



## Land Value Capture for Sustainable Urban Development in A Developing City: A Case of Bekasi City, Indonesia

Submitted: 13 December 2023  
Accepted: 23 December 2023  
Available Online: 28 February 2024

Aang Anggara<sup>1,2</sup>, Nurrohman Wijaya<sup>2</sup>

<sup>1</sup>Spatial Planning Office, Bekasi Municipality, Indonesia  
[aang.distarubekasi@gmail.com](mailto:aang.distarubekasi@gmail.com)

<sup>2</sup>School of Architecture, Planning, and Policy Development (SAPPD), Bandung Institute of Technology (ITB), Bandung, Indonesia  
[nurrohman.wijaya@itb.ac.id](mailto:nurrohman.wijaya@itb.ac.id)

### Abstract

*Developing a city into a sustainable initiative will take much work, especially given the urban governments with limited budgets and knowledge. These situations are significant in the Global South countries, particularly in emerging economies like Indonesia. One potential urban finance is land value capture (LVC). This paper aims to investigate the concept of LVC as land-based financing for sustainable urban development and examine which instruments are suitable and appropriate to be implemented in an emerging metropolitan city, Bekasi City, Indonesia. The city was selected due to its high urbanization rate, population growth, and facing urban financial challenges. We adopted a systematic review in the initial study to find the LVC development concept. This study used three literature databases: Scopus, Google Scholar, and Science Direct, and we found 20 relevant documents. It reveals several discussed themes regarding LVC, such as the adoption of LVC instruments, the role of LVC regulation, and its governance. This study also examines some instruments of LVC that are suitable for implementation in Bekasi City, such as selling air rights based on floor area ratio (FAR), betterment levy, and developer exaction. LVC can be an innovative urban financing instrument for sustainable urban development by capturing the improvement in land value initiated by government or private investments in urban infrastructure, transportation, or other public goods.*

**Keywords:** Bekasi City; land value capture; sustainable urban development; systematic review; urban financing

### 1. Introduction

Urban development has been made more accessible by the rapid industrialization and urbanization in developing nations over the past two decades. Under the right circumstances, this urban expansion can lead to more sustainability (Kiamba, 2012). Sustainable development is the framework for the growth and advancement of human endeavors that meet the requirements of the present without jeopardizing the capacity of coming generations to meet their own basic needs. It is a comprehensive approach that balances the economy's growth, community well-being, and environmental preservation<sup>1</sup>. Sustainable urban development (SUD) aims to balance between social fairness, environmental protection, and economic

<sup>1</sup> Corresponding Author: Spatial Planning Office, Bekasi Municipality, Indonesia  
Email: [aang.distarubekasi@gmail.com](mailto:aang.distarubekasi@gmail.com)

prosperity (Uitto, 2019). SUD addresses several aspects of urban life, ranging from transportation (Liu & Xia, 2023), spatial planning, and design to energy and environmental management (Z. Wang et al., 2023).

A flexible and inclusive urban financing approach is required in urban development toward a sustainable city (Rybeck, 2004). To finance the necessary infrastructure and services, Land Value Capture (LVC) is one solution that captures the increases in land prices brought on by urbanization. A development project's value can be captured by monetizing some of its benefits directly or indirectly. It is described as the distinction between the infrastructure's worth before and after enhancements. Value capture thus complements conventional funding options by offering an additional contribution to project funding through this gradual increase in value. Utilizing its current assets and implementing legal and regulatory measures to promote higher development allows the government to improve its entire portfolio and obtain value for money (Flynn, Rao, & Gashi, 2018).

Beyond the benefits to the financing of the public sector, many authors argue that LVC can help boost the economic effectiveness of municipal investments while contributing to social equality, help regulate urban growth and land prices, lessen private developers' uncertainties around the timeline for permitting the project and the development of infrastructure. For example, Yen et al. (2023) identified that development-based LVC is acceptable to incorporate into a TOD strategy. They can specifically aid in promoting equity by expanding the infrastructure for public transportation. Developing a city into a sustainable movement will be complex, especially given the urban governments with limited budgets and knowledge, particularly in emerging economies. Consequently, to become an innovative and sustainable city, it should be supported by innovative and flexible financing sources such as LVC (Kresse, Kang, Kim, & van der Krabben, 2020).

In developing nations, the LVC concept has been widely adopted as an alternative funding source. For instance, Nguyen et al., (2017) attempt to fill a relative gap in the literature on real estate development and property rights in transitional economies, focusing on the "shadow" role of private developers in urban administration at the local level in Ho Chi Minh City, Vietnam. In this study, value capture mechanisms that charge for building rights, commonly known as exactions, supplied half or complete funding for large urban reconstruction projects in numerous cities, including Ho Chi Minh City.

This paper aims to investigate the concept of LVC as an innovative urban financing for sustainable urban development in some countries. Then, we examine and analyse which instruments are suitable and appropriate to be implemented in the case of Bekasi City based on a literature review of prior studies. A systematic literature review is used in this study, focusing on previous research about how LVC can support urban development to attain sustainable cities. While many studies investigate the effectiveness of LVC in financing urban infrastructure, there is a limitation of information on its actual application in emerging economies, particularly in places such as Bekasi City. Furthermore, this study is important because it aims to close these gaps by studying the unique regulatory, financial, and governance frameworks that may allow for effective LVC implementation in Bekasi City, providing fresh insights and viable methods that may be applied from worldwide examples. By bridging this gap, the study will lead to a better understanding of how LVC might be used to promote sustainable urban growth in developing cities.

The paper is structured as follows. Section 2 provides the theoretical concept of LVC and sustainable urban development. Section 3 explains the research methodology, data collection, the data source, the systematic literature review process, and the research case studies. In section 4, this study provides the results from a systematic literature review. It delivers a specific debate point about how the government should consider while implementing LVC, from selecting suitable instruments to the governance of the mechanism of LVC. Finally, section 5 proposes the analysis of implementing LVC in a metropolitan city in Indonesia, such as Bekasi Municipality, based on its current urban development project and the role of regulation as a supporting feature of LVC tools and gives some examples of LVC instruments based on international cases, especially in emerging countries.

## **2. Methods**

Literature reviews provide the groundwork for academic studies. Researchers comprehend the scope and complexity of the existing body of work and discover any discrepancies for further study by reviewing relevant literature (Xiao & Watson, 2017). To develop an innovative perspective and recommend future areas of study, this study examines and puts together the appropriate literature on the LVC as an urban financing instrument for sustainable cities through a systematic literature review. This research adopted a systematic review analysis approach for the literature review from the three databases: Scopus, Google Scholar, and Science Direct. The first step of the review was to develop a search strategy to identify articles related to land value capture implementation for sustainable urban development. The search terms used were based on keywords: Land Value Capture, Sustainable Urban Development, Urban Financing, and Sustainable City. Mendeley reference manager software was used to assist in data compilation.

