without proper permissions (Chandra 2019).

Although the ORRGC is not generating as much revenue as originally estimated, it is generating some revenue from SDCs and is self-sustaining in terms of operations and management (O&M). Toll revenue (INR 3 billion/year), which is not an LVC mechanism in itself, goes mainly into O&M and payment of interest on loans. DDCs have the best chance of turning LVC into an equity benefit for local communities. HMDA guidelines state that development projects of more than five acres should dedicate 5 percent of dwellings for low-income groups and 5 percent for economically weaker areas (MAUD 2008). These guide-

Figure 12 | Sources of HMDA Revenue, 2011-19



Notes: a. Special Development Charges (SDC) and Deferment Development Charges (DDC) are part of Development Charges (and shown separately in graph for clarity).
 b. Receipts from Land/Building Regularisation Scheme (LRS/BRS) is a one-time scheme, included in "other sources of income." The anomaly between 2017 and 2018 in "other sources of income" is attributed to LRS/BRS.
 c. SDC and DDC are included in Development Charges from 2011-12 to 2014-15 (separate breakdown not available).

Source: Authors, based on data collected from the HMDA financial department.

lines aim to institutionalize equitable development, but in practice the guidelines are weakly enforced. When revenue from LVC does not get reinvested in the community, the original goal of improving access to quality services for low-income populations can be lost.

Since 2016, SDC rates have been drastically reduced in the ORRGC for buildings less than 15 m high by more than 50 percent and for buildings more than 15 m high by more than 15 percent (MAUD 2016). The political landscape has shifted since the start of the ORRGC project to favor a more pro-development agenda, and, according to a senior director of an international real estate consultancy, a "policy paralysis" between 2008 and 2013 resulted in no progress on development plans at all (Girish 2019). Only after a new state government was formed in 2014 did political leaders begin to unplug development bottlenecks around the ORRGC (Girish 2019).

Summary

Hyderabad presents the intermediate case of our three studies, with a vibrant private land market, administrative capacity to collect basic fees and taxes, and aspirations of implementing more creative land-management tools, such as area development charges. Yet transactions remain less than transparent, which creates inaccurate disaggregated socioeconomic and geospatial tracking of revenue inflows and expenditures to analyze equity impacts. As of today, the ORRGC is less an LVC instrument and more a traditional transportation project, although the potential is there to generate more revenue through LVC. More complicated LVC instruments remain out of reach for Hyderabad as of this writing, but the market dynamics point in the direction of possibilities for the future.

CASE STUDY SYNTHESIS AND FINDINGS

This section analyzes findings from the cases, comparing and contrasting their experience. Success is difficult to define in all but the São Paulo case due to lack of data and lack of completion of the development projects in Addis Ababa and Hyderabad. We define success as cases where LVC has resulted in some economic and equity benefits within a city and has contributed significantly to ensuring the availability of serviced land for urban development, whether within the city or in peripheral areas. However, we must recognize the difference in maturity of financial markets and legal and regulatory frameworks pertaining to land in each country, as well as varying profiles of land ownership.

Table 4 summarizes the three cases, based on our framework for easy comparison. The analysis shows how LVC implementation in São Paulo is at a more advanced stage and how Hyderabad and Addis Ababa are in more incipient stages of implementation. More details and comparisons, organized in these same categories, follow in the table.

Baseline Context and Enabling Conditions

The cities studied represent a wide range of levels of development, administrative and technical capacity, real estate and broader financial market conditions, land-related laws, regulations, and attitudes toward balancing LVC with equity.

Long-term vision and political will

Given the longer-term nature of implementing LVC and capturing benefits, especially in locations that are currently distant from central city areas, political will must last across time and political terms to capture those benefits. This requires a delicate balance between short- and long-term needs, along with mechanisms to fairly allocate public and private-sector costs and benefits. As mentioned earlier, in Latin America—Colombia and Mexico, along with Brazil—enabling legislation and political support for applying LVC mechanisms exist (Smolka 2012). Where political commitment is tentative, such as in the Hyderabad case, we can see how a fee-based measure like development fees can start movement in the right direction but can hinder full LVC. Political will is also critical to establishing and maintaining transparency, so that the increased tax revenues resulting from new infrastructure and consequent economic growth can be used to address equity concerns efficiently to ensure ongoing support for progressive taxation and policies.

Table 4 | Summary of Case Studies and Key Findings

SÃO PAULO, BRAZIL	ADDIS ABABA, ETHIOPIA	HYDERABAD, INDIA
BASELINE CONTEXT AND ENABLING CONDITIONS FOR LVC IMPLEMENTATION		
Urban planning in Brazil has been maturing over the years, with the consolidation of urban land policy regulation in the City Statute in 2001. OODCs set the stage for the use of CEPACs as an LVC mechanism in Brazil. CEPACs were enabled by São Paulo's booming real estate market, private investor interest in UOC areas, strong institutional support, and a transparent process that guaranteed the implementation of investments.	Demand for land is high in Addis Ababa, but a weak land market and poor land management are hindering the city's ability to provide housing and basic services to everyone. Land in the city is technically owned by the government, which has enabled the establishment of a land-lease system to generate revenue for provision of services, a potentially rich source of LVC revenues in the future. Addis Ababa set benchmark pricing in the 1990s for development charges, the first formal LVC mechanism.	Urban infrastructure in Hyderabad was struggling to serve a growing city population. Conceived in 2004, the ORR aimed to reduce congestion and pollution in the inner city. The foundation for implementation of LVC was laid by a growing real estate market, existing corporate entities located on the periphery of the city, a network of roads, and policies that allowed for the government to charge for additional development; yet LVC remains limited because of political obstacles.

SÃO PAULO, BRAZIL	ADDIS ABABA, ETHIOPIA	HYDERABAD, INDIA
LVC IN ACTION: THE LVC MECHANISM AS DEFINED AND APPLIED	<p>Building upon OODCs and established in the City Statute, CEPACs monetize up-zoning and are a form of charges issued by the city and sold in auctions in the stock market. CEPACs finance OUC projects, which are implemented by public officials, private landowners, and investors and focus on improving social and environmental conditions in a defined urban area. A total of 3.4 million CEPACs that were sold in auctions between 2004 and 2012, totaling BRL 2.9 billion in revenue, funded the OUCAE in São Paulo.</p>	<p>Addis Ababa's land-lease system was introduced in the 1990s to restore land value and create bundled property rights. The 1995 constitution gives the government the right to seize land with the requirement that it provide appropriate compensation to the owners. The 2003 City Structure Plan laid out a citywide urban renewal program that prioritized affordable housing and improved quality of life. Development in the third smallest subcity^a of Lideta was meant to be financed through land leasing, the sale of apartments and commercial buildings, and property taxes.</p>
EQUITY DIMENSIONS OF LVC MECHANISMS	<p>By OUC law and with the help of strong government oversight, LVC revenue generated in the area was directed back to the OUCAE. As a result, development in the area improved access for some residents, but the benefits of the project were not distributed equally across socioeconomic groups. The six social housing developments were insufficient to resettle displaced families, and many of the 8,000 displaced families ended up living back in favelas^b along the stream. The two cable-stayed bridges were only for car traffic, and public transportation was not improved. Gentrification and the high cost of service provision have plagued the area.</p>	<p>As of today, the Lideta project remains unfinished, and gentrification plagues the area. Construction thus far has primarily been of high-rise condos and large-scale housing projects aimed at higher-income residents. Most property owners and renters left the area, and revenue generated from land leasing in Lideta has not been earmarked for reinvestment in the community. The shift to condominium ownership from rental properties opened housing opportunities for lower-income families, yet a lack of trust in the government and the need to come up with a substantial down payment minimized its positive effect.</p>
EQUITY AND FISCAL IMPACTS OF LVC MECHANISMS	<p>The OUCAE raised a total land value of BRL 2.9 billion by selling 3.4 million CEPACs in auctions between the years 2004 and 2012.^c The average unit price of a CEPAC in 2004 was BRL 305. By 2012, the value of one CEPAC reached an average BRL 1,271 (a 317 percent increase). The equity impact is less positive. Only 33.7 percent of the total increase in value has been directed to urban services that directly benefit low-income families, while 59.6 percent has been channeled to road infrastructure for individual transportation. Social housing was insufficient in quantity to support the large number of lower-income families displaced by construction.</p>	<p>More than ETB 831 million was spent on land acquisition and infrastructure provision, and about ETB 342 million was generated. Benchmark pricing is out of date, and no formal collection of land leasing payments exists, representing a lost opportunity for LVC. Although the original plan aimed to allocate a large portion of development to affordable apartment housing, poor project regulation has resulted in private developers constructing more expensive high-rises in the area and there is no formal resettlement or subsidized housing for displaced residents.</p>

Notes:

a. Addis Ababa city administration is subdivided into 10 subcities. Lideta subcity is the third smallest and is itself divided into 10 smaller wards covering an area of about 918 hectares of land. See: <http://www.addisababa.gov.et/web/guest/lideta-sub-city>.

b. Low-to-middle income unregulated neighborhood; slum.

c. The total of 4,490,999 CEPAC units, which is equivalent to 4,600 square feet, was offered in five installments, summing up a total of 18 auctions that occurred over the years 2002 to 2010 and in 2012.

