

Micro Subdivision Housing Development in High-Density Inner Urban Areas of Bangkok: Legal Loopholes, Regulatory Adaptation, and Implications for Land Subdivision Policy

Yuwadee Siri

Department of Housing, Faculty of Architecture, Chulalongkorn University, Thailand

E-mail: yuwadee.s@chula.ac.th

Received 2026-04-29; Revised 2026-08-01; Accepted 2026-08-02

ABSTRACT

Small urban land parcels in the high-density inner-city areas of Bangkok are increasingly being developed into a new form of low-rise housing referred to in this study as Micro Subdivision Housing Development. These projects typically comprise fewer than ten subdivided plots and therefore proceed under the Building Control Act (2001) rather than the Land Development Act (2000). This study investigates how existing regulatory frameworks influence the emergence of this development pattern through a qualitative multiple case study of ten projects located in the Phaya Thai and Chatuchak districts. Documentary analysis, comparative legal analysis, and cross-case analysis were employed to compare the physical characteristics of the projects with statutory land subdivision requirements. The findings indicate that parcel geometry, rather than parcel area, is the principal constraint on inner-city residential development. Developers have responded by adopting alternative regulatory pathways and vertical building designs that maximize land-use efficiency while remaining compliant with existing legislation. The study also identifies an institutional mismatch between the Land Subdivision Act, the Building Control Act, and the Bangkok Comprehensive Plan, resulting in regulatory gaps relating to infrastructure provision and long-term community planning. The findings suggest that Micro Subdivision Housing Development should be understood as a legally compliant adaptive response to changing urban land conditions rather than as informal or illegal development. They further indicate that the current regulatory framework, originally designed for large-scale suburban housing estates, no longer adequately reflects the realities of high-density inner-city development. Accordingly, the study recommends reviewing the existing regulatory framework by introducing standards specifically tailored to small-scale urban housing developments and strengthening the integration of land subdivision, building control, and urban planning regulations.

Keywords: land subdivision regulation, micro subdivision, urban housing development, planning policy, inner-city Bangkok

INTRODUCTION

Urban Land Market, Housing Demand, and Land Scarcity

Inner-city areas of major metropolitan cities worldwide, including Bangkok, are facing increasing challenges in housing development driven by rapid urbanization, economic growth, and rising demand for residential properties in central urban locations. At the same time, land a finite and non-renewable resource essential for real estate development has become increasingly scarce. As a result, land values in inner-city areas have risen steadily, particularly in locations benefiting from major investments in transportation infrastructure and public transit systems, making land acquisition one of the most significant components of residential development costs (Alonso, 1964; Evans, 2004; O'Sullivan, 2019).

In Bangkok, rapid urban transformation has been closely associated with continuous investment in transportation infrastructure, particularly mass transit systems, which has substantially reshaped land-use patterns and increased land values throughout the inner city (Denpaiboon et al., 2018). Despite escalating land prices, demand for low-rise housing in central urban locations remains strong because homebuyers continue to value proximity to employment centers, public transportation, and urban amenities while seeking larger living spaces and higher residential quality than are typically available in condominium developments (Srisomboon & Charnwasununt, 2020; Eiamsamang, 2023).

The continuous increase in land values, combined with long-term urban development, has significantly reduced the availability of large development sites within the inner city. Most remaining developable land consists of small parcels created through land inheritance, partial land sales, and incremental urban development. These processes have produced fragmented land ownership patterns, resulting in narrow, deep, and irregularly shaped parcels that are generally unsuitable for conventional large-scale residential development despite their advantageous locations and existing infrastructure (Suwanwallaikorn, 2022).

Under these conditions, real estate developers have increasingly adapted their development strategies to utilize fragmented and small urban land parcels more efficiently while maintaining project feasibility and responding to the sustained demand for low-rise housing in inner-city locations.

Legal and Regulatory Framework

Although low-rise residential development on small urban land parcels has become increasingly common in Bangkok's inner-city areas, understanding this phenomenon requires consideration of the regulatory framework governing land development. The Bangkok Comprehensive Plan establishes land-use and development-intensity controls applicable to the study area (Ministerial Regulation Enforcing the Comprehensive Plan of Bangkok Metropolis, 2013). Residential development is also governed by relevant building regulations, including Ministerial Regulation No. 7 (1974). Requirements concerning setbacks, open spaces, access, and other physical standards are prescribed by Ministerial Regulation No. 55 (2000). In particular, the Land Development Act. B.E.2543 (2000), the Building Control Act, and the Bangkok Comprehensive Plan collectively establish the legal standards that regulate land subdivision, building construction, and urban land use.