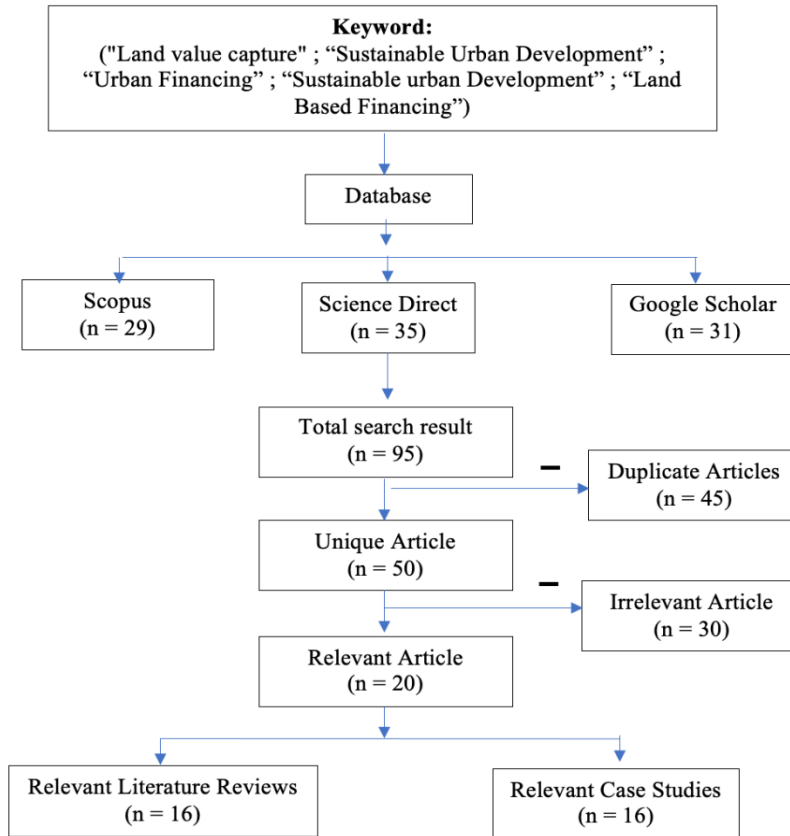


Figure 1. Visualization of the conducted systematic literature research process

Initially, articles were searched in the accessible database using numerous keywords, generating 210 journal articles, working papers, and report projects for review. Nevertheless, after reviewing the abstracts, it became clear that almost all the studies needed to be more relevant to the research LVC in sustainability urban development concepts. Following Quan (2023), to facilitate the extraction of the most relevant research, the search criteria were restricted to keyword searches present in the abstract, keywords, subject terms, and title, and 95 academic articles were gathered. After removing duplicates, 50 unique academic articles have been identified. Each unique study was assessed for relevance by reviewing each abstract and article structure to guarantee that the works chosen addressed particular aspects of LVC as urban development financing for sustainable urban development. This relevancy filtered out 30 relevant articles, leaving 20 relevant articles. From 20 topics of interest generated from the literature research, 16 empirical studies focus on case studies of LVC, and four articles focus on literature review. Figure 2 illustrates the research search procedure.

## 2.1 Study Area: Bekasi City

This section examines how LVC are applied in the study area and investigates the implementation of LVC with the concept of a sustainable city in a developing country with a high-density population. The selection of case studies took place in Bekasi City. There are several reasons why the author chose this city as a case study:

First, Bekasi City is a part of the Jakarta Metropolitan Area (JMA) consisting of Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek) urban areas (Figure 2). As a metropolitan city, the population of Bekasi City reached 2.59 million people in approximately 210 square kilometers. The population density is over 12,300 people per square kilometer (BPS Kota Bekasi, 2023), making it one of Indonesia's highest-density metropolitan cities. With an enormous population, the government of Bekasi City naturally faces some problems and challenges for urban development. For instance, the total length of roads in Bekasi City is 4,459 km, with 71.7% in good condition and 28.3% in fair to poor condition (Highways and Water Resources Office, 2023). The municipal government of Bekasi City is also dealing with another urban issue: the need for appropriate green open space. According to Article 29 of The Spatial Planning Law, providing Green Open Space in a city area is at least 30%, with a proportion of 20% for public green open space and 10% for private green open space. Currently, based on the Spatial Planning Office Work Plan, the obligation to create green open space in Bekasi City is only 9% for public green open (Spatial Planning Office, 2023).

Second, Bekasi City's infrastructure development is accelerating. This may be observed in the several national strategic projects in Bekasi and those covering the city. According to The Committee for Acceleration of Priority Infrastructure Delivery (CAPID/KPPPIP), five national strategic projects are located

within or through Bekasi City. These projects are the construction of the Becakayu Toll Road, the Jakarta Cikampek II South Side Toll Road, the South Java Double Track, the High-Speed Rail Jakarta-Bandung, and the Light Rapid Transit (LRT) Jabodetabek. The growing number of national strategic project developments may indirectly boost land value and influence regional economic growth (KPPIP, 2022). In this situation, LVC could be an alternative development finance option for the government to seize the value created by the project directly (Andrés G. Blanco B., Moreno, Vetter, & Vetter, 2017).