Source: Authors.

Intragovernmental coordination

Land-use and transportation authorities, along with housing, finance, and economic development agencies, are a few of the government actors who must coordinate to ensure that LVC is working. A positive element of the Lideta project was that multiple government institutions were involved in its implementation and project design, including the Institute of Urban Planning that prepared the local development plan and assessed the project site; the Land Renewal Agency responsible for acquiring land and compensating for expropriation; local utilities that provided direct implementation support to the project; and the Housing Development Agency that oversaw construction of the condominiums. Although these institutions collaborated effectively for the first phase of this project in what we would label as good practice, the experiences have not been institutionalized, making replication difficult.

Integration throughout the process

It is important to integrate LVC with urban planning and land-development processes, rather than adding it on as a separate financing mechanism at the end. This is especially important to ensure that policies at different government levels, as well as across different agencies within the city, are mutually reinforcing and not working against each other. This is clear from the CEPAC case in Brazil where the LVC mechanism was applied not only inside the operation project area but also in the broader strategic master plan. This ensures synergies among stakeholders and avoids any contradictions within action implementation (Sandroni 2011a, 2011b). When this integrative dimension was absent in the case of the first CEPAC auction for the Faria Lima Urban Operation in 2004, the selling of CEPACs failed (Kim 2018). A lack of integration may also result in infrastructure implemented in already well-covered areas and the provision of services that do not meet community needs (Smolka and Amborski 2000).

National and state policy enablers

National policy can provide an enabling regulatory structure and supportive financial system for both effective LVC and mechanisms to address equity concerns. For example, the City Statute in Brazil, along with its accompanying regulatory framework, requires that equity be infused into the development process. The São Paulo case shows how it became one of the few cities in Brazil to actually take advantage of this statute and embrace the equity

component, which was aided by a strong market appetite, transparent allocation of revenue from value capture instruments, and a desire to learn and adapt as projects matured. Indian national policy does not preclude creative use of land-readjustment instruments (Mathews et al. 2018) and targeting of revenues, but market conditions, along with administrative incapacity and lack of political will, have led to less aggressive use of them. In addition, with state governments largely controlling urban land issues and the wide variation in state-level land laws, practices remain inconsistent. Other cities in the former state where Hyderabad was located (i.e., Amravati) have shown more innovative uses of instruments like land-pooling schemes while integrating compensation mechanisms for landless workers (Mathews et al. 2018). Hyderabad itself recently adopted and approved a framework and rules for LVC mechanisms like land-pooling schemes.

In Ethiopia, meanwhile, land markets are nascent, so basic rules and records on land ownership and transfers are still being developed, and even basic property tax collection is aspirational. In the case of Lideta, the city delivered a strong LVC plan on paper but had weak implementation capacity, which was compounded by the fact that many people lacked trust in government, and poorer residents opted out of the new development plan. On the other hand, the São Paulo case presents an example of good practice in terms of laws, plans, possible instruments, and their implementation, along with a mature real estate sector with an appetite to participate in innovative financial instruments. These include the national enabling environment with the City Statute, the financial instrument represented by the CEPACs, the charges for additional building rights represented by the OODCs, and targets for affordable housing within zones in the urban operations.

Up-to-date cadasters

Accurate and up-to-date land registries, which support transparency and inclusiveness, are vital to the documentation of land value increases, providing the base for land valuation and an effective property tax system. Implementation of basic property taxes²⁸—an equitable LVC technique that is also one of the simplest and oldest ways in which LVC is practiced—is very difficult without them. Clear land registration records and tracking of transactions are needed in order to accurately update benchmark pricing that reflects the social and economic realities of land parcels and changing urban conditions. Having good data and information is key to achieving equitable outcomes. Land redevelopment projects can be

an entry point into land registration processes, which are fundamental to building broader land management and administrative capacities. Additionally, formalizing the property tax system would create much-needed revenue to kick-start redevelopment efforts and provide the basis for more sophisticated LVC schemes. This is clear in the case of Ethiopia where the lack of information hinders the efficient operation of the whole urban land management system and thus reduces revenues for the city as a whole (Goodfellow 2015).

Supportive financial system

Strong financial systems support dynamic real estate and land markets by processing information and setting prices in addition to providing financing. Determining valuation is, by nature, key to effective value capture. However, in the Addis Ababa and Hyderabad cases especially, financial markets tended to be distorted and therefore not fulfilling their potential for information processing, liquidity provision, or financial intermediation roles. For those cities with less developed financial markets, the special development fees (as implemented in Hyderabad) provide a step along the way, yet tracking fee collection remains a challenge. Fees are easier to implement than taxes (they can be collected on a one-time basis and do not require the financial infrastructure that a functioning tax system requires), although they might introduce additional market distortions. Well-functioning financial markets allow policymakers to use the entire range of LVC options, many of which, like CEPACs, completely rely on markets (and their accompanying regulations).

Trust and shared responsibility

The notion of shared responsibility among public and private actors is key for successful introduction and implementation of an LVC scheme. Promoting the equity impacts should make LVC more politically viable, although property owners often view all increase in value as theirs as they seek to capture the rents and increases in value generated by public investments and expenditures. The public education element is especially important when private land markets are relatively new, such as in Addis Ababa, and where there are significant deficits in trust. More mature land markets in Hyderabad and São Paulo make implementing LVC easier, yet a lack of transparency and a mistrust in the notion that benefits will be shared by all continue to be challenges evident in all three of our cases. Ensuring a transparent and inclusive process from the very start is necessary to achieve successful and equitable LVC.

Learning and evolution

LVC instruments need to be updated when market conditions change or if weaknesses are revealed in their implementation. This is especially important when introducing newer ideas of equity into more traditional financial instruments and mechanisms. When there was a change in the administrative system that showed problems with the CEPAC, confidence faltered in the marketplace (Kim 2018). However, the management commission embodied inclusivity and participatory governance principles in its decision-making processes. The OUCAE failed, though, to achieve one of its primary objectives of improving the informal housing situation through LVC. Despite clear improvements to the project area, the distribution of benefits was not channeled in a balanced way across socioeconomic groups. Gentrification has plagued the area, leading to high infrastructure and urban service provision costs for the city. However, the project shows a path forward for cities, demonstrating how they can take action to improve equity outcomes around LVC projects by directing revenues gained directly to vulnerable communities, setting regulations that minimize gentrification, and dedicating specific land for public investments to avoid the pressures of escalating costs.

Strengthening capacity

Capacity building at all levels is crucial to ensure that policies and regulations are effectively designed and consistently applied. City officials need to be educated about the benefits of LVC and how to best use market forces to capture increases in land value and derive public benefit, while avoiding exploitative land value speculation (Mahendra and Seto 2019). This can help shift the cities away from the traditional practices of eminent domain and land allocation, with some uses like public services and affordable housing receiving land free of charge. The case of Ethiopia shows how limited state capacity dedicated to the efficient operation and management of the LVC process has a negative effect on the total revenues (Franzsen 2003; Franzsen and McCluskey 2017; Goodfellow 2015; Roy 2000). Accordingly, building the technical, political, and administrative capacity of city officials is crucial to sustain an efficient process and thus ensure the just distribution of revenues (Medda 2012; Smolka and Amborski 2000; Walters 2012). Public education is also important for broad success. If citizens believe that rules are being applied fairly and consistently, political support is more likely.

