

Public Value Capture: An Institutional Analysis and Evaluation of Shenzhen's Urban Renewal Land Conveyance System

SHUI Haoran, MIAO Chunsheng, ZOU Bing, ZHANG Yan

Abstract. Land value gains generated by urban renewal must be redistributed in a fair and reasonable manner to safeguard the public interest. From the perspective of public value capture, this paper examines the institutional design of Shenzhen's land conveyance system for urban renewal and evaluates its effectiveness in returning land value gains to the public. The findings show that the system has performed well in quantitative terms, but its substantive effectiveness remains constrained by the poor quality of some conveyed sites, structural imbalances in land provision, mismatches between regional needs and assigned functions, and difficulties in coordinating land across renewal units. These shortcomings may also produce welfare losses during the value-creation process. The paper further identifies three institutional challenges: a universal capture mechanism is poorly suited to differentiated value-appreciation contexts; a single quantitative capture indicator cannot guarantee the quality of public value recycling; and project-bound capture instruments impose spatial limits on the reach of public benefits. On this basis, the paper proposes measures to refine value-capture instruments, strengthen quality control over public value recycling, and improve area-level coordination of land conveyance.

Keywords: urban renewal; land value gains; public value capture; land conveyance; Shenzhen.

Chinese Library Classification: TU984. Document Code: A. DOI: 10.16361/j.upf.202503007. Article No.: 1000-3363 (2025) 03-0052-10.

Urban renewal has become a principal means of optimizing urban functions and spatial structure and improving the quality of urban development. Land value gains generated by renewal provide the economic foundation for implementation. Their reasonable distribution is not only a major concern for the actors involved and for society at large, but also a core criterion for assessing the justice and fairness of renewal, and may ultimately determine whether a renewal initiative succeeds or fails. The British economist John Stuart Mill [1] argued at an early stage that increases in land value result from social rather than individual effort and should therefore accrue to society or the public.

The public return of land value gains - or public value capture - has consequently become a central topic in Chinese urban-renewal research [2-8]. Because China has not yet established a fiscal and tax system for the secondary distribution of land value gains, translating the principle of public value capture into an effective implementation pathway remains highly challenging. Shenzhen's land conveyance system represents a comparatively systematic and institutionalized attempt to use market mechanisms to improve public-service provision and return renewal gains to the public. After more than a decade of practice, its theoretical basis and implementation outcomes warrant careful assessment. By examining Shenzhen's experience, this paper seeks to provide useful lessons for improving the system and for adapting it in other cities.

1 Theory and Practice of Public Value Capture in Urban Renewal

1.1 International theory and application of land value capture

The core proposition of public value capture is that increases in land value are not generated solely by the investment and effort of landowners. They also reflect broader socioeconomic change, planning adjustments, infrastructure investment, and other public actions. Land value gains should therefore not accrue exclusively to landowners, but should be returned in whole or in part to the public through appropriate mechanisms so as to protect the public interest and uphold social equity (Figure 1).

To address the public return of land value gains arising from land development, developed economies such as the United Kingdom and the United States introduced the concept of land value capture relatively

early. Land value capture refers to mobilizing, for public benefit, some or all of the increase in land value generated by actors other than the landowner, including public infrastructure investment and changes in land-use regulations [9]. It can generally be understood as comprising three stages [10]:

- (1) Value creation: increasing land value through public decisions, such as changing land use or floor-area ratios or investing in infrastructure such as rail transit.
- (2) Value capture: establishing a land-value sharing mechanism to capture all or part of the increment.
- (3) Value recycling: reinvesting the captured value in public goods.

Land value capture instruments are usually divided into tax- and fee-based instruments and non-tax instruments. Tax- and fee-based approaches follow the beneficiary-pays principle: taxes or special charges are levied on value gains generated by planning changes or public projects and are then used to finance public goods. Non-tax instruments include land transactions linked to development and land-use controls with planning obligations (Table 1).

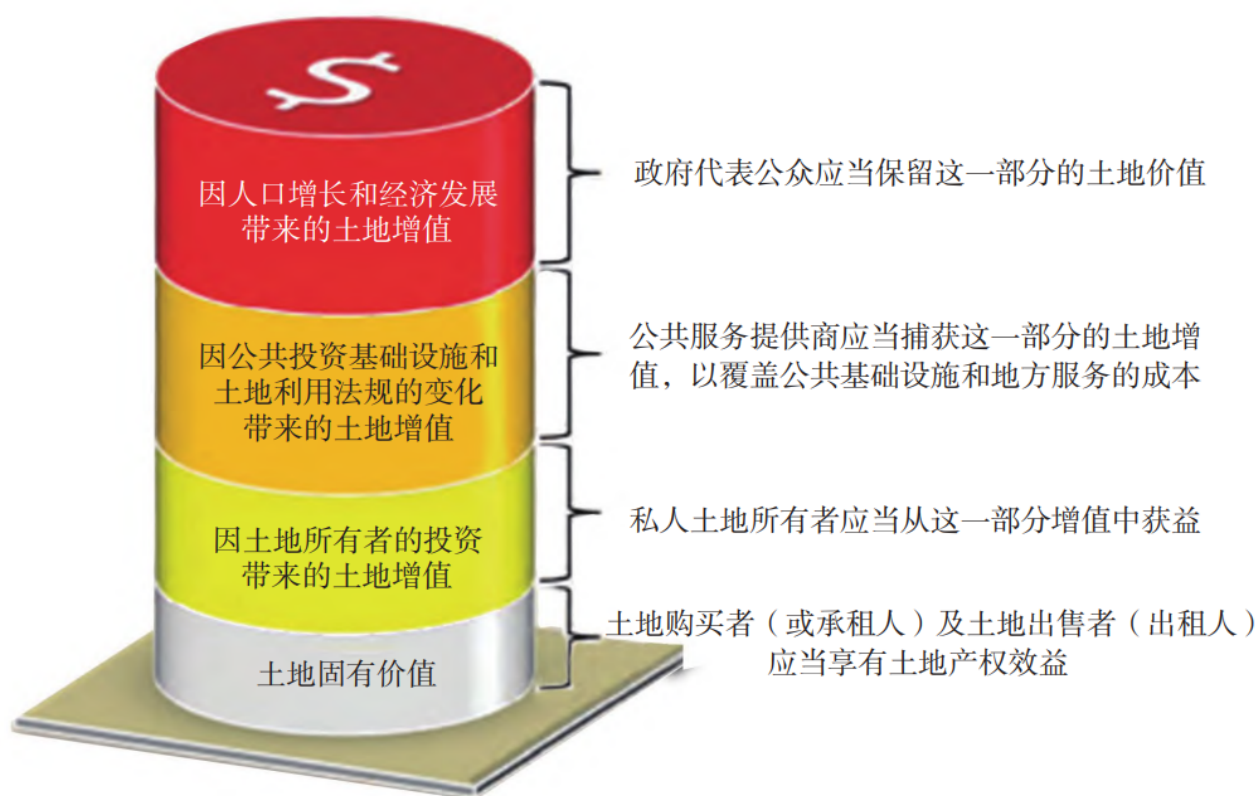


Figure 1. Land value and its constituent attributes

Source: Hong and Brubaker, reproduced in Suzuki et al. [10].