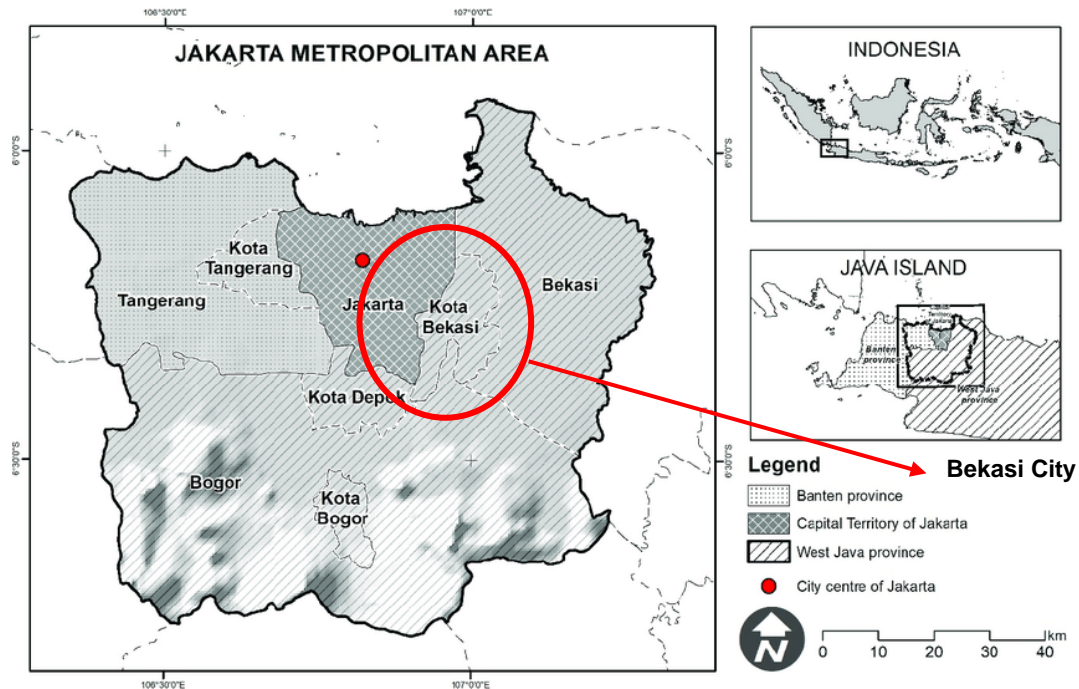


Figure 2. Bekasi City as part of the Jakarta Metropolitan Area

### 3. Contextual Considerations

#### 3.1 Land Value Capture (LVC)

The term LVC has been used to describe several urban governance instruments that have been put in place to collect land value increments on both public and private land. Precise definitions frequently depend on the specific method (Noring, 2021). According to Wang et al. (2020), LVC is not merely a legal framework instrument utilized by governments. LVC, on the other hand, refers to the procedure that has manifested the allocation of land value in a broader sense, including official and informal methods and interactions. Processes of value capture, which, in broad terms, show who obtains what portion of the land value, can be explained by complicated interactions and consequences between multiple parties, such as governments, land speculators, purchasers, and sellers. LVC is classified into two types: development-based LVC and tax or fee-based LVC. Direct transactions of properties whose values have improved due to public regulatory choices or spending on infrastructure can allow development-based LVC. Tax- or fee-based LVC is enabled by indirect means, such as extortion from property owners via various tax or fee instruments (e.g., property taxes, betterment charges, and special assessments) (Suzuki et al., 2015).

Smolka & Amborski (2000) have identified the instrument for capturing the value that results from investments and other public sector initiatives that affect land value, such as (i) taxes, (ii) fees, and (iii) regulations. Meanwhile, another study categorizes the instrument of value capture on Taxed Based (Chi-Man Hui, Sze-Mun, & Kim-Hin, 2004) into the following instruments: (i) Real estate annual tax; (ii) rental income tax; (iii) tax on speculation gains from land transactions; (iv) conveyance and deceased property tax; (v) betterment levy for lease modifications or planning authorization; and (vi) land auctions and bids. Each instrument has advantages and limitations, and their efficiency and viability depend on various internal and external project variables (Andrés G. Blanco B. et al., 2017). According to SGS Economic and Planning (2016), there are six drivers of land value uplift, namely (i) Amenity values, as reflecting the spatial and environmental characteristics of the site; (ii) Population growth, as a proxy of economic growth; (iii) State level infrastructure provision; (iv) Granting of development rights; (v) Local-level infrastructure provision; and (vi) On-site improvements.

#### 3.2 Sustainable Urban Development

A sustainable city is an urban area designed, developed, and operated to meet the current population's requirements without jeopardizing the capacity of future generations to accommodate their own. It entails converging of economic, social, and environmental factors principles into urban planning and management, focusing on resource efficiency, reduced greenhouse gas emissions, improved quality of life, and social inclusion (Keeble, 1988). Sustainable urban development is a growth perspective that appeared in the

previous century as a result of 'cities' aim to be more responsive to citizen demands, deliver conditions that promote a high quality of life, and preserve and enhance productivity in an increasingly international environment (Angelidou et al., 2018). The term 'sustainable smart city' has been proposed in recent years as an alternative to the terms 'smart city' and 'sustainable city' to guarantee the existence of a sustainability dimension within smart city initiatives, tools, and applications (Ahvenniemi, Huovila, Pinto-Seppä, & Airaksinen, 2017). Connecting the ideas of sustainable cities with smart cities may enhance awareness among planners, technology companies, and policymakers about the possibility of employing Information and Communication Technology (ICT) to promote urban sustainability. Thus, Smart Sustainable Cities may be utilized as a common framework or shared vision for developing new partnerships, economic models, and urban development methods (Höjer & Wangel, 2014).

Dhingra et al. (2016) examine the following objectives that should be achieved in a sustainable city for it to be adaptive, dependable, scalable, accessible, and resilient: (i) Enhance its citizens' quality of life; (ii) To guarantee economic expansion and provide improved job prospects; (iii) Improve the well-being of its citizens by ensuring access to social and community services; (iv) Create an environmentally responsible and long-term development strategy; (v) Ensure that fundamental services and infrastructure, such as public transit, water supply and drainage, telecommunications, and other utilities, are delivered efficiently; (vi) Capability to solve climate change and environmental challenges; (vii) Create an efficient regulatory and local governance structure to ensure inclusive policies.

### 3.3 LVC towards Sustainability Urban Development

Budget and financial constraints in a municipality can impede the creation of enhancements and the expansion of services requested by the residents (Blanck & Ribeiro, 2021). Nguyen et al. (2017) argued that there is a link between spatial planning and land value since any improvements to communities, local infrastructure, and services result in an increase in the value of any land affected by these changes. LVC has the potential to play an essential role in supporting sustainable urban development through financing, such as encouraging compact and walkable TOD, financing the public infrastructure, and promoting affordable housing (Canelas & Noring, 2022; Jinshuo Wang, D. Ary A. Samsura, 2019). For example, LVC is a popular financing option for TOD in various developed countries. The LVC generates funds for transportation investment, operation, and maintenance, and promoting sustainable urban development (Suzuki et al., 2015).

The value capture is built on a fundamental principle: public activity should result in a public advantage. As the pressures of growing urbanization, failing infrastructure, climate change, and other factors rise, this revenue source has never been more critical to communities' long-term viability. Government activities that boost land values, such as regulation changes that allow for higher permissible size on a property, should also benefit the public. For example, suppose a developer requests permission to build a higher structure than is ordinarily permitted. In that case, it could obligate the developer to include affordable housing units or public green space as compensation. LVC compels owners to repay the value gained due to those changes to the government that established them so that it can subsequently offer new infrastructure and services to the community. Regulatory changes that are well thought out and carefully executed can benefit all parties (Korngold, 2022a). The notion of LVC in urban planning can contribute to city growth toward sustainable cities (Chi-Man Hui et al., 2004; Yen et al., 2023).

The implementation of the LVC policy must be handled carefully and transparently to avoid adverse side effects. LVC rules must also consider the impact on diverse community groups, especially vulnerable groups, and guarantee that the community can gain the advantages of rising land values. When combined with prudence in governance and urban planning concepts, LVC may be a valuable instrument for governments in achieving beneficial fiscal, social, and environmental results (Enrique Silva, Barbara Scholz, 2021).

## 4. Result and Discussions

### 4.1 Systematic Review: LVC and Sustainable Urban Development

The ideas of LVC and Sustainable City have been addressed explicitly in urban planning and policy literature of the financing instrument for urban development towards sustainable cities. This section emphasizes the conclusions reached after thoroughly reviewing the academic literature on land value capture as urban financing towards sustainable cities of selected 20 journal articles. Based on this content analysis, three key themes of discussion have been identified, including the instrument of LVC, the role of regulation, and the governance of LVC. In the discussion section, we will examine the instrument of LVC, which could be applied in Bekasi City by adjusting existing regulations to facilitate the implementation of LVC.