The primary objective of the Land Development Act is to protect purchasers of land and housing by requiring subdivision projects to provide adequate infrastructure, including internal roads, public utilities, open spaces, and common facilities in accordance with statutory standards (Regulations on Land Subdivision, 1987; Regulations on Land Subdivision for Residential and Commercial Purposes, 2022). These requirements are well suited to large-scale residential developments located on sufficiently sized and relatively regular land parcels, where infrastructure can be systematically planned and constructed. Such development characteristics are commonly found in suburban expansion areas.

In contrast, the Bangkok Comprehensive Plan promotes intensive urban development in inner-city areas through relatively high Floor Area Ratio (FAR) allowances, reflecting the capacity of these locations to accommodate higher development densities and supporting the principle of Highest and Best Use. However, land subdivision regulations continue to emphasize physical standards such as minimum lot dimensions, frontage width, plot depth, and internal road requirements, all of which were originally developed based on assumptions associated with conventional suburban subdivision projects.

This situation suggests that the principal challenge does not arise from deficiencies in the Land Development Act (2000), itself, but from the changing urban context in which the legislation now operates. Rapid urban transformation, fragmented land ownership, and the declining availability of large development sites have created conditions that differ substantially from those envisaged when the regulatory framework was originally established. Consequently, standards that were appropriate for large-scale suburban developments have become increasingly difficult to apply to small urban land parcels, creating a growing mismatch between the development potential of inner-city areas and the regulatory framework governing land subdivision.

Micro Subdivision Housing Development and the Research Problem

Within this regulatory context, real estate developers have adapted their development strategies to accommodate both the physical constraints of inner-city land parcels and the requirements of the existing legal framework. Their objective is to maximize land-use efficiency while maintaining the economic viability of residential projects and complying with applicable regulatory requirements.

Under the Land Development Act (2000), residential developments involving the subdivision of ten or more land parcels are subject to the land subdivision approval process and must comply with statutory requirements relating to internal roads, public utilities, common

facilities, and other infrastructure standards. In contrast, developments comprising fewer than ten subdivided parcels do not fall within the scope of the Act and may instead proceed through the building permit process under the Building Control Act (2001), subject to the relevant building regulations.

Within this legal framework, some developers have designed projects containing fewer than ten land parcels and implemented them through the building permit approval process. This development approach enables the efficient use of small and physically constrained urban sites while remaining consistent with the regulatory pathways established under existing legislation.

In this study, this form of development is referred to as Micro Subdivision Housing Development, defined as low-rise residential development on small urban land parcels where the number of subdivided plots remains below the statutory threshold requiring approval under the Land Allocation Act. Consequently, these developments are implemented primarily through the building permit process rather than the land subdivision approval process. This development pattern reflects developers' adaptation to both urban land market constraints and the prevailing regulatory framework in order to utilize scarce inner-city land more efficiently while continuing to satisfy demand for low-rise housing.

Although Micro Subdivision Housing Development has significantly expanded housing opportunities and improved the utilization of small urban land parcels, it also raises important planning and regulatory questions. Because these developments are not subject to the Land Allocation Act, they are not required to provide certain infrastructure and community facilities that are mandatory for formally approved subdivision projects, including internal roads, common areas, some categories of public utilities, drainage systems, and open spaces intended to support long-term community development.

While the buildings themselves remain subject to the terms of the Building Control Act, including structural safety, fire safety, and engineering standards, developments implemented outside the land subdivision approval process raise broader questions regarding infrastructure adequacy, emergency vehicle access, utility provision, drainage capacity, and the cumulative

impacts of incremental development on the long-term quality and sustainability of the urban environment. Localized flooding in Bangkok further demonstrates how inadequate drainage and fragmented urban development can increase environmental vulnerability (Limthongsakul et al., 2017).

Research Significance and Objectives

Despite the growing prevalence of small-scale residential developments in Bangkok's inner-city areas, limited research has examined how contemporary urban land market conditions, fragmented land ownership, and existing regulatory frameworks collectively influence this emerging development pattern. Previous studies have primarily focused on land subdivision regulations, housing markets, or urban planning as separate issues, while insufficient attention has been given to the interaction between physical land constraints, regulatory pathways, and development outcomes in high-density urban environments.