LVC in Action

Differences across LVC mechanisms used

The range of LVC mechanisms used or planned ranged from basic property tax systems in Addis Ababa to development fees and land pooling in Hyderabad to the innovative financing structure of CEPACs in São Paulo. Addis Ababa attempted to address equity in terms of who would have access to housing in the redeveloped area, yet many of those who could potentially benefit chose not to remain due to higher costs of living and ongoing construction. The Lideta development is unfinished, so the full potential of LVC in the area has not been met. In Hyderabad, DDC revenue redistributed back to the community represents an attempt at equitable development in the city. Political discourse around general city expenditures often highlighted how government policy would address equity, but tracing inflows to government coffers is not currently possible given lack of sufficiently granular data. In the case of São Paulo, there are explicit targets and links, and funds are directed to less well-off groups in the action area; but such efforts to provide affordable housing and improved infrastructure have still been insufficient to avoid displacement (with unclear compensation) of some poorer residents.

Different perceptions of the concept of LVC

There are a wide range of LVC instruments and mechanisms available, and the political and institutional contexts described earlier will determine what is feasible in different cities. Our interviews revealed that perceptions about what these concepts mean and how they are applied are not always consistent with what experts and the literature would describe. This might narrow LVC options in a city. For example, some cities might stop with land readjustment, rather than apply financial mechanisms in ways that capture the incremental benefits of increased land value and then distribute these increased resources across under-privileged groups and areas. In some cases, such as that of Hyderabad, the language of LVC is applied within a totally different public perception. This has led to a divergence from the original objectives of LVC, the creation of incentives for informal violations, and the use of LVC as a tool for cost recovery, which does not offer any fiscal or equity benefits (Gandhi and Phatak 2016).

Plan for both success and risk

The literature review and case studies show the importance of building in mitigation measures for expected risks, as well as planning for success. For one, the city

must reserve land for public purpose rather than selling it all as part of the LVC scheme. If cities fail to do this, they will end up buying back the land at a higher price for the provision of services, as was seen in the São Paulo case. Secondly, considering equity requires creating incentives for developers to build affordable housing in locations where LVC is being implemented so as not to price out current residents. Local policies can help with this by encouraging mixed-income communities. Lastly, equity objectives are most reliably achieved when considered from the beginning, not merely tacked on at the end as an afterthought. This is clear in the São Paulo program (OODC) which has set specific equity objectives (i.e., spending a certain proportion of expenditures and reserving land for affordable housing) from the beginning (Friendly 2017).

Impacts of LVC: Fiscal and Equity Trade-Offs and Alignment

Observed fiscal and equity impacts of LVC mechanisms in each city

Revenues generated from the projects are difficult to compare, given the variety of instruments used, scale of projects, and varying time frames. In Hyderabad, HMDA budgets show that about half of its revenue comes from development charges, of which about 1–1.5 percent comes from SDCs and another 1 percent from DDCs. The Hyderabad government tracks SDCs, but revenue expenditures are not reported. DDC revenue goes directly back to the local communities. Revenue from these fees benefits the HMDA, but increased land value is yet to be captured (or recorded). There is evidence, though, that public services (which could be a positive equity outcome) like schools are being built in the project area using revenues from the development charges. Increased property tax revenue in the coming years would indicate successful LVC in the eyes of the Hyderabad government. In Addis Ababa, revenues raised from land leasing, sale of commercial space, and sale of condominiums in the Lideta redevelopment area have helped to improve conditions for residents and have transformed the neighborhood into a planned, formal one. However, property taxes have not yet been revised to reflect the increase in land prices; and, although some government housing renters became owners, there was large-scale relocation by choice to avoid the inconvenience of long construction timelines. Given the unfinished nature of much of the Lideta redevelopment, the fiscal impacts of the LVC project in Addis Ababa have yet to be fully realized, and the equity outcomes so

far appear weak, given that more expensive apartments have pushed residents out. In São Paulo, inclusive and participatory decision-making and transparency in fiscal expenditures were built into the CEPAC scheme (São Paulo City Hall-SP Urbanismo 2019c). Despite a fifth of revenue being spent on social housing, the housing units have not yet been completed, and at least 8,000 families continue to live in *favelas* along the stream in the area.

Balancing fiscal and equity concerns

Building and maintaining cities and the infrastructure and services that they require takes both long- and short-term resources, with short-term fiscal needs generally taking priority over longer-term fiscal and equity concerns. On the fiscal side, short-term needs often drive decision-making with governments seeking to maximize current revenues to fund lumpy expenditures on vital infrastructure, as opposed to laying the foundation for the longer-term revenue flows that will be needed to continue operating, servicing, and maintaining this infrastructure over time. Balancing fiscal and equity concerns also includes weighing the trade-off between spending LVC revenue on projects targeted at vulnerable groups versus spending it on general services for the city. Thinking in terms of the long-term fiscal health of a city, a balance may be needed (i.e., spending LVC revenue on top-priority programs while diverting a portion to improving general services in a city such as access to transportation). This was evident in the São Paulo case, where social housing for *favelas* along the stream was targeted, along with large-scale infrastructure used by many city dwellers. In general, though, improving life for the most vulnerable improves a city's fiscal and social health overall, so cities would bring about the most good by focusing revenue raised by LVC on vulnerable communities.

In the cases studied, equity outcomes were explicitly considered from the beginning in São Paulo and were considered an objective in the Addis Ababa case but not mentioned in Hyderabad. In the Addis Ababa case, attention and resources were diverted from the project before it was even completed, highlighting the short-term and unpredictable nature of political will. These funds neither supported vulnerable groups nor services for the greater city. The institutional and regulatory structure to support LVC in Addis Ababa remains a work in progress, with both fiscal goals and equity goals left unmet.

Tensions may also emerge between the short-term need to raise revenue by selling land and the longer-term need to maintain the cost of land for public provision of services. As land value increases, cities need to be wary of the challenge of having to buy back land at a higher price for the provision of services and infrastructure like piped water lines. This is evident in the Hyderabad case, where many towns along the periphery that are experiencing land value increases await basic services like sewage and roads.

Common challenges to achieving fiscal and equity goals

All the cases reveal the challenge of balancing equity and fiscal concerns with the desire to maximize income (with its own challenges of short- versus longer-term needs) while ensuring growth that provides benefits for all. The longer-term benefits expected to result from investments in serviced land of all types should allow for further value capture in the future, with increased property values providing the basis for higher property tax revenues. This should be pro equity in itself, as those with more valuable property and more increases in that value should be paying more in taxes if they are accurately based on those values. However, this requires an accurate and updated land cadaster system and unbiased enforcement of taxes based on those values. Both Addis Ababa and Hyderabad face challenges in meeting these basic conditions (with consistent political will also questionable), even as decision-makers pursue economic growth that is expected to improve living standards for all residents. In the case of São Paulo, the focus on equity is explicit with targets that can be tracked (i.e., all displaced families resettled in the area and a growing percentage of revenue reinvested in affordable housing), yet even these have not been enough to prevent displacement of residents due to an ongoing lack of affordable housing in the area. In all of our cases, implementation problems have left major parts of the LVC projects unfinished, leaving gaps in affordable housing provision. However, as one of the first such operations in São Paulo, respondents in that city noted that more recent efforts have improved upon the original OUCAE project design. Learning through experience provides an opportunity to better achieve both equity and revenue goals but requires flexibility in regulatory structures, transparent data on land transactions, and clear communication so that government officials at all levels, as well as all market participants, are aware of the current rules and how they are being enforced and interpreted.

LIMITATIONS AND FURTHER RESEARCH

The three case studies discussed in this paper present a range of experience of how cities with less mature land, financial, and regulatory systems can implement LVC to meet urban development goals. Achieving the fiscal and equity objectives desired from LVC schemes in a balanced and transparent way is central to the fair and efficient use of urban land and longer-term urban sustainability. Further research will require analysis of more cases in different contexts and analysis of fiscal and equity data over time.

One clear limitation to our research in two of the cities we studied (Addis Ababa and Hyderabad) was a lack of sufficiently granular data on outflows of revenues captured from land value increase. For example, in Hyderabad, the revenues from the SDC are directed into the general budget, and we could not trace specific allocations. Further, the data are not geospatially specific, and we could not determine if revenues raised from land in a specific geographic location were used in the same location or elsewhere in the city.

Second, for the Hyderabad and Addis Ababa cases, even though LVC mechanisms were implemented, the projects themselves have yet to reach full completion, making it difficult to assess the long-term impact of the LVC mechanism. Because of this, we have had to make judgments about the outcomes, based on past trends. Given the dynamic policy context in these developing countries, these trends are likely to change. The São Paulo case was the only one where much literature and evidence were available.