Table 1. Literature review of land value capture for sustainable urban development

No	Themes	Study Area/Location	Method	Aim	Source
1	LVC Instruments	North America and Latin America	Research studies and Policy Analysis	This study compares North America's (the United States and Canada) and Latin America's experiences with gains in value capture approaches.	Smolka & Amborski (2000)

No	Themes	Study Area/Location	Method	Aim	Source
		United States	Research studies with case studies and interview with practisers, official, and citizen	This paper investigates alternative land value capture strategies and is intended to bridge the gap between LVC theory and practice by combining research findings and case studies.	Korngold (2022)
		Hong Kong and Singapore	Compared Value Analysis	The study analysed the property taxation regimes in Hong Kong and Singapore to investigate how the two governments capture land value.	Chi-Man Hui et al. (2004)
		Xalapa, Mexico, and Quetzaltenango, Guatemala	Descriptive case studies analysis with case studies and interview with practisers, official, and citizen	The study examines the possibility of land value capture as a financing tool for urban projects in the Inter-American Development Bank's (IDB) Emerging and Sustainable Cities Program (ESC).	Andrés G. Blanco B. et al. (2017)
		Indonesia	A comprehensive review of Indonesia's current policy and regulatory context in terms of its potential to support this novel notion.	The purpose of this research is to support the Indonesian government in establishing a national framework for value capture.	ADB (2021)
		Hyderabad and Mumbai, India	Descriptive case study analysis	This study investigates the concept and implementation of land-based financing mechanisms revenues for infrastructure provision by examining the principal local government and development authorities in Hyderabad and Mumbai, India.	Gandhi & Phatak (2016)
		Taiwan	Descriptive Case Study Analysis	Through the perspective of land-based finance, this study provides a conceptual perspective of Taiwan's "floating" transfer of development rights (TDR).	Mi Shih, Ying-Hui Chian (2018)
		South Africa	Research studies and Policy Analysis	This study aims to examine how land-based financing (LBF) might be utilized to get around South Africa's financial limitations for public infrastructure.	McGaffin, Viruly, & Boyle (2021)
		Sao Paulo, Brazil	Research studies and Policy Analysis	This case study describes the instrument proposed by São Paulo to capture land-value increments.	Biderman (2021)
		Metropolitan Area of Buenos Aires (MABA), Argentina	Research studies and Policy Analysis	This study aims to look into the feasibility of increasing public funding for urban infrastructure projects in the Metropolitan Area of Buenos Aires (MABA), Argentina, by utilizing land value capture (LVC) techniques.	Goytia & Cristini (2020)
		Greece	Descriptive analysis	This article analyses the potential contribution of smart city methods and instruments to environmentally sustainable urban development.	Angelidou et al. (2018)
		66 Cities in European Continent	Descriptive research of a quantitative relational nature with Multiple Analysis Regression	This study aims to test the experimental hypothesis of the impact of innovation financing and collaboration platforms on the evolution of the Smart Urban Development (SUD) level.	Blanck & Ribeiro (2021)
		Brazil, Barcelona, Boston	Study literature with comparative analysis of smart city rankings with case study in Brazil, Barcelona, and Boston	This study shows the different financing tools used to fund smart city projects that use Internet of Things (IoT) technologies.	Hernandez & Pallares (2015)
2	The Role of Regulation	Sao Paulo, Brazil Addis Ababa,	This study using literature review and analysis based on	This paper evaluates three case studies of LVC projects to evaluate their fiscal and equity benefits.	Mahendra et al. (2020)

No	Themes	Study Area/Location	Method	Aim	Source
	in LVC Adoption	Ethiopia Hyderabad, India Taiwan	secondary data and in-depth interview project case studies Descriptive Case Study Analysis	This study aims to provide a conceptual perspective of Taiwan's "floating" transfer of development rights (TDR) through the perspective of land-based finance.	Mi Shih, Ying-Hui Chian (2018)
		United States	Research studies with case studies and interview with practisers, official, and citizen	This paper investigates alternative land value capture strategies and is intended to bridge the gap between LVC theory and practice by combining research findings and case studies.	Korngold (2022)
		Xalapa, Mexico and Quetzaltenango, Guatemala	Descriptive case studies analysis with case studies and interview with practisers, official, and citizen	The study examines the possibility of land value capture financing for urban projects in the Inter-American Development Bank's (IDB) Emerging and Sustainable Cities Program (ESC).	Andrés G. Blanco B. et al. (2017)
		Indonesia	A comprehensive review of Indonesia's current policy and regulatory context in terms of its potential to support this novel notion.	This research aims to support the Indonesian government in establishing a national framework for value capture.	ADB (2021)
3	The Governance of LVC	Denmark (Aarhus, Aalborg and Køge)	Literature review, interviews with key decision-makers, site inspections, and desk research into official project information.	This article examines three large LVC-based revitalization initiatives in three Danish towns and cities (Aarhus, Aalborg, and Koge) from a governmental action standpoint.	Canelas & Noring (2022)
		Hong Kong and Singapore	Compared Value Analysis	The study analysed the property taxation regimes in Hong Kong and Singapore to investigate how the two governments capture land value.	Chi-Man Hui et al. (2004)
		Bogota & Manizales, Colombia	The study assesses the levy in Bogota and Manizales and interview with citizen	This study analyses the betterment levy as the LVC instrument in Bogota and Manizales and explains why those instruments are well-accepted by society.	Borrero Ochoa (2011)
		Switzerland	Literature review with analysis of planning phases	This study highlights the critical relationship between value capture mechanisms in Switzerland and land value changes brought about by planning.	Hengstermann & Götze (2023)
		New Delhi and Hongkong	This study uses exploratory case studies from experience in New Delhi and Hongkong	The study offers a conceptual model that combines land use and finance to purchase of train infrastructure.	Li & Love (2022)
		Ho Chi Minh City, Vietnam	This paper is based on a combination of literature review and empirical data.	This article examines land privatization and value capture in Vietnam, specifically focusing on the CBD of Ho Chi Minh City (HCMC), Vietnam, and its micro-planning of urban redevelopment.	Nguyen et al. (2017)

Source: Authors' elaboration from several literatures (2023)

Table 1 provides case studies of how LVC was implemented in several cities. The number of case study areas is from 20 cities, which were dominant in the Global South because the implementation of LVC is relatively new in those regions rather than in the Global North (Korngold, 2022; Smolka & Amborski, 2000). Based on an initial study from a systematic literature review, we found three discussed themes regarding LVC: the adoption of LVC instruments, the role of LVC regulation, and its governance. These themes are explained in the following subsections.