Table 1. Typical land value capture policy instruments [10-14]

Category	Instrument	Description
Tax- and fee-based	Property tax and land tax	Taxes assessed on land value or on the combined value of land and buildings; revenues are generally incorporated into budgets for general public purposes.
Tax- and fee-based	Betterment charges	A surcharge levied by government on the expected benefits created by public investment, requiring property owners who directly benefit to bear part of the cost. Betterment charges have been used in the United Kingdom.
Tax- and fee-based	Special assessment	A levy on properties that receive special benefits from public investment. This instrument is widely used in the United States.
Tax- and fee-based	Tax increment financing	Future increases in property-tax revenue within a designated redevelopment area are pledged to finance municipal bonds used for redevelopment; primarily applied in the United States.
Non-tax: land-development transactions	Land sale or lease	Government sells land or development rights to private developers. Where public investment or regulatory changes increase land value, the developer pays through an upfront premium, lease payment, or annual ground rent.
Non-tax: land-development transactions	Joint development	Transit agencies and private developers coordinate the development of stations and adjacent private properties. Because transit investment raises property values, developers contribute in cash or in kind to station construction. The instrument is common in Japan and the United States.
Non-tax: land-development transactions	Sale of development rights	Government sells development rights outside ordinary land-use controls, or rights created by regulatory change, and uses the proceeds to subsidize public infrastructure and services.
Non-tax: land-use controls with planning conditions	Planning gain / planning obligation	During development-permit review, planning authorities negotiate conditional permission or planning agreements requiring developers to pay fees or provide additional development for community facilities, infrastructure, and affordable housing. Commonly used in the United Kingdom.
Non-tax: land-use controls with planning conditions	Subdivision exaction	Approval of new housing development is made conditional on the developer financing roads, primary schools, street lighting, parks, highways, or other local facilities. Commonly used in the United States.

Tax- and fee-based land value capture has a broad field of application and can generate sustainable revenue streams, but it entails high political costs and often has difficulty distinguishing and quantifying special benefits from general benefits. Non-tax instruments establish a clearer link between value creation and value capture. By tying infrastructure financing directly to development projects, for example, they can lower the direct fiscal cost of public-facility provision and ease pressure on government budgets. At the same time, they may make governments increasingly dependent on developers and development projects in order to obtain land-related revenue [1]. In practice, countries often use the two types of policy instrument separately or in combination according to policy objectives, practical needs, and administrative feasibility.

Urban renewal in the United Kingdom and the United States has evolved from government-led intervention to market-oriented public-private partnerships and, more recently, toward collaboration among government, private actors, and communities [11]. Instruments for returning renewal gains to the public have likewise shifted from a primary reliance on taxation and fees toward combinations of financial compensation and planning control [1].

1.2 Domestic approaches to the public return of urban-renewal gains

With the expansion of urban renewal in China over the past two decades, scholars have undertaken extensive research on the fair distribution of value gains. This work includes theoretical analyses of the institutional and policy logic for safeguarding the public interest in urban renewal [16-22], case studies of the mechanisms and core features used in Beijing, Shanghai, Guangzhou, Shenzhen, and other major cities [22-27], and examinations of specific problems in the implementation of public-interest safeguards [28-31]. A strong consensus has emerged, both domestically and internationally, that land value gains generated by renewal should not accrue exclusively to land users or developers, but should be shared with government and society.

China's large-scale urban-renewal practice is relatively recent, however, and differs substantially from that of developed Western countries in stage of urbanization, political institutions, property-rights arrangements, and fiscal and tax systems. Western theories and instruments of land value capture therefore cannot simply be transplanted. Chinese scholars have proposed a range of pathways to ensure that renewal gains better serve society and maximize public benefits. These generally fall into two broad groups: tax and fee collection, and material improvement of urban space. Specific proposals include recovering land value gains, requiring public facilities and improved public space, supplying affordable housing and innovation-oriented industrial space, and undertaking public-benefit activities (Table 2).

Table 2. Principal approaches to public value capture in China

Main instrument	Core content
Recovery of land value gains	Government levies land value-added tax on the incremental value generated by urban renewal and uses the proceeds for public facilities or social welfare; alternatively, government and developers share the gains, with the public share used for public projects.
Provision of public facilities and improvement of public space	Developers may be required to provide a specified proportion of schools, parks, community centers, or other public facilities; construct public green space, squares, and other open space; upgrade community services; or improve transport and municipal infrastructure.
Affordable housing provision	Developers may be required to provide a specified proportion of affordable housing and transfer it to government management to address the housing needs of low-income groups.

Main instrument	Core content
Support for innovation-oriented industries	Developers may be required to provide a specified share of low-cost space for innovative industries, entrepreneurship, and employment.
Public-benefit activities	Developers may be required to undertake heritage conservation, environmental remediation, ecological restoration, and other public-interest activities as part of urban renewal.

Overall, Chinese research on the public return of urban-renewal gains remains more developed at the theoretical level than in institutional practice. Most local initiatives are still project-specific experiments adapted to particular times, places, and circumstances. Cases involving comprehensive institutional design and large-scale implementation remain limited. Shenzhen's land conveyance system was among the earliest attempts to establish a citywide institutional pathway for public value capture in urban renewal.

2 Policy Meaning and Institutional Design of Shenzhen's Urban Renewal Land Conveyance System

Shenzhen was one of the first Chinese megacities to encounter hard constraints on developable land and has long been a pioneer in urban-renewal practice. Since the promulgation of the Shenzhen Urban Renewal Measures in 2009, the city has gradually formed a renewal model characterized by government guidance, market operation, priority for the public interest, and benefit sharing. The land conveyance system is a concrete institutional arrangement within this model for returning renewal gains to the public.

2.1 Policy meaning and evolution of land conveyance

In Shenzhen's urban-renewal policy, conveyed land refers to independent parcels within demolition-and-reconstruction renewal units that must be transferred to government without compensation for public facilities and other public-interest purposes. The category includes land for public-interest uses, land vacated through clearance, land transferred through relocation or exchange, and related forms of public land provision.

The term first appeared in the Shenzhen Urban Renewal Measures issued in 2009, which required project implementers to transfer land for infrastructure and public-service facilities without compensation. In 2010, the Guidelines for Applying to Prepare Urban Renewal Unit Plans (Trial) introduced specific quantitative requirements. The 2012 Detailed Rules for the Implementation of the Shenzhen Urban Renewal Measures formalized land conveyance as a citywide institution. Subsequent policies addressed legacy land, small-parcel renewal units, clearance land, and off-site conveyance in order to accommodate historically inherited problems and increasingly diverse renewal contexts. The evolution of the policy is summarized in Table 3.