Third, where LVC mechanisms are built into city plans but are not yet implemented, our understanding of the impacts remains partial. For example, the city of Hyderabad has plans for using land-pooling schemes to raise revenue for development, and these plans were referenced by policymakers when discussing the city's LVC efforts; but no land-pooling schemes exist in Hyderabad as of this writing. More concrete findings can be drawn once the city has in fact implemented the planned land-pooling schemes.

Lastly, this research shows that there are different perceptions of and expectations for LVC in different cities. In São Paulo, the LVC mechanism used was innovative, and it was implemented by mature supporting institutions, setting a standard for other cities in the global South to follow. In the Hyderabad and Addis Ababa cases, the implementation of LVC mechanisms has been more aspirational and less concrete in its ability to generate revenue for the city and create equitable outcomes. These cases do, however, illustrate an important starting point and opportunity for integrating LVC into broader urban planning and land-market governance.

In conclusion, it is challenging for cities to achieve a balance between maximizing revenues through LVC and maintaining equity in both the generation and expenditure of revenues to avoid high-end development that leads to displacement. This is particularly true in cities with less mature institutions. The type of development (commercial or residential, high-end or affordable) and built form (spread out or dense, multi-story development) affects the valuation of land over time, which is in turn affected by the interaction between urban planning and market conditions. The complex, interdependent elements affecting LVC require strong institutions to manage equity and fiscal outcomes. Cities of relatively lower incomes that meet the basic prerequisite conditions for LVC should integrate LVC into broader planning processes that prioritize equity goals and are underpinned by robust governance principles. This can avoid the potential outcome of poorly planned LVC causing uncontrolled gentrification and ensures a better balance between the goals of revenue maximization and equity.

Future research is needed to more fully understand how and where LVC mechanisms work most effectively. With additional data from fully implemented LVC projects, we can do more robust quantitative analysis on the equity benefits of LVC projects and can identify best practices for cities in different cultural, political, and economic contexts. Disaggregated data on who was positively or negatively affected by LVC mechanisms would help cities to test and improve on applied LVC mechanisms. A greater focus on equity in future research on LVC will lead to stronger recommendations for ensuring equitable outcomes for cities attempting to generate revenue for sustainable development projects.

APPENDIX A. METHODOLOGICAL GUIDANCE PROVIDED TO LEAD RESEARCHERS

This document provides the case study leads with guidance on gathering information and data to evaluate the following research question:

What are the fiscal and equity impacts of implemented Land Value Capture (LVC) projects used to support provision of urban services? What specific institutional arrangements involving public and private stakeholders and national/local policies enable this to occur (or not)?

LVC is a useful mechanism to raise local revenues but has the potential to be subverted by private development interests if the appropriate legal, policy, and regulatory enabling conditions are not present. This is seen across many cities, with the benefits of land value increase not being used for public investment. The fiscal benefits obtained through LVC projects have also often resulted in reduced affordability and concerns about equity.

Our objective is to explore the research question with respect to **3 projects in the global South**. The case studies will answer these secondary questions:

1. Has the land value increase in the project enabled investment in urban services?
2. Where was the LVC revenue raised, compared to where it was invested? Has the project benefited the project users, as well as the larger community or city?
3. Has the distribution of benefits been shared across public and private stakeholders in an equitable way? Did the wider community, especially marginalized people, receive the benefits?
4. Were provisions made to mitigate any anticipated gentrification and affordability issues? Was the decision making for the investment of LVC revenues inclusive and transparent?
5. What were the enabling legal, regulatory, and policy conditions needed to achieve the dual fiscal and equity benefits, as well as the conditions under which specific projects may be replicable within a city (and country) or not?

Criteria for Case Study Selection:

- Countries of interest: India, Ethiopia, Brazil
- Cities decided with project team: Hyderabad, India; São Paulo, Brazil; and Addis Ababa, Ethiopia
- Implemented urban project, having been completed in 2016 or earlier (project should have been implemented a minimum of three years earlier)
- Redevelopment project inside city or greenfield project on periphery of the city or major infrastructure project
- Project where captured land value (regardless of LVC mechanism used) aimed to finance service provision (main utilities such as water, sanitation, electricity infrastructure, transportation, health, or social services) or be used for public purpose in general, perhaps stated in project objective or goal

- Good project finance and data on land transactions and revenues available from government Web sites and other secondary sources (both before and after project)
- Good disaggregated (neighborhood level) socioeconomic data on household income, occupations, population groups, and access to services

Research Methods and Approach

The case studies will be **5-7 pages each (~3,000 words)**. The project team will gather primary qualitative data in the form of interviews with no more than 10 key informants. The project team will collect secondary data in both quantitative and qualitative form. Secondary sources include the following examples:

- Project financial statements (how much is paid to the government as taxes, infrastructure user fees, betterment charges, and so on)
- Project reports
- Economic or financial analyses (e.g., cost-benefit studies) done for the project as part of feasibility studies (and the feasibility studies themselves so that assumptions can be validated)
- Impact evaluations
- Government databases (e.g., taxes, land values)
- Peer-reviewed literature from similar projects

The project team should conduct desk research and a literature review to collect the identified quantitative data and answer the questionnaire in Section III before conducting interviews. Interviews should be used to verify information and data collected and fill gaps in knowledge needed to complete the case study. If quantitative data are not available, the interviews should be used to obtain this information as an estimate, with reasonable assumptions.

Section III can be submitted directly to key informants before phone interviews to facilitate data collection. Note that questions should be altered as needed to fit the specific LVC context, and edits should be reviewed with the wider project team. This is to ensure that the methodology in this document can be used in the future to evaluate additional case studies in a consistent manner.

Guidance for Key Informant Selection and Interviews

Key informants must be selected from the public, private, and civil society sectors. The following people are likely to have information about the project:^a

- Representatives at municipal authorities
- Academics or researchers
- Property developers
- Technical experts

- NGOs and others who work on urban land and informal settlements
- Private consultants, brokers and real estate agents who were involved with the project
- Project financiers

Informants selected should represent the diversity of stakeholders involved in the project.

Conducting Interviews:

- **Scheduling:** Interviews should take approximately **one hour** and should be scheduled in advance.
- **Informant preparation and questionnaire:** Informants should be provided with the questionnaire (Section III) in advance of the call, given that some data may need to be collected before the phone interview. This should also help interviewees stick to an hour time limit.
- **Contact information:** Please make sure to obtain contact information about the interview respondent so that you can reach out to them later if there are follow-up questions.
- **Notes:** The interviewer should take both written notes and an audio recording of the interview. The questionnaire should then be completed by the WRI interviewer, referring to written notes and the audio recording.
 - **Audio Recording:** Depending on the respondent's available time, please explain what the interview is about and ask for permission to record the interview. Case studies are always much richer with quotes from interviews. Case study writing often requires referring back to key details heard in the interviews. This is why it is incredibly useful to obtain an audio recording. You can mention to respondents that you may not be able to capture all details in your notes and would like to go back and listen to the conversation so that you can document the information accurately.

QUANTITATIVE DATA

To be researched beforehand to prepare for interviews so that informants can be asked for data that was not found easily

Fiscal Impacts:

- Total revenue raised (over lifetime of project).
- Percentage of revenue that is public vs. private.
- Debt (bonds/loans) vs. investment.
- Total annual gross city revenue since initiation (*to allow calculation of percentage of annual city gross revenue*).
- Annual government revenue raised from the project.
- Annual investment by public sector in essential public services (both capital and O&M).
- Total investment by developer in any of the above services? (local currency, year).
- Percentage of LVC revenue invested in public services after project

- completion (broken out by service type if relevant).
- Total investment by public sector in essential public services, defined here as roads or transportation services, utility infrastructure (water, sanitation, electricity, waste management), affordable housing, schools, health centers, employment centers (local currency, year). This should include both capital expenditures and ongoing maintenance and operating expenses.
- Land transaction data, if available: number of parcels acquired, land ownership distribution, total costs and compensation paid, relocation costs (if any).
- Cost of land per square foot by neighborhood: before project was announced, when project was announced, when construction began, and today (at least three data points; more is better).
- Average income for neighborhood and average income in city as a whole (local currency, year).
- Any other relevant information, such as data on access to key urban services and jobs for different population groups.

Socioeconomic Data (by neighborhood):

Note: Socioeconomic data should ideally be collected for three to five years before implementation of the LVC mechanism, during the years of implementation, and for years following implementation. At least three data points should be collected, if possible.