#### 4.1.1 LVC Instrument

There are numerous variances in how the LVC instrument is used in emerging and developed countries. Even though various case studies show a mixed usage of the LVC instrument in these nations, both in emerging and developed countries, the application of LVC in developing countries is dominated by development-based LVC instruments. In contrast, tax-based LVC instruments are employed in developed countries. For instance, Sao Paulo has created a one-of-a-kind development-based LVC: selling the air right to build. In Brazil, an owner of private land can only construct air rights above a specific Floor Area Ratio (FAR) if covering the costs of using such rights that influence the area. Selling air rights makes sense since owners should cover the expenses of building infrastructure, as increasing densities require more significant infrastructure investments in proportion to the volume of their air rights use. When the developer wants to build beyond FAR must buy construction rights, known as CEPACs (Certificate of Additional Construction Potential). Those studies (Biderman, 2021) argued that selling building rights in large metropolitan areas is promising, and the sale of density will be successful if there is a demand for density.

Unlike Sao Paulo in Brazil, Vietnam, as an emerging country, combined the LVC instruments as urban financing for infrastructure development. A study by Nguyen et al. (2017) revealed that the local government in Ho Chi Minh City, Vietnam, utilized the mixed LVC instruments, both developer exaction (tax and fee-based LVC instrument) and zoning plan (development-based LVC instrument) in building up the infrastructure. Exactions can take a particular type of land, cash, or other in-kind payment to cover new development expenses—the additional public services required by a new project and the use of existing public resources. A zoning plan can be used when the developer asks for a higher coefficient ratio of FAR while at the same time contributing to the neighborhood's public road access and open space infrastructure.

In developed countries, value capture is viewed as a supplement to property tax, such as in the United States, Canada, Singapore, and Hong Kong. Property taxes are extensively relied upon by local governments to pay public expenditures. For example, Singapore and Hong Kong have adopted similar tax-based LVC instruments. According to Chi-Man Hui et al. (2004), Singapore and Hong Kong use various property taxes such as rates, stamp duty, good and services tax, estate duty, government rent, income tax, profits tax, and property tax. However, stamp duty, estate duty, and property tax are the same instruments of LVC use in both countries. Another instrument used in Singapore and Hong Kong is the betterment levy/development charge. The development charge aims to recover from the landowner a portion of their windfall income from a planning approval granted over and beyond the typical intensity specified in the Master Plan. The difference between implementing the instrument in Singapore and Hong Kong is that Singapore uses the development charge—roughly half of the entire market value—and Hong Kong uses the total market value.

Betterment levies as an LVC instrument are not only implemented in developed countries. Most countries in Latin America, i.e., Colombia, Mexico, Guatemala, and Argentina, have adopted these instruments because these instruments ensure cost-effectiveness, use an equitable distribution strategy, and encourage engagement during execution (Borrero Ochoa, 2011; Garza & Gonzalez, 2021; Goytia & Cristini, 2020; Smolka & Amborski, 2000). In Colombia, Betterment Levies or *contribucion de valorizacion* play an essential role and have been used for a long time for infrastructure investment. It contributes almost 24 percent of municipality revenues (Borrero Ochoa, 2011). In general, the practice of betterment levies in Colombia is like the other countries in Latin America (Smolka, 2013).

LVC implementation is relatively new in Indonesia. A study conducted (ADB, 2021) delivers a comprehensive review of Indonesia's existing policy and regulatory system regarding its capacity to reinforce the new idea and the fiscal frameworks required for successful implementation. However, specific pilot projects have been carried out to implement LVC in different cities such as Jakarta, Palembang, and Makassar, utilizing various LVC instruments and determining and evaluating whether deploying these instruments is feasible in Indonesia.

In all cases, the result of using land value instruments is different. The results may be suitable or even inverse because the employment of inappropriate value-capture instruments may have a negative effect. For instance, in the Quetzaltenango and Xalapa study area, Andres G Blanco B. et al. (2017) have identified the instrument for LVC which will be applied in project areas is Tax Increment Financing (TIF). However, considering the regulation of the government tax system, implementing TIF will only cause public distrust in implementing LVC. The government revenue from taxes in Quetzaltenango and Xalapa is meager because taxes are only some of the income contributors to the country. Then, they proposed an alternative LVC instrument: betterment levies. It was proven that betterment levies are suitable to implement because they are fairer for the public.

South Africa is another case study of why choosing a value-capture instrument is crucial. McGaffin et al. (2021) point out that only some LVC instruments used in South Africa are the ultimate solution for solving the country's infrastructure financing deficit. Instead of using the current instrument of LVC, they suggest another instrument, i.e., Tax Increment Financing (TIF), which could support infrastructure finance with some underlined essential preconditions to be executed effectively, such as adequate market demand, a reformed legal system, and required agency.

#### 4.1.2 The Role of Regulation in LVC Adoption

The role of regulation in the implementation of the LVC instrument is critical. Regulations serve as a framework for urban development planning initiatives while offering stakeholders legal protection and stability. The existence of laws on land use and infrastructure financing can promote trust among the public



simply because the public acknowledges where the funding originates from and what the allocated funds will be used for. Good regulation, of course, must have a competent design process and good norms. For instance, in the United States, state law contributes to whether a municipality can use a specific LVC strategy—if it allows for a specific LVC instrument and whether that authority is permissible for advanced land value capture. State-enabling strategies should empower local governments to create and enforce LVC-related rules. Municipal governments often require ordinances to implement these tools (Korngold, 2022). This is the basis for implementing LVC in determining which instruments will be used. The better tools are employed, the better the municipality can provide contemporary infrastructure and services and adequately distribute the rewards and overwhelmed development.

Another example of why the regulation has a significant impact is that in Brazil, as represented by emerging economies, a unified approach to urban land policy regulation has laid the groundwork for deploying CEPACs as LVC tools. Successful LVC in São Paulo was made possible by several factors, including a supportive institutional structure, transparent procedures that ensured investments were implemented, the thriving real estate market in the city, investor interest in joining urban operation areas, and favorable regulatory and policy environments (Mahendra et al., 2020).

The application of LVC is strongly tied to current regulations and spatial planning in some countries. On the other hand, Taiwan implemented the LVC instrument—Transfer Development Rights, or TDR—without any planning, a practice known as "Floating TDR." High levels of development density are a burden on local governments and communities since TDR planning regulation is not implemented. Another consequence of "Floating TDR" is that the developers mainly benefit from the increased land rather than the public (Mi Shih, Ying-Hui Chian, 2018). In Indonesia, the regulation of LVC instruments is currently being drafted and harmonized in the Ministry of Law and Human Rights. Considering that Indonesia has not yet implemented the LVC instrument compared with other Asian countries, such as Vietnam, Japan, Korea, Taiwan, and China, the government ought to accelerate the regulation completion so both government and local government are not burdened with budget development.