Table 3. Key policy milestones in Shenzhen's land conveyance system

Policy	Year	Key provision	Institutional significance
Shenzhen Urban Renewal Measures	2009	Rights holders undertaking demolition and reconstruction must resolve all economic relationships within the project area, remove buildings and attachments, and transfer land for infrastructure and public-service facilities in accordance with the renewal-unit plan and land-use-right contract, without government compensation.	Established the responsibility of renewal units to convey land for public-interest purposes.
Guidelines for Applying to Prepare Urban Renewal Unit Plans (Trial)	2010	Independent land for urban infrastructure, public-service facilities, or other public-interest projects must exceed 3,000 m ² and account for no less than 15% of the demolition area, unless planning or other regulations impose a higher requirement.	Introduced the baseline quantitative requirement for land conveyance.
Detailed Rules for the Implementation of the Shenzhen Urban Renewal Measures	2012	Formalized the baseline requirement for independent public-interest land within demolition-and-reconstruction renewal units and established it as a citywide rule.	Institutionalized the baseline conveyance requirement across Shenzhen.
Provisions on the Disposal of Clearance Land in Shenzhen Urban Renewal	2015	The project implementer must resolve all economic relationships within the clearance area, demolish and remove buildings and attachments, and convey all clearance land to government without compensation.	Clarified the disposal rules for clearance land.
Interim Measures for Strengthening and Improving Urban Renewal Implementation	2016	For demolition-and-reconstruction projects, 80% of disposed land may be assigned to a successor entity for renewal and the remainder entered into the government land reserve. At least 15% of the land assigned for renewal must be conveyed to government. Small-parcel renewal units must convey no less than 30% of their demolition area.	Introduced requirements for legacy-land disposal and small-parcel renewal units.
Administrative Provisions for Off-site Conveyance of Public-Facility Land in Shenzhen Urban Renewal	2018	Applied where implementation of a demolition-and-reconstruction project enables public-facility land outside the demolition area to be conveyed. Such off-site land is not included in the project demolition area, is not counted toward the land conveyed within the project, and does not reduce the project's own public-facility obligations.	Defined off-site conveyance, its applicable circumstances, and operating rules.
Provisions on Floor-Area-Ratio Review for Demolition-and-Reconstruction Urban Renewal Unit Plans in Shenzhen	2019	For demolition areas below 10,000 m ² , baseline conveyed land equals 30% of the demolition area; for areas from 10,000 to below 20,000 m ² , the baseline is 3,000 m ² ; for areas of 20,000 m ² or more, the baseline equals 15% of land with clearly defined ownership within the demolition area.	Refined the baseline conveyance calculation.

2.2 Institutional design of Shenzhen's land conveyance system

2.2.1 Design rationale

The land conveyance system was developed in response to conditions that differed sharply from those of most other cities. Shenzhen faced intense demand for urban development, a severe shortage of incremental land, and an urgent need to activate existing spatial resources. It therefore required an institution that was reasonably fair, easy to operate, replicable, and capable of reaching consensus among multiple stakeholders within a short period, while enabling renewal to proceed at scale and with high efficiency rather than through costly case-by-case negotiation. The design rested on three principles.

(1) Adoption of a non-tax land value capture instrument. Shenzhen had little room to independently introduce tax or fee policies under China's unified fiscal and taxation framework, and doing so would have entailed significant social and political risks. Moreover, in conventional tax-based capture systems, value capture and value recycling are separated: revenues first accrue to government and are then reallocated to public goods. This indirect route is only weakly connected to the original value-creation process, and its long implementation chain may generate leakage and distortion, reducing stakeholder acceptance. Shenzhen's model instead links value creation, value capture, and value recycling within the same spatial and project process. Planning adjustments create value in a renewal area; property-rights holders convey a specified share of land to government; and government uses that land for public goods in the same area. Value capture and value recycling thus occur concurrently with value creation within a defined spatial scope.

(2) Protection of project feasibility. The feasibility of value creation is a precondition for both capture and recycling. The conveyance ratio must therefore be carefully calibrated to balance market returns and public benefits. If the ratio is too low, basic public-interest objectives cannot be met; if it is too high, market actors may abandon the project, preventing both value creation and public return. Shenzhen addresses this problem by linking land contribution to floor-area incentives: the system specifies a baseline conveyance requirement and grants additional development capacity for conveyance beyond that baseline.

(3) Protection of the public nature of value recycling. In addition to defining the amount of conveyed land, the system restricts its use to transport and municipal infrastructure, public-service facilities, affordable housing, and other public-interest purposes. The institutional logic is to secure a minimum public contribution while rewarding contributions beyond the minimum, thereby increasing the scale of public value capture.

Land conveyance is therefore not merely a tool for capturing value generated by urban renewal. It must also preserve the feasibility of value creation and the quality of value recycling, as illustrated in Figure 2.