- Average and household income
- Average household size
- Average household education level
- Average household size
- Distribution by age of residents
- Racial distribution in neighborhoods
- Employment situation—percent of formal vs informal jobs
- Average percent of population born outside of the country
- Average monthly rent
- Average unemployment rate
- Total annual population
- Percent of population with access to core services before and after LVC project implementation

QUESTIONNAIRE FOR INTERVIEWS

Information to be researched beforehand. Questionnaire may be shared with informants before phone interviews.

Contact Information

- Name:
- Organization:

- Title and role:
- E-mail:
- Phone:

Project Identification

- Project title:
- Type of project (e.g., residential (housing), commercial, mixed-use development):
- LVC mechanism (e.g., betterment levy, tax increment financing):
- Scope of value capture (recovery of project cost or full land value increment):
- Year of project initiation:
- Year of project completion (for phased projects, number of years over which it was built):
- Developer (public or private sector and mention name):

Quantitative and Spatial Data:

- Number and square footage of dwelling units, commercial units, other
- City and neighborhood, with map
- Exact location (street address), with site/project plan
- Photographs of what development looks like today and if available, site views before construction
- Basic population and socioeconomic data, such as average household income in areas or neighborhoods surrounding the project

LVC Project Background and Context:

- What are the most common LVC mechanisms used in the city, and how have these evolved? What is the LVC mechanism used here?
- What are the project's objectives? Was investment in public services in the area an explicit objective? If so, what public services are targeted?
- How were the collected revenues expected to be distributed? Were any criteria established for this, and if so what were they?
- What is the project's impact area (i.e., area of influence in which citizens or users benefit)? How was this defined (e.g., geospatial analysis)?
- Describe the impact area's situation *before* the project was built:
 - What existed on site and in the vicinity?
 - What type of services existed, and what was the extent of access (in terms of quality and quantity of access to transportation, electricity, water, sanitation, waste management, health, education, jobs)? *If possible, describe the extent by different income groups or marginalized communities.*
- Which actors are responsible for costs, and how are benefits shared?
- Why was the project implemented (e.g., decisions in a development plan or other strategies or plans that led to the conceptualization of the project)?

- Who are the key stakeholders involved in project design and implementation?
 - Public-sector officials
 - City planners
 - Community organizations
 - Developers
 - Other
- Describe the land ownership distribution at the time of construction and the process of acquiring the land. What challenges and opportunities existed?

Enabling Conditions:

- Overall, what do you consider to be the key enabling conditions that allowed this project to be successful? What challenges did the project face, and how were these addressed?
- Describe in detail the national, state, and/or local policy or regulation that enables the LVC project and how it works. Please add any supporting literature or documents.
- What regulations (e.g., national legislation, provincial and local regulations) support the capture and use of land value for financing public services?
- Which are the key city statutes and regulations that enable the revenues from the project to finance service provision in the neighborhood?
- What institutional arrangements (roles and relationships of key local public or private stakeholders and local/state/national agencies) support the project and enable implementation?
- Are other projects of a similar nature in the city subject to the same regulations, and is LVC used in the same way at other locations? Why or why not?
- Is it possible to replicate this type of project elsewhere in the city or in other cities of the country? What enabling conditions would it take to do this?

Project Impacts:

- Is the project considered successful in general? In terms of revenues generated? Were project objectives reached?
- Were any co-benefits created from the project? Who received these benefits?

Financial Impacts:

- Is a portion of annual revenues from the project invested in public services on an ongoing basis? Or did this occur only in the initial years, or not at all?
- Are accounts of the project costs and revenues easily available? Are there transparency requirements? Have they been met?

Equity Impacts:

- Were any implementation guidelines and principles related to equity, transparency, and inclusivity established for the LVC mechanisms used in the project?
- Was public participation included in the decision-making for this project and in the neighborhood planning activities that led to the project? If so, what type of processes were included? What key decisions and outcomes resulted from these meetings that were incorporated into the project?
- Which groups in the local population benefit most from the increased land value?
 - Have services improved more broadly in the neighborhood?
 - What type of benefits does the construction of the project provide to high-income, middle-income, and low-income residents in the project vicinity? And to those in the city more broadly?
 - Regardless of whether this was a goal of the project, are there any benefits to disadvantaged residents more broadly (ethnically marginalized or disadvantaged communities)?
- Were existing residents present when the project construction began, and was there a need for relocation? If so, what was the relocation and rehabilitation plan?
- Were there any informal development and jobs in the study area before the project? After?
- Is there any observed gentrification or deterioration on and around the study site today that could be attributed to the project?
- Have property rental or purchase prices been affected by the project?
- Describe the type of services and extent of access (in terms of quality and quantity of access to transportation, electricity, water, sanitation, waste management, health, education, jobs) today.
- Describe the project surroundings and type of neighborhood (high-, medium-, or low-income, informal or formal built-up area, etc.).
- What are the key roads, transportation infrastructure, and services in proximity to the project? (to determine key modes of access for all types of users)

Note:

- a. Consider doing a stakeholder mapping exercise to ensure proper sampling or representation. The questionnaire also includes questions on stakeholders. This WRI publication could be useful: <https://www.wri.org/publication/social-landscapes>.

APPENDIX B. LIST OF INTERVIEWEES

Brazil Interviewees

1. Marcelo Fonseca Ignatios, superintendent of project structuring at SP-Urbanismo. February 20, 2019.
2. Marilena Fajersztajn, development analyst at SP-Urbanismo, who has participated in the process of OUCAE structuration. February 20, 2019.
3. Camila Maleronka, consultant at Lincoln Institute of Land Policy, who has developed several studies of urban operations in São Paulo. February 21, 2019.
4. João Sette Whitaker, professor at the School of Architecture and Urbanism of the University of São Paulo and former secretary of housing of the City of São Paulo. February 21, 2019.
5. Paula Freire Santoro, professor at the School of Architecture and Urbanism of the University of São Paulo and former technical assistant in the Public Prosecutor's Office of the State of São Paulo. February 26, 2019.
6. Gustavo Partezani, professor at São Judas Tadeu University and former executive design officer at SP-Urbanismo. February 8, 2019.

Ethiopia Interviewees

1. Ababe Kebede, adviser to the Ministry of Urban Development and Construction (at the time of the project implementation), senior advisor, urban land-lease system introduction in Ethiopia. March 29, 2019.
2. Haregot Alemu, general manager, Urban Renewal and Land Development Agency (at the time of project implementation). March 14, 2019.
3. Abebe Zeluel, director, modernization of property tax system; key actor in urban land-lease system introduction in Ethiopia. March 15, 2019.
4. Sisay Zenebe, lecturer in urban policies, land, and property valuation, postgraduate program coordinator in the Ethiopian Institute of Architecture, Building Construction and City Development. March 18, 2019.
5. Israel Tesfaye, Ministry of Urban Development and Construction, Land Management and Development Directorate. March 26, 2019.
6. Ephrem Bekele, Addis Ababa City Administration Urban Planning Commission, Plan Implementation Directorate. March 21, 2019.
7. Imam Mohumod, architect planner and consultant involved in the urban design preparation of the Lideta Project site. March 18, 2019.
8. Alia Mohamod, project site resident. One of the 81 household heads who chose to relocate on site. April 1, 2019.

India Interviewees

1. Anand Mohan, chief general manager (retired), Hyderabad Growth Corridor Limited, 2014–18. February 18, 2019.
2. Vishwanth Sista, planning director (retired), Hyderabad Metropolitan Development Authority, 2010–12. February 18, 2019; March 15, 2019.
3. Praveen, DAO, Hyderabad Growth Corridor Limited. March 7, 2019.
4. Srinivas, planning director-II, Hyderabad Metropolitan Development Authority. March 7, 2019.
5. Lata, special collector, Outer Ring Road, Hyderabad Growth Corridor Limited. March 7, 2019.
6. Shaik Muzafar Iman, chief general manager, Hyderabad Growth Corridor Limited. March 8, 2019.
7. Ravindar, SE, Hyderabad Growth Corridor Limited. March 8, 2019.
8. Girish K.S., senior director, Jones Lang LaSalle (JLL). March 25, 2019.
9. Sharath Chandra, chief accountant, Hyderabad Metropolitan Development Authority. March 8, 2019.