#### **4.1.3 The Governance of LVC**

Good governance in the execution of LVC is critical to ensuring that this policy runs appropriately and efficiently. Good governance can boost public trust in LVC while also preventing conflicts of interest from arising during policy implementation. Good governance must include numerous components, such as visibility of LVC aims and objectives, selection of appropriate tools, transparent planning and implementation processes, public engagement, and an effective monitoring and evaluation system. Poor governance and a lack of coordination can lead to stakeholder conflicts of interest. As experienced in Delhi, India, when a national government granted land solely to The Delhi Metro Rail Corporation (DMRC) as a transit agency for development-based LVC, the conflict erupted in capital cities with complicated, multiple governing frameworks that lacked cooperation between other government agencies and DMRC results in a failure to acquire the level of revenue gained from LVC (Li & Love, 2022; Suzuki et al., 2015). Success is determined by the project's credibility and the institutional governance competence and ethical standards of the organization managing the LVC instrument (Borrero Ochoa, 2011).

In Singapore, the governance of LVC is under the authority of The Singapore Land Authority (SLA). SLA operates as the government's agent for land sales. Its goal is to maximize the returns from the sale of state land while ensuring the processes follow regulatory standards. It also develops and administers land policies concerning pricing, term, and title constraints (Chi-Man Hui et al., 2004). Denmark has various types of governance of LVC. The government has three ways to capture value through its government authority: partnership with the private sector and the local community. Even though they need to share their LVC profits, it appears to have little effect on the emphasis on making money from LVC (Canelas & Noring, 2022; Noring, 2021). Properly capturing the value of private infrastructure investments for the public can be achieved through cooperative and innovative combined micro-scale planning between developers and local authorities.

## **4.2 Discussion**

This research analyzes and examines which LVC instruments can be implemented in Bekasi City based on the literature study. Instrument determination is carried out by learning from various case studies in metropolitan cities, as given in the preceding part, and it is also carried out based on current laws and regulations addressing spatial planning regulations and other urban development regulations in the government of Bekasi City to support municipality towards sustainable urban development. The city is currently one of the metropolitan cities that support the capital city of DKI Jakarta, with the trade and services sector serving as the primary engine of the regional economy. The government of Bekasi City has the potential to execute land value capture due to its vast number of office buildings, hotels, flats, and shopping facilities such as malls. According to the Spatial Planning Office, over the five years, from 2019 to 2023, the number of permissions for high-rise buildings in Bekasi City reached 141 permissions<sup>2</sup>. With the numerous high-rise buildings, the government has a high potential to benefit from every development carried out by the developers with the right LVC instrument. Thus, public infrastructure development can be achieved without straining regional finances.

---

<sup>2</sup> Spatial planning office 2023

In this way, it is essential to figure out the instrument of LVC using current regulations in the government of Bekasi City. Several regulations are currently associated with spatial planning in the Government of Bekasi City. These include Regional Regulation No. 05/2016 concerning Detailed Spatial Plan (RDTR) 2015 – 2035; Regional Regulation No. 05/2014 concerning Incentives and Disincentives in Controlling Space Utilization in Bekasi City; Regional Regulation No. 06/2014 concerning Buildings; Regional Regulation Number 05/2021 concerning Provision and Delivery of Public Infrastructure, Facilities and Utilities; Bekasi Mayor Regulation No. 05/2015 concerning Procedures of Incentives and Disincentives in Controlling Space Utilization in Bekasi City; Bekasi Mayor Regulation No. 02/2020 concerning the Implementation of Smart Cities; and Bekasi Mayor Regulation No. 74 of 2021 concerning Technical Instructions for Providing and Delivering Over Infrastructure, Facilities and Utilities.

Regional Regulation No. 05/2016 concerning building and neighborhood blocks or zone management plans. This regulation intends to guide government and community development and realize the integration of development programs in Bekasi City. This rule governs the zoning provisions of each region, as well as the composition of spatial arrangements such as Green Space Ratio (KDH), Building Ratio (KDB), and Floor Area Ratio (KLB). Meanwhile, Bekasi Mayor Regulation No. 05/2015 concerning Procedures Incentives and Disincentives in Controlling Space Utilization in Bekasi City is cascading from the regional regulation No. 05/2014 Incentives and Disincentives in Controlling Space Utilization in Bekasi City. The laws try to manage and design a spatial structure in alignment with the Bekasi Municipality Spatial Plan. The development of space utilization activities is incentivized by spatial planning, whereas the prevention, limitation, or reduction of space utilization activities' development is incentivized by spatial planning disincentives. The government can offer fiscal and non-fiscal incentives and disincentives to regional governments, from one regional government to another, and from the government and/or regional governments to the community. Giving a disincentive can take the shape of fiscal and non-fiscal incentives, as demonstrated by the case when a developer builds more than the Floor Area Ratio (FAR). Betterment fees are one type of fiscal disincentive that can be applied using this regulation.

From the description and literature review in the previous section, the adoption of betterment levies, selling air rights based on FAR area, and developer exaction are considered the instruments of LVC as urban financing towards smart cities in Bekasi City. The betterment levy can be administered using a zoning scheme, with the amount of the charge varying in each zone, as illustrated in Figure 3. The higher the development levy, the closer you reach the project site. Furthermore, the further a beneficiary is located from the project area, the lower the development levy. This is because benefit beneficiaries in zone 1 receive a more considerable gain in land value than those in zones 2, 3, and 4. This approach is implemented using concepts from the study (Andrés G. Blanco B. et al., 2017) and imposing a betterment levy based on cadastral area. This instrument can be used for each project location in Bekasi City by employing the government's zoning restrictions and modifying the urban area units (BWP) in each region.

Nevertheless, there are drawbacks to using the betterment levy method as a tax-based tool, particularly in emerging countries. According to Suzuki et al. (2015), taxes based as an instrument LVC in developing countries are less sophisticated, partly because they necessitate an excellent cadastral system and significant financial investments to construct a computer system and coaching for tax assessment and execution. However, several Latin American developing countries have been able to employ this instrument for a long time since they have adjusted to challenges that may arise when using this strategy.

The following LVC instrument that Bekasi municipal can introduce is selling air rights based on the Floor Area Ratio (FAR)/KLB, as conducted by the Sao Paulo, Brazil municipal government. This tool can be implemented by regional regulation no. 05/2014 Incentives and Disincentives in Controlling Space Utilization in Bekasi City, as well as Bekasi Mayor Regulation no. 05/2015 concerning Procedures Incentives and Disincentives in Controlling Space Utilization. This rule explains what developers must do to build beyond the FAR/KLB. However, it is necessary to determine compensation for the increase in FAR/KLB. Developers who want to build beyond the FAR/KLB, relating to what occurred in Brazil, must obtain CEPACs (Certificate of Additional Construction Potential). Implementing the FAR-based LVC instrument is also more appropriate for use in metropolitan cities like Bekasi City, where city density and increasingly restricted land encourage developers to build taller buildings rather than buy land.