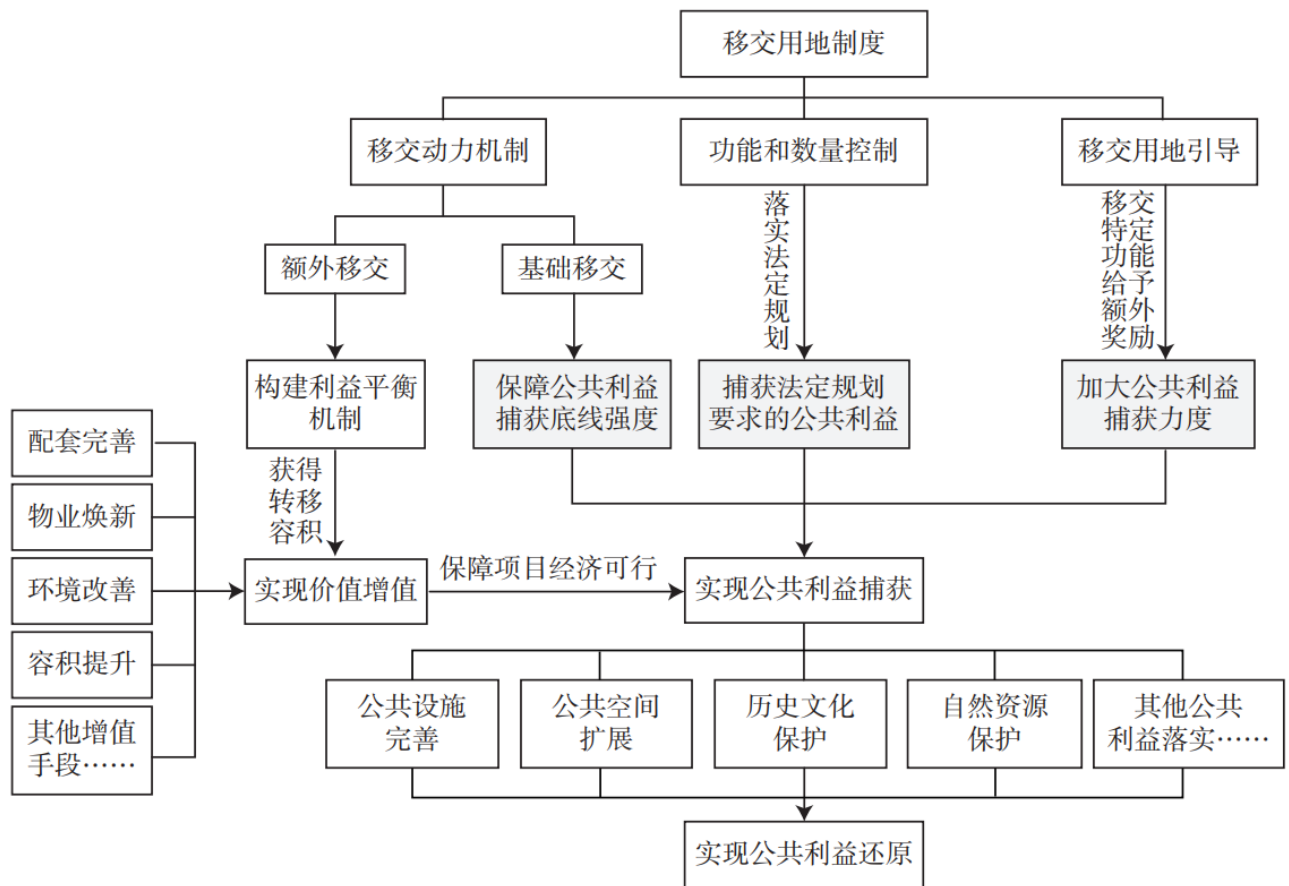


Figure 2. Institutional logic of Shenzhen's land conveyance system

2.2.2 Core design elements

Implementation of urban planning can itself be regarded as an important public interest. On this basis, Shenzhen linked the land conveyance system to the implementation of urban plans, especially statutory plans at the detailed-planning level, and divided conveyed land into baseline conveyance and additional conveyance.

(1) Baseline conveyance as a minimum constraint. Baseline conveyed land is the land that must be transferred to government without compensation. Regardless of whether a statutory plan already designates public-interest land, every demolition area must contribute a minimum amount. This requirement functions both as an entry threshold for renewal projects and as a minimum guarantee of public-interest land.

(2) Implementation of the statutory plan as a mandatory requirement. During project initiation and renewal-unit plan approval, Shenzhen treats the statutory plan as the principal basis for controlling the functions and quantities of public-interest land contributed within the demolition area and renewal unit. Requirements cover both facility types - such as kindergartens, primary and lower secondary schools, and medical facilities - and the area and allocation standards specified in technical regulations.

(3) Additional conveyance as an incentive to expand public-benefit provision. Additional conveyed land is the portion exceeding the baseline requirement. Once the public-interest requirements of the statutory plan have been secured, project implementers may receive targeted floor-area incentives for conveying land beyond those requirements. Shenzhen also provides additional transferable floor area for general hospitals, historic conservation areas, major cultural facilities, and education facilities delivered beyond mandatory levels, thereby steering contributions toward scarce types of public infrastructure (Table 4).

Table 4. Policy requirements and built-in incentives in Shenzhen's land conveyance system

Conveyance category	Applicable circumstance	Policy requirement	Incentive
Baseline conveyance	$3,000 \text{ m}^2 \leq \text{demolition area} < 10,000 \text{ m}^2$	Independent land conveyed to government without compensation must be no less than 30% of the demolition area.	Mandatory; no transferable floor area is granted.
Baseline conveyance	$10,000 \text{ m}^2 \leq \text{demolition area} < 20,000 \text{ m}^2$	Independent land conveyed to government without compensation must be no less than 3,000 m^2 .	Mandatory; no transferable floor area is granted.
Baseline conveyance	Demolition area $\geq 20,000 \text{ m}^2$	Independent land conveyed to government without compensation must be no less than 15% of the demolition area.	Mandatory; no transferable floor area is granted.
Baseline conveyance	Renewal unit involves clearance land	All clearance land must be conveyed to government without compensation.	Mandatory; no transferable floor area is granted. Depending on the share of clearance land in the demolition area, part of the project's public-interest conveyance obligation may be reduced, but by no more than 30% of the clearance area.
Baseline conveyance	Renewal unit involves legacy land	Depending on renewal-unit type and the legality of existing land, 20%-45% of legacy land subject to disposal must be conveyed to government without compensation; at least 15% of the remaining land assigned to the successor entity must also be conveyed.	Mandatory; no transferable floor area is granted. Legacy land that is disposed of and conveyed as required may be treated as developable land within the renewal unit.
Additional conveyance	Public-interest land required by the statutory plan exceeds the baseline	Public-interest requirements of the statutory plan must be fully implemented. Where such land exceeds 50% of the statutory-plan unit, provision is determined through integrated review, provided technical standards and functional performance are satisfied.	After deducting baseline conveyance, the additional land may generate transferable floor area according to uniform calculation rules.
Additional conveyance	Renewal unit is linked to off-site conveyed land	All off-site conveyed land must be transferred to government without compensation.	Transferable floor area may be granted according to the legal-land ratio of the off-site parcel and the transfer coefficient of its density zone.
Additional conveyance	Renewal involves residential land or planned education-facility land	Education facilities may not fall below statutory-plan requirements. If no education-facility land is specified, the renewal unit must meet its own demand; where this is objectively impossible, coordinated provision requires explicit approval from the education authority.	After deducting baseline conveyance, additional educational land may generate transferable floor area under uniform calculation rules.
Additional conveyance	Other public-interest land voluntarily conveyed by the project implementer	Expanded public-benefit provision is encouraged.	After deducting baseline conveyance, the additional land may generate transferable floor area under uniform calculation rules.

3 Evaluation of Public Value Capture through the Land Conveyance System

Shenzhen's urban-renewal land conveyance system has been applied citywide since 2010. After more than a decade of practice, it has produced significant results, and several studies have examined aspects of its operation [30-31]. Whether the system has genuinely achieved the objective of returning urban-renewal gains to the public, however, requires a more comprehensive assessment. The following analysis considers the three stages of value capture, value recycling, and value creation.

3.1 Effectiveness of value capture through land conveyance

By the end of 2023, more than 720 urban renewal projects in Shenzhen had received approval for renewal-unit plans, covering approximately 58 km² of demolition land. Of this area, around 21 km² had been conveyed for public-interest purposes, producing an overall land conveyance rate of 36.3% (Table 5). Since 2019, the annual scale of conveyed land in newly approved renewal units has increased steadily (Figure 3). The average conveyance rate has exceeded 40% for five consecutive years, and in 2022 it approached 46%, far above both the minimum policy requirement and the requirements of higher-level plans.

Against the dual constraints of limited government-owned land and restricted fiscal resources, the land conveyance system has mobilized cooperation among government, developers, and original owners to address shortages of land for public facilities and relieve pressure on public construction budgets. It has enabled a substantial backlog of public-service facilities to be addressed. In education, conveyed land has supported the construction or expansion of more than 760 kindergartens, primary schools, and lower secondary schools, as well as five senior secondary schools and three universities. In healthcare and elderly care, it has met the land needs of more than ten hospitals and nursing institutions. In transport, it has helped open blocked road links, improve the road network, provide 22 integrated bus depots, and deliver more than 370 bus terminals. It has also supported substations, water plants, and other municipal infrastructure, expanded public activity space, supplied large quantities of affordable housing, and substantially improved neighborhood quality and public-service capacity. In aggregate quantitative terms, the system has captured a significant share of public value and has delivered clear results.