ENDNOTES

1. Throughout this paper, when we refer to equity, we mean *social* equity, as opposed to financial equity.
2. By implemented, we mean project started and LVC mechanism applied; we do not necessarily mean that the project is complete or fully operational or that the LVC mechanism was necessarily successful.
3. A process of documenting land ownership boundaries.
4. The term *global South* as used in this paper refers to the less developed economies of Latin America, Asia, Africa, and Oceania, as compared to the advanced early urbanizing economies (Dados and Connell 2012).
5. A full list of people interviewed can be found in Appendix B.
6. Value converted by the annual average exchange rate of 2018, R\$/\$.365. BRL 2.9 billion is the total revenue amount raised only with the sale of the CEPACs, and with the financial remuneration of OUCAE fund, the total value reached 3.9 billion.
7. These families were given eviction notices with small compensation as well as social housing options offered on the periphery of the city.
8. Despite the periodic release of data reports, the inconsistent way the data are presented over the years hinders detailed analysis.
9. Value converted by the annual average exchange rate of 2018, R\$/\$.365.
10. The total of 4,490,999 CEPAC units, which is equivalent of 4,600 square feet, were offered in five installments, summing up a total of 18 auctions that occurred over the years 2002 to 2010 and in 2012.
11. Onerous grant mechanism for addition rights of construction, paid by developers and applied to the entire city.
12. There is a lack of time series data for land and property prices at the local level in Brazil. We are using the CEPAC selling price as a proxy of land value for the area.
13. The price ranges from ETB 191 per m² to ETB 1,686 per m², depending on grade.
14. The urban leaseholding proclamation no. 80/1993 has been revised and reenacted twice since its inception, in both 2002 and again in 2011, due to challenges with regulation implementation. Its six policy objectives include modernizing urban space (urban development), curbing speculation, improving governance, and effective and efficient delivery of land for different buyers.
15. Land sizes in Proclamation No. 47 (1975) and the compensation law, which expands the constitution, is Proclamation No. 455 (2005).

16. The roof tax is calculated by taking a small percentage (less than 2 percent) of the cost of the built-up property. Building construction materials used are included in the equation, based on their current market price.
17. Ethiopia is trying to modernize its property tax system and is piloting a new system in three secondary cities. The roof tax and permit holding fee system acts as a substitute until that formal system is in place.
18. A 15 percent tax is imposed on transactions of business enterprises (Zeluel 2019).
19. The Addis Ababa city administration is subdivided into 10 subcities. Lideta subcity is the third smallest and is itself divided into 10 smaller wards covering an area of about 918 hectares of land. See: <http://www.addisababa.gov.et/web/guest/lideta-sub-city>.
20. Government houses, different from public housing, are divided into two types: (i) Rentals that are of low quality (constructed from mud and wood, with limited to no access to utilities and services). The units are single room and rented out for a nominal monthly rate. The revenue generated from rental rates is not enough to maintain the structures, thus the houses have deteriorated over time. (ii) Housing units rented by the Rental Housing Agency. These are also rented out at a monthly rate below market rate, but the quality of houses is better, and residents have access to better facilities.
21. This socioeconomic survey assessed the physical condition of housing units using a highly subjective but commonly used method (Kumera and Sitotaw 2005).
22. Equivalent to \$75.
23. Anyone over the age of 18 who did not already have access to land could register for the lottery system. Housing prices were based on construction and administration costs, not land and location.
24. The 47/67 proclamation allows for substitution of a maximum of 500 m² of land for relocation if the size of expropriated land is more than 500 m². If the relocation is within a developed neighborhood, the substitute plot of land is smaller—in the Lideta case 250 m².
25. NEWA no longer exists.
26. Calculated using the 2006 exchange rate of \$1=45 INR.
27. HMDA jurisdiction is 7,257 km² and includes the GHMC.
28. Property taxes include the value of land and what is built or owned on the land, which can increase over time. This increase creates added revenue that the local government can reinvest in the community.

REFERENCES

Abiad, A., K. Farrin, and C. Hale. 2019. *Sustaining Transit Investment in Asia's Cities: A Beneficiary-Funding and Land Value Capture Perspective*. Mandaluyong, Philippines: Asian Development Bank.

African Centre for Cities. 2015. *Urban Infrastructure in Sub-Saharan Africa—Harnessing Land Values, Housing and Transport*. Report on Ethiopia Case Study Report No. 1.7. Cape Town, South Africa: UK AID.

Ahluwalia, I., and P.K. Mohanty. 2014. "Planning and Markets for Urban Development in India." In *Urbanization in India: Challenges, Opportunities and the Way Forward*, edited by I.J. Ahluwali, R. Kanbur, and P.K. Mohanty, 56–81. New Delhi, India: SAGE Publications.

Alemu, H. 2019. Interview with authors, March 14, 2019.

Beard, V., A. Mahendra, and M. Westphal. 2016. "Towards a More Equal City: Framing the Challenges and Opportunities." Working Paper. Washington, DC: World Resources Institute. Available online at www.citiesforall.org.

Bekele, E. 2019. Interview with authors, March 21, 2019.

Biderman, C., P. Sandroni, M. Smolka, and O. Martin. 2006. "Large-Scale Urban Interventions." *Land Lines*, April 2006. Cambridge, MA: Lincoln Institute of Land Policy.

Bimora, H., and A. Mulat. 2012. *Lideta Project 1 Public Investment Cost on Land Development Redevelopment*. Amharic Version. Addis Ababa, Ethiopia: City of Addis Ababa.

Blanco, A.G.B., N. Moreno M., D.M. Vetter, and M.F. Vetter. 2017. *The Potential of Land Value Capture for Financing Urban Projects: Methodological Considerations and Case Studies*. Washington, DC: Inter-American Development Bank.

Chandra, S. 2019. Interview with authors, March 18.

City of Addis Ababa. 2003. "Addis Ababa City Structure Plan Summary." Addis Ababa, Ethiopia: City of Addis Ababa.

Collier P., E. Glaeser, A. Venables, P. Manwaring, and M. Blake. 2018. *Land and Property Taxes for Municipal Finance*. London: International Growth Centre.

Cordaid. 2014. "Exploring Housing Solutions for Addis Ababa." Photo. Accessed September 23, 2020. <https://www.cordaid.org/en/news/exploring-housing-solutions-addis-ababa/>.

CVM (Comissão de Valores Mobiliários). 2003. "Instruction CVM n. 401 of December 29th of 2003: Determines the Trading Records and Public Distribution of Certificates of Additional Construction Potential (CEPAC)." Rio de Janeiro, Brazil: CVM.

Dados, N., and R. Connell. 2012. "The Global South." *Contexts* 11 (1): 12–13.

Das, D. 2015. "Hyderabad: Visioning, Restructuring and Making of a High-Tech City." *Cities* 43: 48–58.

Fajersztajn, M. 2019. Interview with authors, February 20, 2019.

Franzen, R. 2003. *Property Taxation within the Southern African Development Community (SADC): Current Status and Future Prospects of Land Value Taxation in Botswana, Lesotho, Namibia, South Africa, and Swaziland*. Cambridge, MA: Lincoln Institute of Land Policy.

Franzen, R., and W. McCluskey. 2017. *Property Tax in Africa: Status, Challenges, and Prospects*. Cambridge, MA: Lincoln Institute of Land Policy.

Friendly, A. 2017. *Land Value Capture and Social Benefits: Toronto and São Paulo Compared*. Toronto, Canada: University of Toronto Munk School of Global Affairs, Institute on Municipal Finance and Governance.

Gandhi, S., and V.K. Phatak. 2016. "Land-Based Financing in Metropolitan Cities in India: The Case of Hyderabad and Mumbai." *Urbanisation* 1 (1): 31–52.

Gebremariam, L. Unpublished. "Summary of Reports, Addis Ababa Structure Plan Revision." Addis Ababa, Ethiopia.

Germán, L., and A.E. Bernstein. 2018. "Land Value Capture: Tools to Finance Our Urban Future." Policy Brief. Cambridge, MA: Lincoln Institute of Land Policy.

Girish, K.S. 2019. Interview with authors, March 25.

Goodfellow, T. 2015. "Taxing the Urban Boom: Property Taxation and Land Leasing in Kigali and Addis Ababa." Working Paper. Brighton, UK: International Centre for Tax and Development.

Government of Brazil. 2001. Law 10.257 of July 10th of 2001. City Statute. Brasília, Brazil: Government of Brazil.

Government of Ethiopia. 1975. Proclamation No 47 of 1975, A Proclamation to Provide for Government Ownership of Urban Lands and Extra Urban Houses. Addis Ababa, Ethiopia: Government of Ethiopia.