Figure 3. Implementation of Betterment Levies Based on Land Value Zoning in Bekasi City. (Source: Bhumi ATR BPN, Analysis result, 2023)

Finally, a development-based instrument in the form of developer exaction can be used in Bekasi City. A developer obligation, or a developer exaction, is a government mechanism that mandates developers to construct infrastructure or finance investment requirements for public infrastructure development. Local governments can use this strategy instead of FAR-based improvement fees and selling air rights to deploy LVC instruments. Implementing this technology can offer developers an alternative during development tasks. For example, developer exaction can be used for apartment development projects with a development area of at least one hectare, and the developer is required to construct public infrastructure within or outside the development area, or the developer can construct ICT infrastructure to facilitate the smart city concept's implementation. Using Regional Regulation Number 05/2021 concerning the provision and delivery of public infrastructure, facilities, and utilities can support the implementation of this instrument in Bekasi City.

In terms of governance of LVC in Bekasi Municipality, the local government may adopt the model used in Danish cities (Aarhus, Aalborg, and Koge), either by controlling and implementing LVC independently, in partnership with the private sector, or by collaboration with local communities. However, LVC governance must adhere to the restrictions put in place by the central government. Later, to increase transparency in policy implementation, electronic-based implementation and monitoring can be carried out. Beyond that, strong coordination among stakeholders and a communicative approach with the community are required for the LVC to be implemented successfully and enable Bekasi City to achieve sustainable development.

Identifying each instrument's characteristics and conditions or guidelines is crucial before deploying the value capture instrument. Excluding that, it is essential to communicate with the public during the implementation phase to explain the benefits of establishing the LVC system. Institutional establishment, institutional strengthening, and the participation of other parties in the LVC execution are also required for its successful implementation.

## 5. Conclusion

Many studies have independently investigated LVC as infrastructure funding. However, more attention is needed to be focused on how the LVC might be used as an urban financing instrument to promote sustainable cities. This study presents an overview of LVC instruments that can be employed in developing countries. In addition, this study illustrates how the institutional implementation of LVC in nations that have already implemented it might be leveraged to teach lessons in developing countries' cities. Using a literature review of previous research, we present an overview of LVC implementation in Bekasi City, including instrument selection and institutional implementation through a case study. The adoption of betterment levies, selling air rights based on FAR area, and developer exaction are considered instruments of LVC to use as urban financing in Bekasi City. In terms of governance for LVC, the government of Bekasi Municipality may use the approach utilized in Denmark, either by regulating and implementing LVC autonomously, in partnership with the private sector, or via collaboration with local communities. However, it is necessary to consider the governance of LVC based on other success stories from other countries, especially from developed countries such as Singapore, Japan, and others. Good governance makes LVC implementation more successful and durable, and it ensures that the value created by infrastructure upgrades is leveraged to support more fair and inclusive urban development.

Planners are encouraged, at least in public discourse, to use LVC methods to either participate in the windfalls that landowners gain from urban infrastructure allocation or to induce some redistribution,

particularly in achieving sustainable cities. Institutional establishment, institutional strengthening, and engagement of other parties in the LVC execution are also essential for its successful implementation.

## References

- ADB. (2021). Innovative Infrastructure Financing Through Value Capture in Indonesia.
- Ahvenniemi, H., Huovila, A., Pinto-Seppä, I., & Airaksinen, M. (2017). What are the differences between sustainable and smart cities? *Cities*, 60, 234–245. <https://doi.org/10.1016/j.cities.2016.09.009>
- Andrés G. Blanco B., Moreno, N., Vetter, D. M., & Vetter, M. F. (2017). The Potential of Land Value Capture.
- Angelidou, M., Psaltoglou, A., Komninos, N., Kakderi, C., Tsarchopoulos, P., & Panori, A. (2018). Enhancing sustainable urban development through smart city applications. *Journal of Science and Technology Policy Management*, 9(2), 146–169. <https://doi.org/10.1108/JSTPM-05-2017-0016>
- Biderman, C. (2021). Value Capture and the Role of Land in the Equality of Opportunities: The Case of São Paulo, Brazil. *Lincoln Institute of Land Policy*, (2021). Retrieved from <https://about.jstor.org/terms>
- Blanck, M., & Ribeiro, J. L. D. (2021). Smart cities financing system: An empirical modelling from the European context. *Cities*, 116(June). <https://doi.org/10.1016/j.cities.2021.103268>
- Borrero Ochoa, O. (2011). Betterment Levy in Colombia. *Land Lines*, 14–19.
- BPS Kota Bekasi. (2023). Kota Bekasi Dalam Angka 2023. BPS Kota Bekasi, 346.
- Canelas, P., & Noring, L. (2022a). Governmentalities of land value capture in urban redevelopment. *Land Use Policy*, 122(November 2021), 106396. <https://doi.org/10.1016/j.landusepol.2022.106396>
- Canelas, P., & Noring, L. (2022b). Governmentalities of land value capture in urban redevelopment. *Land Use Policy*, 122(September), 106396. <https://doi.org/10.1016/j.landusepol.2022.106396>
- Chi-Man Hui, E., Sze-Mun, V., & Kim-Hin, D. (2004). Land value capture mechanisms in Hong Kong and Singapore: A comparative analysis. *Journal of Property Investment & Finance*, 22(1), 76–100. <https://doi.org/10.1108/14635780410525153>
- Dhingra, M., & Chattopadhyay, S. (2016). Advancing smartness of traditional settlements-case analysis of Indian and Arab old cities. *International Journal of Sustainable Built Environment*, 5(2), 549–563. <https://doi.org/10.1016/j.ijbsbe.2016.08.004>
- Enrique Silva, Barbara Scholz, and R. A. (2021). Planning and Financing Sustainable and Equitable Cities: Global Views on Land Value Capture (A 75th Anniversary Lincoln Institute Dialogue). Retrieved from <https://www.lincolninstitute.edu/courses-events/courses/2021-planning-financing-sustainable-equitable-cities-global-views-land-value>
- Flynn, M., Rao, A. K., & Gashi, D. S. (2018). Smart Cities Funding and Financing in Developing Economies Assisting developing cities to finance their infrastructure gap through private sector participation approaches. Deloitte.
- Gandhi, S., & Phatak, V. K. (2016). Land-based Financing in Metropolitan Cities in India: The Case of Hyderabad and Mumbai. *Urbanisation*, 1(1), 31–52. <https://doi.org/10.1177/24557471116644106>
- Garza, N., & Gonzalez, I. (2021). An urban system assessment of Land Value Capture: The Colombian case. *Land Use Policy*, 109(June), 105598. <https://doi.org/10.1016/j.landusepol.2021.105598>
- Goytia, C., & Cristini, M. (2020). Infrastructure Investment in a Messy Urban Growth Scenario : The Role of Land Value Capture Instruments in Argentina. (August), 49.
- Hengstermann, A., & Götze, V. (2023). Planning-related land value changes for explaining instruments of compensation and value capture in Switzerland. *Land Use Policy*, 132. <https://doi.org/10.1016/j.landusepol.2023.106826>
- Hernandez, R. D. V. and, & Pallares, R. A. A. (2015). Financing instruments for smart city projects based on Internet of Things. Retrieved from [https://www.politesi.polimi.it/bitstream/10589/116101/3/2015\\_12\\_ALBOR\\_DE\\_VUONO.pdf](https://www.politesi.polimi.it/bitstream/10589/116101/3/2015_12_ALBOR_DE_VUONO.pdf)
- Highways and Water Resources Office, G. of B. M. (2023). Highways and Water Resources Work Plan.
- Höjer, M., & Wangel, J. (2014). Smart sustainable cities: Definition and challenges. *Advances in Intelligent Systems and Computing*, 310(August), 333–349. [https://doi.org/10.1007/978-3-319-09228-7\\_20](https://doi.org/10.1007/978-3-319-09228-7_20)
- Jinshuo Wang, D. Ary A. Samsura, E. van der K. (2019). Institutional barriers to financing transit-oriented development in China: Analyzing informal land value capture strategies (p. 10). p. 10.
- Keeble, B. R. (1988). The Brundtland Report: “Our Common Future.” *Medicine and War*, 4(1), 17–25. <https://doi.org/10.1080/07488008808408783>