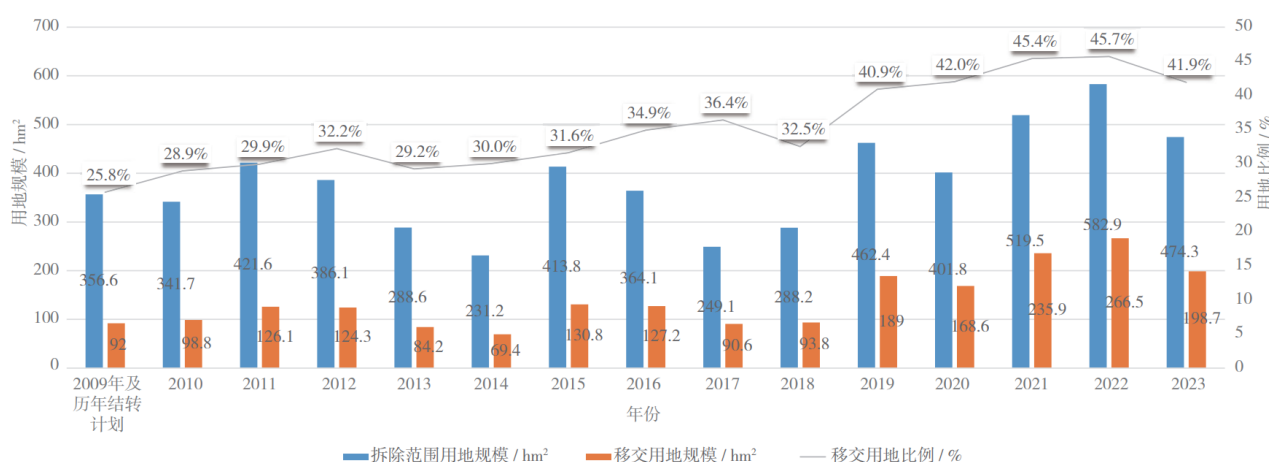


Figure 3. Annual scale of approved urban renewal units and conveyed land in Shenzhen

Table 5. Land conveyed by urban renewal units with approved plans in Shenzhen by the end of 2023

Land-use function	Conveyed land within demolition areas (ha)	Public-interest land in statutory plans (ha)	Difference from statutory plans (ha)	Difference from statutory-plan requirement (%)
Public administration and service facilities (GIC)	523.9	348.7	+175.3	+50.3

Land-use function	Conveyed land within demolition areas (ha)	Public-interest land in statutory plans (ha)	Difference from statutory plans (ha)	Difference from statutory-plan requirement (%)
Transport facilities (S)	1,115.7	922.2	+193.5	+21.0
Municipal utilities (U)	18.0	23.7	-5.8	-24.3
Green space and squares (G)	352.5	310.3	+42.2	+13.6
Other land (E)	53.4	82.2	-28.8	-35.1
Conveyed developable land, including residential, commercial, industrial, and new-industry uses	32.2	-	+32.2	-
Total	2,095.7	1,687.1	+408.6	+24.2

Note: “+” indicates an amount above the statutory-plan requirement; “-” indicates a shortfall. Source: compiled by the authors from Shenzhen’s urban-renewal project lists, planning registers, and spatial database.

3.2 Evaluation of the effectiveness of public value recycling

Although the amount of public-interest land conveyed through urban renewal greatly exceeds Shenzhen’s minimum policy requirements, closer examination of its composition reveals several weaknesses that may reduce the effectiveness of public value recycling.

3.2.1 Poor quality of some conveyed land

The average amount of land conveyed by an approved renewal unit is 2.8 ha. Such land, however, is often fragmented into small parcels dispersed within individual renewal units, limiting its ability to generate public benefits. Among conveyed green-space parcels in approved plans, 43% are smaller than 1,000 m². These fragments do not meet the Shenzhen Urban Planning Standards and Guidelines, which state that community parks should generally be no smaller than 2,000 m² and that linear green spaces should normally be at least 8 m wide. Many parcels are therefore unsuitable for use as meaningful community open space.

A similar problem appears in road conveyance. Some projects meet the required conveyed-land area by providing land that can only accommodate low-grade local streets or internal roads. Such provision may improve micro-circulation within a site but cannot widen major road sections, upgrade road hierarchy, or optimize the wider transport network. In the renewal unit shown in Figure 4, for example, three additional local streets were conveyed along a 410 m section of urban arterial road, in addition to one local street already required by the statutory plan. Although the conveyed road area increased, the contribution to network optimization was limited; the additional intersections may even reduce the operating efficiency of the arterial road.



Figure 4. Comparison of planned roads in a renewal-unit plan and the corresponding statutory plan

3.2.2 Structural imbalance in conveyed land

At the level of individual projects, most renewal units satisfy the public-facility land requirements of the statutory plan. Facilities that require larger sites and serve areas beyond a single project, however, are much more difficult to deliver. Approved renewal-unit plans can provide approximately 307,000 places in compulsory education - including primary, lower secondary, and nine-year schools - sufficient to serve a planned residential population of roughly 3.45 million. By contrast, the system falls far short in providing senior secondary schools, which require larger sites and are among Shenzhen's scarcest public facilities. Similar deficits appear in hospitals and elderly-care institutions (Table 6).

Table 6. Provision of welfare facilities compared with the Shenzhen Urban Planning Standards and Guidelines (2021)

Facility type	Number of facilities	Service capacity	Standard in the Shenzhen Guidelines	Meets standard?
Primary and lower secondary schools, including expansions	260	307,000 places	Primary: 80 places per 1,000 residents; lower secondary: 40 places per 1,000 residents	Yes
Senior secondary schools	5	3,000 places	20 places per 1,000 residents	No
Hospitals, including expansions	6	3,000 beds	4.5 beds per 1,000 residents	No
Nursing homes	6	1,300 beds	No specific requirement	-

Source: compiled by the authors from the Shenzhen Urban Planning Standards and Guidelines (2021) and approved urban renewal unit plans.

3.2.3 Regional mismatch between conveyed-land functions and local needs

Education facilities again provide a clear example. Across the city, approved renewal-unit plans can supply approximately 229,000 primary-school places and 78,000 lower-secondary places. In aggregate, this capacity meets the standards for the planned residential population and leaves a surplus. Once the data are disaggregated by district, however, clear spatial mismatches emerge (Table 7): some districts cannot meet primary-school demand generated within renewal units, while others face substantial shortages of lower-secondary places.

Table 7. Supply and demand for primary and lower-secondary school places in renewal plans across Shenzhen districts

District	Primary supply	Primary demand	Primary balance	Lower-secondary supply	Lower-secondary demand	Lower-secondary balance
Futian	17,435	10,882	+6,553	3,758	5,441	-1,683
Luohu	17,435	11,672	+5,763	2,430	4,931	-2,501
Nanshan	14,331	17,839	-3,508	5,809	7,407	-1,598
Yantian	3,375	5,308	-1,933	0	2,179	-2,179
Bao'an	33,745	24,541	+9,204	11,735	10,082	+1,653
Longgang	68,928	57,459	+11,469	26,316	23,294	+3,022
Longhua	29,121	18,284	+10,837	12,221	7,523	+4,698
Pingshan	21,622	15,953	+5,669	11,318	6,498	+4,820
Guangming	17,248	7,864	+9,384	2,500	3,188	-688
Dapeng New District	5,999	5,028	+971	1,666	2,026	-360
Total	229,239	174,830	+54,409	77,753	72,569	+5,184

3.2.4 Difficulty coordinating conveyed land across renewal units

Large public facilities such as senior secondary schools and hospitals generally require several renewal units to contribute land jointly. In practice, cross-unit conveyance is difficult because projects differ in land ownership, willingness to renew, building age, proportion of legally recognized land, financial feasibility, and implementation schedule. As a result, public value recycling at the scale of a broader area is often impossible.