Government of Ethiopia. 1993. Proclamation No. 80/1993. A Proclamation to Provide for Land Lease Holding for Urban Lands. Addis Ababa, Ethiopia: Government of Ethiopia.

Government of Ethiopia. 2005. Proclamation no. 455/2005 Expropriation of Landholding for Public Purpose and Payment of Compensation Proclamations. Addis Ababa, Ethiopia: Government of Ethiopia.

Gray, A. 2018. "Ethiopia Is Africa's Fastest-Growing Economy." *World Economic Forum*, May 4, 2018. <https://www.weforum.org/agenda/2018/05/ethiopia-africa-fastest-growing-economy/>. Accessed November 5, 2019.

HMDA (Hyderabad Metropolitan Development Authority). 2007. *Income and Expenditure Account for the Year End*. Hyderabad, India: Hyderabad City Government.

HMDA. n.d. "Outer Ring Road." <https://www.hmda.gov.in/orr.aspx>. Accessed April 1, 2019.

Hong, Y-H., and I. Brain. 2012. "Land Readjustment for Urban Development and Post-disaster Reconstruction." *Land Lines*, January 2012: 2–9. Cambridge, MA: Lincoln Institute of Land Policy.

Huxley, J. 2009. *Value Capture Finance: Making Urban Development Pay Its Way*. London: Urban Land Institute.

Ignatios, J.F. 2019. Interview with authors, February 20.

Kebede, A. 2019. Interview with authors, March 29, 2019.

Kim J. 2018. "CEPACs and Their Value Capture Viability in the U.S. for Infrastructure Funding. New Cities Foundation." Working Paper. Cambridge, MA: Lincoln Institute of Land Policy.

Krumholz, N. 1982. "A Retrospective View of Equity Planning." *Journal of the American Planning Association* 48 (2): 37–41.

Krumholz, N., and J. Forester. 1990. *Making Equity Planning Work: Leadership in the Public Sector*. Philadelphia, PA: Temple University Press.

Kumera, E., and B. Sitotaw. 2005. *Sengatera-Ferd Bet Local Development Plan (Renewal: Project)*. Addis Ababa, Ethiopia: Urban Plan Preparation and Inspection Department.

Lata. 2019. Interview with authors, March 17.

Lozano-Gracia, N., C. Young, and T. Vishwanath. 2013. "Leveraging Land to Enable Urban Transformation: Lessons from Global Experience." Policy Research Working Paper No. 6312. Washington, DC: World Bank.

Lucy W. 1981. "Equity and Planning for Local Services." *Journal of the American Planning Association* 47 (4): 447–57.

Mahendra, A., and K.C. Seto. 2019. "Upward and Outward Growth: Managing Urban Expansion for More Equitable Cities in the Global South." Working Paper. Washington, DC: World Resources Institute. Available online at www.citiesforall.org.

Maleronka, C. 2019. Interview with authors, February 21.

Mathews, R., M. Pai, T. Sebastian, and S. Chakraborty. 2018. *State-Led Alternative Mechanisms to Acquire, Plan and Service Land for Urbanization in India*. Delhi, India: World Resources Institute.

MAUD (Municipal Administration and Urban Development Department). 2008. GO MS 526. Hyderabad, India: Government of Andhra Pradesh.

MAUD. 2008. GO MS 470. Hyderabad, India: Government of Andhra Pradesh.

MAUD. 2013. GO MS 440. Hyderabad, India: Government of Andhra Pradesh.

MAUD. 2016. "Amendments to Special Development Regulations of Hyderabad Outer Ring Road Growth Corridor - Orders - Issued." Hyderabad, India: Government of Telangana.

MAUD. 2018. *Annual Report 2017-18 and Action Plan 2018-19*. Hyderabad, India: Government of Telangana.

Medda, F. 2012. "Land Value Capture Finance for Transport Accessibility: A Review." *Journal of Transport Geography* 25: 154–61.

Metzger J. 1996. "The Theory and Practice of Equity Planning: An Annotated Bibliography." *Journal of Planning Literature* 11 (1): 112–26.

Mohamod, A. 2019. Interview with authors, April 2, 2019.

Mohan, A. 2019. Interview with authors, February 18.

Munshi, T., R. Joshi, and B. Adhvaryu. 2015. *Land-Use Transport Integration for Sustainable Urbanism (LUTSU): Inputs for the Development Planning Process*. Ahmedabad, India: Centre for Urban Land Policy, CEPT University.

Murray, S., M. Kopanyi, and P. McSharry. 2016. *A Land Value Tax for Kigali: Analysis and Policy Considerations*. London: International Growth Centre.

Musgrave, R.A. 1959. *The Theory of Public Finance*. New York: McGraw-Hill.

Nallathiga, R. 2014. "An Assessment of Land Acquisition under Hyderabad Outer Ring Road Project." *Indian Journal of Transport Management* 38 (2): 124–37.

NYU Stern. 2016. *Database of Land-use Regulations across a Global Sample of 200 Cities*. New York: Marron Institute of Urban Management.

PACE Consulting Architects. 2014. *Lideta Urban Renewal Project*. Addis Ababa, Ethiopia: Addis Ababa Housing Development Project Office.

Pantegani, G. 2019. Interview with authors, February 8.

Petersen, G.E. 2009. *Unlocking Land Values to Finance Urban Infrastructure: Land-Based Financing Options for Cities. Trends and Policy Options*. Washington, DC: World Bank.

Pethé, A., B. Misra, and P. Rakhe. 2009. "Strengthening Decentralisation, Augmenting the Consolidated Fund of the States by the Thirteenth Finance Commission: A Normative Approach (Study No. 29)." Working Paper. Mumbai, India: Department of Economic Analysis and Policy, Reserve Bank of India.

Policy Studies Institute. 2017. *Urban Redevelopment in Ethiopia: Success, Challenges and the Way Forward Policy*. Addis Ababa, Ethiopia: Policy Studies Institute (Amharic Version).

Ravindar, S.E. 2019. Interview with authors, March 8.

Rawls, J. 1971. *A Theory of Justice*. Cambridge, MA: Harvard University Press.

Rescher, N. 1966. *Distributive Justice*. Indianapolis, IN: Bobbs-Merrill.

Rolnik, R., K. Leitão, F. Comaru, and R. Dulce Lins. 2017. *Observatório de Remoções*. São Paulo, Brazil: University of São Paulo and Federal University of ABC.

Rose, K., D. Bergstrom, A. Ullah, and P. Sparr. 2011. *The 2011 Sustainable Communities Regional Planning Grant Guide: How to Incorporate Equity into Your Grant Application*. Washington, DC: Policy Link.

Roy, K. 2000. "Designing a Property Tax Reform Strategy for Sub-Saharan Africa: An Analytical Framework Applied to Kenya." *Public Budgeting and Finance* 20 (4): 36–51.

Sandroni, P. 2010. "CEPACS: Certificates of Additional Construction Potential—A New Financial Instrument of Value Capture in São Paulo." In *Municipal Revenues and Land Policies*, edited by G. Ingram and Y-H. Hong. Cambridge, MA: Lincoln Institute of Land Policy.

Sandroni, P. 2011a. "Recent Experience with Land Value Capture in São Paulo, Brazil." *Land Lines*, July 2011. Cambridge, MA: Lincoln Institute of Land Policy.

Sandroni, P. 2011b. "Unit Value Capture in São Paulo Using Two-Part Approach: Created Land (Solo Criado) and Sale of Building Rights (Outorga Onerosa do Direito de Construir); An Analysis of the Impact of the Basic Coefficient of Land Use as a Tool of the 2002 Master Plan." Working Paper. Cambridge, MA: Lincoln Institute of Land Policy.

São Paulo City Hall. 2001. "Law 13.260 of December 28th of 2001. Determines the Joint Urban Operation Água Espraiada." São Paulo, Brazil: São Paulo City Hall.

São Paulo City Hall. 2011. "Law 15.416 of July 22th of 2011. Changes Articles 3°, 22, 25 and 28 of the Law 13.260 of December 28th of 2001." São Paulo, Brazil: São Paulo City Hall.

São Paulo City Hall. 2018. "Law 16.975 of September 3rd of 2018. Changes the Law 13.260 of December 28th of 2001." São Paulo, Brazil: São Paulo City Hall.

São Paulo City Hall-SP Urbanismo. 2018. *Quarterly Report of Certificates of Additional Construction Potential (CEPAC) Água Espraiada Urban Operation—CVM Instruction n. 401/2003*. Report of 3rd Quarter of 2018. São Paulo, Brazil: São Paulo City Hall-SP Urbanismo.