- Kiamba, A. (2012). The Sustainability of Urban Development in Developing Economies. *Consilience: The Journal of Sustainable Development*, 8(1), 20–25.
- Korngold, G. (2022a). Land Value Capture in the United States.
- Korngold, G. (2022b). Land Value Capture in the United States: Funding Infrastructure and Local Government Services (Lincoln Institute of Land Policy 2022). In *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4222377>
- KPPIP. (2022). Laporan KPPIP Semester II 2022.
- Kresse, K., Kang, M., Kim, S. II, & van der Krabben, E. (2020). Value capture ideals and practice – Development stages and the evolution of value capture policies. *Cities*, 106(June). <https://doi.org/10.1016/j.cities.2020.102861>
- Li, X., & Love, P. E. D. (2022). Procuring urban rail transit infrastructure by integrating land value capture and public-private partnerships: Learning from the cities of Delhi and Hong Kong. *Cities*, 122(March 2021), 103545. <https://doi.org/10.1016/j.cities.2021.103545>
- Liu, X., & Xia, H. (2023). Networking and sustainable development of urban spatial planning: Influence of rail transit. *Sustainable Cities and Society*, 99(April). <https://doi.org/10.1016/j.scs.2023.104865>
- Mahendra, A., King, R., Gray, E., Hart, M., Azeredo, L., Betti, L., ... Ibrahim, A. (2020). Urban Land Value Capture in São Paulo, Addis Ababa, and Hyderabad: Differing Interpretations, Equity Impacts, and Enabling Conditions. World Resources Institute, (January). <https://doi.org/10.46830/wriwp.18.00137>
- McGaffin, R., Viruly, F., & Boyle, L. (2021). An investigation into the use of land-based financing to fund infrastructure in South Africa. *Journal of Property Investment and Finance*, 39(3), 183–198. <https://doi.org/10.1108/JPIF-02-2019-0016>
- Mi Shih, Ying-Hui Chian, H. B. C. (2018). “ Floating TDR ” and Land Value Capture in Taiwan Designing a More Effective. *Lincoln Institute of Land Policy*, 16. Retrieved from [https://www.lincolninst.edu/sites/default/files/pubfiles/2018\\_descriptive\\_floating\\_tdr\\_taiwan\\_shih\\_chi\\_ang\\_chang.pdf](https://www.lincolninst.edu/sites/default/files/pubfiles/2018_descriptive_floating_tdr_taiwan_shih_chi_ang_chang.pdf)
- Nguyen, T. B., van der Krabben, E., Spencer, J. H., & Truong, K. T. (2017). Collaborative development: Capturing the public value in private real estate development projects in Ho Chi Minh City, Vietnam. *Cities*, 68(December 2016), 104–118. <https://doi.org/10.1016/j.cities.2017.06.006>
- Noring, L. (2021). From Vision to Value: A Case Study of How Seven Danish Cities Conduct Area Development to Propel Urban Revival. (June). Retrieved from <https://research.cbs.dk/en/publications/from-vision-to-value-a-case-study-of-how-seven-danish-cities-cond>
- Quan, X., & Solheim, M. C. W. (2023). Public-private partnerships in smart cities: A critical survey and research agenda. *City, Culture and Society*, 32(November 2022), 100491. <https://doi.org/10.1016/j.ccs.2022.100491>
- Rybeck, R. (2004). Using Value Capture to Finance Infrastructure and Encourage Compact Development. *Public Works Management & Policy*, 8(4), 249–260. <https://doi.org/10.1177/1087724X03262828>
- SGS Economic & Planning. (2016). Technical paper on value capture. (September). Retrieved from [http://infrastructureaustralia.gov.au/policy-publications/publications/files/SGS\\_Technical\\_paper\\_on\\_value\\_capture-September\\_2016.pdf](http://infrastructureaustralia.gov.au/policy-publications/publications/files/SGS_Technical_paper_on_value_capture-September_2016.pdf)
- Smolka, M. O. (2013). Implementing Value Capture in Latin America: Policies and Tools for Urban Development. In *October* (Vol. 2008). Retrieved from <http://doi.wiley.com/10.1002/yd.282>
- Smolka, M. O., & Amborski, D. (2000). Value capture for urban development: An Inter-American comparison. *Lincoln Institute of Land Policy*, 1–27.
- Spatial Planning Office, G. of B. M. (2023). Spatial Planning Office Work Plan. Bekasi Municipality.
- Suzuki, H., Murakami, J., Hong, Y.-H., & Tamayose, B. (2015). Financing Transit-Oriented Development with Land Values: Adapting Land Value Capture in Developing Countries. In *World Bank Group. The World Bank*. <https://doi.org/10.1596/978-1-4648-0149-5>
- Uitto, J. I. (2019). Sustainable Development Evaluation: Understanding the Nexus of Natural and Human Systems. *New Directions for Evaluation*, 2019(162), 49–67. <https://doi.org/10.1002/ev.20364>
- Wang, W., van Noorloos, F., & Spit, T. (2020). Stakeholder power relations in Land Value Capture: comparing public (China) and private (U.S.) dominant regimes. *Land Use Policy*, 91(September 2019), 104357. <https://doi.org/10.1016/j.landusepol.2019.104357>

- Wang, Z., Lin, L., Zhang, B., Xu, H., Xue, J., Fu, Y., ... Li, F. (2023). Sustainable urban development based on an adaptive cycle model: A coupled social and ecological land use development model. *Ecological Indicators*, 154(63). <https://doi.org/10.1016/j.ecolind.2023.110666>
- Xiao, Y., & Watson, M. (2017). Guidance on Conducting a Systematic Literature Review. *Journal of Planning Education and Research*, 39(1), 93–112. <https://doi.org/10.1177/0739456X17723971>
- Yen, B. T. H., Feng, C. M., & Lee, T. C. (2023). Transit-oriented development strategy in Taiwan: An application of land value capture. *Asian Transport Studies*, 9(December 2020), 100094. <https://doi.org/10.1016/j.eastsj.2022.100094>