In addition, renewal-unit boundaries frequently fail to align with the functional parcel boundaries defined in statutory plans. A single planned public-interest site may therefore be divided among several renewal projects, creating coordination and implementation difficulties. Road connectivity illustrates the problem: opening a planned arterial or sub-arterial road often requires contributions from multiple renewal units, but differences in development conditions and implementation timing prevent synchronized delivery, leaving planned links incomplete.

3.3 Welfare losses in the value-creation stage

By linking value creation, value capture, and value recycling within a single institutional process, the land conveyance system seeks to maximize the public return of land value gains. Nevertheless, welfare losses can still arise during value creation, meaning that not all gains are converted into public benefits.

3.3.1 Excessive conveyance rates may undermine the objectives of renewal

In addition to imposing a mandatory minimum and requiring implementation of statutory plans, the policy encourages project implementers to convey public-interest land beyond statutory requirements. The intention is to increase the amount of public value captured. Yet a very high conveyance rate leaves less developable land and requires more transferable floor area, directly pushing renewal-unit floor-area ratios upward. As more residents and employment are concentrated on each unit of developable land, demand for public services, transport, and municipal infrastructure in surrounding areas rises, intensifying pressure on the supply of public goods. Individual renewal units may satisfy their statutory conveyance obligations while local environmental improvements generate deterioration in living and employment conditions across a wider area.

3.3.2 Negative externalities generated by opportunistic behavior

Institutional imperfections create opportunities for profit-seeking developers to exploit policy loopholes and obtain higher development returns through low-quality or ineffective conveyance. As illustrated in Figure 4, a developer may add local streets within a project and convey road land beyond the statutory plan in order to change road-access conditions and the parcel-size coefficient, thereby increasing both baseline and transferable floor area^①. Yet such additional road land may do little to improve transport and may even have the opposite effect: higher development intensity increases external traffic pressure, while additional intersections reduce the efficiency of arterial and sub-arterial roads. The result is a negative externality rather than a public benefit.

4 Institutional Difficulties in Using Conveyed Land for Public Value Capture

Land conveyance is a non-tax land value capture instrument tied directly to urban-renewal projects. It creates a clear and immediate link between value creation and value capture and can make value recycling efficient and operationally convenient. Yet this strength is also a weakness. Many implementation problems arise from inherent limitations in the institutional design, creating several obstacles to the effective public return of renewal gains.

4.1 A universal capture mechanism cannot accommodate differentiated value-creation contexts

To improve operational efficiency, the system applies a comparatively simple and standardized rule to all projects, regardless of renewal difficulty, location, or the type of land being conveyed. Additional public-interest land is measured quantitatively, converted into transferable floor area at a prescribed ratio, and

concentrated on the project's developable parcels. This arrangement promotes universality and procedural fairness, but overlooks the complexity and diversity of urban space. Projects face very different value-creation contexts and therefore very different levels of difficulty in capturing and recycling value.

(1) Differences in existing development intensity. Under otherwise similar conditions, projects with higher existing development intensity have less potential for additional value creation than projects with lower intensity.

(2) Differences among project types. Under otherwise similar conditions, industrial-to-industrial renewal generally has lower value-creation potential than industrial-to-residential renewal.

(3) Differences in supporting facilities. Renewal projects in areas with severe shortages of public facilities have lower value-creation potential than projects in areas where facilities are already relatively complete.

When projects bear similar costs and contribute the same amount of land, differences in value-creation potential inevitably encourage profit-seeking developers to select the most favorable projects. Areas with excessively high existing intensity and urgent environmental problems may attract no interest; industrial-to-industrial renewal that would support economic upgrading may lack motivation; and districts with serious shortages of public services and infrastructure may find it difficult to attract developers despite pressing renewal needs.

4.2 A single quantitative capture indicator cannot guarantee the quality of value recycling

The land conveyance system specifies eligible land-use types, required areas, and a baseline proportion of public-facility land within each project. This relatively narrow quantitative indicator pays insufficient attention to the quality of the value being captured and therefore cannot ensure the quality of value recycling.

Under comparable conditions, conveying a complete site for a major public facility generates the same transferable floor area as conveying an equal amount of road land or fragmented green space. Yet the former is more costly to deliver and produces stronger positive externalities for the surrounding area, without yielding a corresponding increase in development benefits. From a cost-benefit perspective, developers are therefore likely to select leftover parcels, inexpensive local roads and green spaces, or facilities that also improve the development conditions and floor-area ratio of their own sites.

Furthermore, the system imposes few substantive constraints on additional public-interest provision beyond statutory-plan requirements. Excess contributions are still evaluated by a single quantity-based indicator and rewarded with floor-area incentives. This may produce low-quality value recycling and, at the larger spatial scale, a fallacy of composition in which individually compliant projects collectively generate an imbalanced public-facility system.

4.3 Project-bound capture instruments impose spatial limits on value recycling

Binding value capture to individual renewal projects is both the principal advantage of the land conveyance system and its inherent limitation. It gives public value recycling a clear spatial boundary. First, independently implemented projects have difficulty conveying land across renewal-unit boundaries and therefore cannot easily deliver large public facilities, as discussed above.

Second, project binding may undermine the continuity of value capture and recycling. An early project in an area can achieve its own value recycling while limiting the feasibility of value capture by later projects. In ordinary circumstances, the proportion of developable land in a renewal project determines its value gains and financial feasibility. At the scale of a district or planning area, however, the overall amount and share of developable land are subject to capacity constraints. As illustrated in Figure 5, if an early project occupies most of the area's developable land but includes no planned public-interest site, the developer is required under current rules to convey only the minimum land within that project. Subsequent renewal projects may then lack sufficient developable land to generate value, making it impossible to achieve public value capture across the entire area or an even larger spatial unit.