São Paulo City Hall-SP Urbanismo. 2019a. "51^a Periodic Meeting of Management Commission of OUCAE Records. Financial Reports." São Paulo, Brazil: São Paulo City Hall-SP Urbanismo.

São Paulo City Hall-SP Urbanismo. 2019b. *Urban Development Fund—Charges Additional Building Rights (OODC) Revenue Records*. São Paulo, Brazil: São Paulo City Hall-SP Urbanismo.

São Paulo City Hall-SP Urbanismo. 2019c. *Reports of Periodic Meeting of Management Commission of OUCAE Records*. São Paulo, Brazil: São Paulo City Hall-SP Urbanismo.

Siba, E. and M. Sow. 2017. "Financing African Cities: What Is the Role of Land Value Capture?" Blog. December 14, 2017. www.brookings.edu/blog/africa-in-focus/2017/12/14/financing-african-cities-What-is-the-role-of-land-value-capture/.

Sista, V. n.d. "Revised Calculations on ORR LPS Revenues." From Discussions held by HMDA on October 2, 2017. Hyderabad, India.

Sista, V. 2019. Interviews with authors, February 18 and March 15.

Smolka, M.O. 2012. *A New Look at Value Capture in Latin America*. Cambridge, MA: Lincoln Institute of Land Policy.

Smolka, M.O. 2013. *Implementing Value Capture in Latin America Policies and Tools for Urban Development*. Cambridge, MA: Lincoln Institute of Land Policy.

Smolka, M.O. and D. Amborski. 2000. *Value Capture for Urban Development: An Inter-American Comparison*. Cambridge, MA: Lincoln Institute of Land Policy.

Suzuki, H., J. Murakami, Y. Hong, and B. Tamayose. 2015. "Financing Transit-Oriented Development with Land Values: Adapting Land Value Capture in Developing Countries." In *Urban Development Series*, edited by the World Bank Group. Washington, DC: World Bank.

Tesfaye, I. 2019. Interview with authors, March 26, 2019.

Turner B. 2010. "Valuation—International Challenges and Opportunities in Developing Countries." *Canadian Property Valuation* 54 (2): 189–206.

UN-Habitat. 2011. *Condominium Housing in Ethiopia: Integrated Housing Development Program*. Nairobi, Kenya: UN-Habitat.

UN-Habitat. 2016. *The New Urban Agenda*. Quito, Ecuador: United Nations General Assembly.

Walters, L.C. 2012. "Land Value Capture in Policy and Practice." *Journal of Property Tax Assessment & Administration* 10 (2): 18.

Williamson, I., and J. Wallace. 2007. *New Roles of Land Administration Systems*. Melbourne, Australia: University of Melbourne.

Zapata, M.A., and L.K. Bates. 2017. "Equity Planning or Equitable Opportunities? The Construction of Equity in the HUD Sustainable Communities Regional Planning Grants." *Journal of Planning Education and Research* 37 (4): 411–24.

Zeluel, A. 2018. "Land Readjustment for Informal Settlement Upgrading in Addis Ababa." In *Global Experience in Land Readjustment Urban Legal Case Studies* 3, edited by UN-Habitat. Nairobi, Kenya: Un-Habitat.

Zeluel, A. 2019. Interview with authors, March 15, 2020.

ABOUT THE AUTHORS

Anjali Mahendra is the director of research at the WRI Ross Center for Sustainable Cities. She leads the research agenda, guiding the Ross Center's worldwide team in conducting robust, innovative, and policy-relevant research on urban issues, including WRI's flagship *World Resources Report Towards a More Equal City*. Her recent work has focused on the challenges of urban expansion and improving accessibility in cities of the global South.

Robin King is director of knowledge capture and collaboration at the WRI Ross Center for Sustainable Cities. Her research focuses on urban economics, comparative urban development, and inclusive transit-oriented development.

Erin Gray is an associate for WRI's Economics Center. She has over 10 years' experience in environmental economics, with expertise in ecosystem service and natural infrastructure valuation; cost-benefit, cost-effectiveness, and multi-criteria analysis; climate-change adaptation monitoring and evaluation; landscape approaches for restoration; and ecosystem service markets and conservation finance.

Maria Hart is a research and engagement specialist at the WRI Ross Center for Sustainable Cities.

Laura Azeredo is an urban development analyst at WRI Brazil. She works on the implementation of the transit-oriented development strategy in master plans, in addition to conducting studies and research related to sustainable urban development in Brazilian cities.

Luana Betti is an urban economics coordinator with the urban development team at WRI Brazil. She works on implementation of financing strategies for sustainable urban projects, especially TOD, as well as on studies and capacity building in urban financing.

Surya Prakash is a senior manager with the integrated urban development team at WRI India–Sustainable Cities. He works closely with municipal corporations at the city level, as well as surface transportation and urban development departments at the state and national level.

Amartya Deb is a consultant for WRI India–Sustainable Cities.

Elleni Ashebir is the program manager for Cities and Urban Mobility in Addis Ababa, WRI Africa. She has rich experience in Ethiopia's urban development sector and has worked in national, regional, and city-level government.

Asmaa Ibrahim is a professor of urban planning at Cairo University, School of Engineering, Architecture Department. She is a Humphrey Fellow in the Special Program for Urban and Regional Studies (SPURS) program at the Massachusetts Institute of Technology.

ACKNOWLEDGMENTS

We are pleased to acknowledge our institutional strategic partners, who provide core funding to WRI: Netherlands Ministry of Foreign Affairs, Royal Danish Ministry of Foreign Affairs, and Swedish International Development Cooperation Agency.

This working paper was commissioned by the Lincoln Institute of Land Policy. The findings and conclusions of this working paper reflect the views of the authors. The original version of this working paper can be found on the Lincoln Institute of Land Policy's website: <https://www.lincolninst.edu/publications/working-papers/urban-land-value-capture-sao-paulo-addis-ababa-hyderabad>. Copyright © 2020. Lincoln Institute of Land Policy. All Rights Reserved.

The authors are grateful to the following people who provided invaluable guidance and reviews to strengthen this paper: Enrique Silva, Luis Felipe Quintanilla Tamez, Carlos Muñoz Piña, Emily Matthews, Mariana Orloff, Carlos Pardo, Albert Amos, Prerna Mehta, Ayushi Trivedi, Arya Harsono, Eugenie Birch, Phillip Dube, and Vidyadhar Phatak. Thanks also to Emilia Suarez, Romain Warnault, Carni Klirs, and Caroline Taylor for their assistance with editing and producing this paper.

ABOUT WRI

World Resources Institute is a global research organization that turns big ideas into action at the nexus of environment, economic opportunity, and human well-being.

Our Challenge

Natural resources are at the foundation of economic opportunity and human well-being. But today, we are depleting Earth's resources at rates that are not sustainable, endangering economies and people's lives. People depend on clean water, fertile land, healthy forests, and a stable climate. Livable cities and clean energy are essential for a sustainable planet. We must address these urgent, global challenges this decade.

Our Vision

We envision an equitable and prosperous planet driven by the wise management of natural resources. We aspire to create a world where the actions of government, business, and communities combine to eliminate poverty and sustain the natural environment for all people.

Our Approach

COUNT IT

We start with data. We conduct independent research and draw on the latest technology to develop new insights and recommendations. Our rigorous analysis identifies risks, unveils opportunities, and informs smart strategies. We focus our efforts on influential and emerging economies where the future of sustainability will be determined.

CHANGE IT

We use our research to influence government policies, business strategies, and civil society action. We test projects with communities, companies, and government agencies to build a strong evidence base. Then, we work with partners to deliver change on the ground that alleviates poverty and strengthens society. We hold ourselves accountable to ensure our outcomes will be bold and enduring.

SCALE IT

We don't think small. Once tested, we work with partners to adopt and expand our efforts regionally and globally. We engage with decision-makers to carry out our ideas and elevate our impact. We measure success through government and business actions that improve people's lives and sustain a healthy environment.

ABOUT LINCOLN INSTITUTE OF LAND POLICY

The Lincoln Institute of Land Policy seeks to improve quality of life through the effective use, taxation, and stewardship of land. A nonprofit private operating foundation whose origins date to 1946, the Lincoln Institute researches and recommends creative approaches to land as a solution to economic, social, and environmental challenges. Through education, training, publications, and events, we integrate theory and practice to inform public policy decisions worldwide.