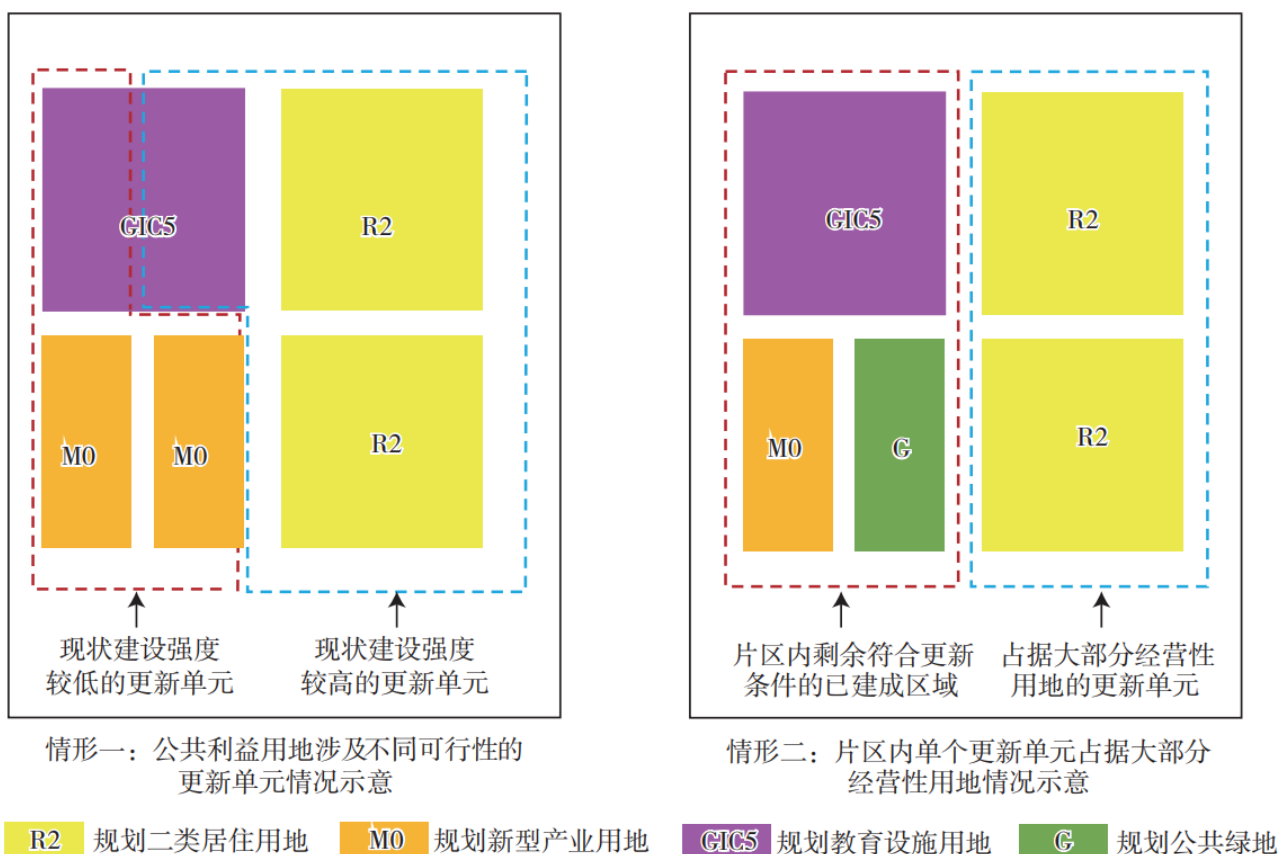


Figure 5. Spatial limitations on the effectiveness of public value recycling

Urban planning is a systemic undertaking concerned with the city as a whole, and the effects of planning adjustments are not confined to a single locality. Accordingly, land value gains generated by planning changes in urban renewal should not be returned only to the public interest of a specific project area; they should benefit a broader group.

At present, Shenzhen regulates public-interest provision in urban renewal mainly at two levels. At the macro level, citywide special renewal plans and annual plans set quantitative targets for livelihood facilities, education land, and school places and allocate these targets to districts. At the micro level, project approval examines whether each renewal unit implements the public-interest requirements of the statutory plan, whether parcel floor-area ratios exceed density-zone limits, and whether education facilities meet project-generated demand. In practice, these two levels are often disconnected. The area level lacks targeted transmission of citywide objectives and integrated planning coordination, which is a further structural weakness of the existing system.

5 Recommendations for Improving the Urban Renewal Land Conveyance System

5.1 Develop more refined value-capture instruments

The universal capture mechanism gives insufficient weight to differences in implementation difficulty, urgency, and public importance. More refined instruments are therefore needed. Special renewal plans should designate priority implementation areas according to citywide development objectives and public-facility needs, and should strengthen guidance for areas with major facility deficits and weak market incentives by adjusting requirements such as the proportion of legally recognized land and building-age thresholds. While preserving a minimum public-interest contribution, baseline conveyance standards should be differentiated by renewal type and density zone. Urban-village redevelopment, industrial-to-industrial renewal, industrial-to-residential renewal, and renewal of older residential compounds should be governed by classified and graded contribution standards.

5.2 Strengthen quality control over public value recycling

The quality of value recycling depends not only on the amount and function of conveyed land but also on parcel form, location, and the severity of local facility shortages. Shenzhen should develop methods for measuring and evaluating the quality of value recycling and use incentives to strengthen substantive outcomes. During plan approval, the likely public contribution of a conveyed site should be assessed systematically in terms of parcel integrity, functional type, and facility shortages in surrounding areas. Stronger incentives should be provided for land that produces clear improvements in public services but is difficult to assemble. For conveyed land beyond statutory-plan requirements, the system should restrict low-quality contributions and reward genuinely additional public benefits.

5.3 Strengthen area-level coordination of value recycling

The development schedules and spatial layouts of individual renewal projects often do not match the overall construction plans for urban public facilities. At the area level, Shenzhen should therefore improve the matching of benefits and responsibilities among renewal units and coordinate project sequencing and implementation pathways around the realization of the public interest. The demolition boundary and land-conveyance responsibilities of each project should be defined at the initial project-approval stage in light of the public-benefit tasks of the wider area, combining more and less profitable sites so as to avoid asymmetry between rights and obligations. Stronger coordination is also needed among standard units in territorial spatial planning, statutory plans, and urban renewal units, creating a spatial platform for the integrated development of multiple projects.

6 Conclusion

There is broad agreement in China and internationally that land value gains generated by urban renewal should be shared between property-rights holders and society. Ensuring that those gains are actually converted into public benefits, however, remains a global challenge. Developed Western countries have responded through diverse land value capture policies. China differs substantially from those countries, and the use of urban renewal as a comprehensive national strategy is relatively recent. Regional conditions also vary greatly, making it difficult in the short term to establish a nationwide fiscal and institutional system for returning redevelopment gains to public finance.

Cities must therefore continue to explore locally appropriate policy pathways within the existing national fiscal and tax framework. Shenzhen's urban-renewal land conveyance system is a valuable attempt to promote the public return of renewal gains through comprehensive institutional design and can also be understood as a Chinese adaptation of Western land value capture theory. Although the system has distinctive local characteristics, the theoretical and technical logic behind it, the problems revealed in practice, and the diagnosis of their institutional causes have broader relevance and can provide useful lessons for other cities.

Note

① According to the Shenzhen Urban Planning Standards and Guidelines (2021), a parcel's baseline floor area is affected by a road-access adjustment coefficient and is calculated as: $FA_{base} = FAR_{base} \times (1 - A1) \times (1 + A2) \times (1 + A3) \times S$, where FA is parcel floor area; FA_{base} is baseline floor area; FAR_{base} is the benchmark floor-area ratio for the density zone; A1 is the parcel-size adjustment coefficient; A2 is the surrounding-road adjustment coefficient; A3 is the metro-station adjustment coefficient; and S is parcel area. The Guidelines specify road-access coefficients of 0 for one-sided road frontage, +0.1 for two-sided frontage, +0.2 for three-sided frontage, and +0.3 for roads on all sides. In practice, project implementers can therefore create additional road frontage by conveying road land that subdivides a parcel, thereby increasing baseline floor area. Such additional road conveyance may raise development intensity without substantively meeting the area's public-facility needs.

References

- [1] MILL J. S. Principles of Political Economy with Some of Their Applications to Social Philosophy [M]. Trans. ZHAO Rongqian, SANG Bingyan, ZHU Yang. Beijing: The Commercial Press, 1991. [Chinese edition]
- [2] LI Yun, WEN Haoying, LUO Jia, et al. Policy evolution and practice for safeguarding the public interest from the perspective of public-goods provision: the case of urban renewal in Shenzhen [J]. Urban Planning Forum, 2024(2): 71-79. [in Chinese]
- [3] LIANG Yinlong. Mechanisms of public-interest capture and dissipation in urban renewal: a rent-gap optimization model based on the theory of the property-rights “public domain” [J]. City Planning Review, 2023, 47(4): 86-92. [in Chinese]
- [4] YANG Jing, QIN Bo. Urban renewal from the perspective of public value: practical dilemmas, theoretical logic, and governance pathways [J]. City Planning Review, 2024, 48(4): 25-33. [in Chinese]
- [5] XU Jian. Standards for identifying “special benefits” in the public return of development gains: an examination centered on U.S. litigation [J]. Administrative Law Review, 2008, 11: 457-496. [in Chinese]
- [6] HU Yingjie, LYU Bin. A theoretical study of the public return of planning gains [J]. Urban Planning International, 2016(3): 91-97. [in Chinese]
- [7] HU Yingjie, LYU Bin. Mechanisms and performance of benefit return in the renewal of industrial land in China [J]. Urban Development Studies, 2016(4): 32-38. [in Chinese]
- [8] WANG Yu. The development of theories and institutional practices for the public return of development gains: a comparative study of planning administration in the United States, the United Kingdom, and Japan [J]. Urban Planning Forum, 2008(6): 40-45. [in Chinese]
- [9] SMOLKA M. O. Implementing Value Capture in Latin America [R]. Cambridge, MA: Lincoln Institute of Land Policy, 2013.
- [10] SUZUKI H., MURAKAMI J., HONG Y. H., et al. Financing Transit-Oriented Development with Land Values: Adapting Land Value Capture in Developing Countries [M]. Washington, DC: World Bank, 2015.
- [11] KIM M. Upzoning and Value Capture: How U.S. Local Governments Use Land Use Regulation Power to Create and Capture Value from Real Estate Developments [M]. Cambridge, MA: Lincoln Institute of Land Policy, 2019.
- [12] MISZYSKI D. J. Special assessments in California: 35 years of expansion and restriction [M]//INGRAM G. K., HONG Y. Value Capture and Land Policies. Cambridge, MA: Lincoln Institute of Land Policy, 2012.
- [13] BOOTH P. A. The unearned increment: property and the capture of betterment value in Britain and France [M]//INGRAM G. K., HONG Y. Value Capture and Land Policies. Cambridge, MA: Lincoln Institute of Land Policy, 2012.
- [14] CROOK T. Planning obligations policy in England: de facto taxation of development value [M]//CROOK T., HENNEBERRY J., WHITEHEAD C. M. E. Planning Gain: Providing Infrastructure & Affordable Housing. Hoboken: John Wiley & Sons, 2016.
- [15] ZHANG Gengli. Toward tripartite partnership: the evolution of Western urban-renewal policy and its implications for China [J]. Urban Development Studies, 2004(4): 26-32. [in Chinese]
- [16] TIAN Li, XIA Jing. Land development rights and territorial spatial planning: governance logic, policy instruments, and practical application [J]. Urban Planning Forum, 2021(6): 12-19. [in Chinese]
- [17] ZOU Bing. From incremental planning to stock-based planning: theoretical interpretation and practical responses [J]. Urban Planning Forum, 2015(5): 12-19. [in Chinese]
- [18] ZHOU Guangkun, ZHUO Jian. The theoretical logic and institutional construction of transferable development rights and incentives in urban renewal [J]. Urban Planning Forum, 2023(3): 66-74. [in Chinese]
- [19] HE Fang, XIE Yi. Planning institutions and transaction mechanisms for floor-area-ratio bonuses and transfers: equalized development areas and equivalent exchange of spatial land value [J]. Urban Planning Forum, 2018(3): 50-56. [in Chinese]

- [20] WANG Ruobing. Institutional approaches to safeguarding the public interest in urban renewal in China [J]. *City Planning Review*, 2022(9): 115-122. [in Chinese]
- [21] YANG Jin, XU Chen. Breakthroughs and limitations in market-oriented urban renewal: a transaction-cost perspective [J]. *City Planning Review*, 2016(9): 32-38. [in Chinese]
- [22] ZHAO Yanjing, SHEN Jie. Value capture and wealth transfer: the underlying financial logic of urban renewal [J]. *Urban Planning Forum*, 2023(5): 20-28. [in Chinese]
- [23] LI Jihuan. An historical-institutionalist perspective on the evolution of Shanghai's urban-renewal system [J]. *Urban Planning Forum*, 2024(4): 84-89. [in Chinese]
- [24] LIANG Chen, ZHUO Jian. Problems, difficulties, and policy options in Shanghai urban renewal with a focus on public elements [J]. *Urban Planning Forum*, 2019(7): 142-149. [in Chinese]
- [25] TIAN Li, YAO Zhihao, GUO Xu, et al. Land redevelopment through the reconstruction of property rights: local practice and implications in the context of new urbanization [J]. *City Planning Review*, 2015, 39(1): 22-29. [in Chinese]
- [26] ZOU Bing. Practice, outcomes, and challenges of stock-based development: an evaluation of Shenzhen's urban-renewal implementation and further reflections [J]. *City Planning Review*, 2017, 41(1): 89-94. [in Chinese]
- [27] MIAO Chunsheng, ZOU Bing, ZHANG Yan. Market leadership and government regulation in urban renewal: new approaches in preparing Shenzhen's 13th Five-Year Urban Renewal Plan [J]. *Urban Planning Forum*, 2018(4): 81-87. [in Chinese]
- [28] LIN Qiang. Institutional arrangements and policy reflections on urban renewal: the case of Shenzhen [J]. *City Planning Review*, 2017, 41(11): 52-55. [in Chinese]
- [29] LIANG Ying, ZENG Peng. Evolution of the distribution mechanism for value gains from the renewal of existing industrial land in Beijing [J]. *Urban Planning Forum*, 2023(1): 69-73. [in Chinese]
- [30] YU Tao, LIN Tao. Externalities of conveyed land in the practice of Shenzhen's urban-renewal land conveyance system [C]//Urban Planning Society of China. *Proceedings of the 2020/2021 Annual National Planning Conference*. Beijing: China Architecture & Building Press, 2021. [in Chinese]
- [31] MIAO Chunsheng, SHUI Haoran, ZHANG Yan. Exploration of the off-site transfer mechanism for development rights in Shenzhen urban renewal [J]. *Planners*, 2023, 39(8): 95-101. [in Chinese]

Revised manuscript received: April 2025.

AI-assisted translation