Accordingly, this study aims to investigate the characteristics of Micro Subdivision Housing Development in the inner-city areas of Bangkok. Specifically, the study seeks to: (1) examine the physical characteristics and development patterns of Micro Subdivision Housing projects; (2) analyze the relationships between land subdivision regulations, building control regulations, and urban planning regulations that influence this form of development; (3) evaluate the implications of the current regulatory framework for land-use efficiency, housing development, and urban infrastructure; and (4) propose policy recommendations for improving the regulatory framework governing residential development in high-density inner-city areas.

Research Gap and Contribution

Despite a growing body of studies on urban housing demand and the adaptation strategies of real estate developers in Bangkok, existing research has generally focused on broader housing market trends, consumer preferences, urban expansion, and conventional forms of

residential development. Previous research has examined appropriate sub-plot sizes for projects below the statutory land-allocation threshold (Siri, 2026). Relatively little attention has been given to small-scale subdivision-type housing projects that intentionally remain below the legal threshold for formal land subdivision approval, especially in dense inner-city contexts. This study differs from earlier research in three important ways. First, rather than examining low-rise housing only from a market or typological perspective, it focuses specifically on the regulatory mechanism that enables this form of development to emerge. In particular, it investigates how developers use the gap between land subdivision law and building control law to produce housing on constrained urban land. Second, while previous studies often discuss fragmented land as a development constraint, they do not sufficiently explain how such constraints are translated into specific project forms, design decisions, and legal development pathways. Third, existing literature rarely addresses the planning and policy implications of this emerging development pattern, particularly its effects on infrastructure provision, urban safety, accessibility, and long-term neighborhood sustainability.

The key research gap lies in the absence of an integrated analysis linking urban land fragmentation, developer strategies, legal exemptions, and the physical form of micro subdivision-type housing projects in Bangkok's inner-city areas. There is also limited empirical evidence showing how these projects operate in practice, what physical characteristics they share, and why they have become increasingly common under current land and housing market conditions. This research is therefore necessary because it helps explain a form of urban housing production that has become increasingly visible in practice but remains underexamined in academic literature and insufficiently addressed in planning regulation. By focusing on actual case study projects, this research can generate evidence on how developers respond to land scarcity and regulatory rigidity, while also revealing the unintended consequences of legal thresholds that allow certain projects to avoid subdivision requirements. In doing so, the study contributes to a better understanding of how formal regulation and informal adaptation interact in the production of inner-city housing.

Relevance for Future International Research

The significance of this research extends beyond Bangkok. Many large cities face similar conditions—rising land prices, fragmented inner-city plots, demand for compact low-rise housing, and planning regulations originally designed for larger and more regular parcels. Comparative evidence from Asian metropolises also demonstrates the importance of adapting housing-development planning to changing urban conditions (Magluntong et al., 2025). The findings can therefore contribute to international debates on small-lot infill housing, regulatory flexibility, urban land fragmentation, and the governance of grey-zone development. The study also opens several directions for further research: comparative analysis of Bangkok and other metropolitan cities where small-scale housing emerges through regulatory loopholes; investigation of regulatory reform and planning resilience where subdivision and zoning laws no longer reflect high-density land fragmentation; and examination of the relationship between housing affordability, urban form, and infrastructure risk, particularly in rapidly urbanizing cities of the Global South. In this way, the research positions Bangkok as a meaningful case in international urban studies and offers practical lessons for planners, policymakers, and housing researchers working in similarly constrained metropolitan environments. This perspective may also support broader comparative research on complex development patterns and urban transformation in the Global South (Puggioni & Tontisirin, 2025).

LITERATURE REVIEW

Urban Land Market and Efficient Land Use

Urban land markets play a fundamental role in shaping patterns of land use, investment, and residential development. As cities expand and economic activities become increasingly concentrated, competition for well-located land intensifies while the supply of developable land

remains inherently limited. This imbalance drives continuous increases in land values, particularly in inner-city areas where accessibility, infrastructure, and public transport provide substantial locational advantages (Evans, 2004; O'Sullivan, 2019).

Rising land prices, combined with fragmented land ownership and physical constraints, reduce the availability of large development sites and increase development costs. At the same time, housing demand continues to grow because households increasingly prefer locations that provide convenient access to employment, public transportation, and urban services. However, housing supply is constrained not only by land scarcity but also by planning regulations and site limitations, thereby reducing housing affordability, particularly within high-density urban areas (O'Sullivan, 2019).

These urban market dynamics are explained by Bid Rent Theory, which argues that land values increase with accessibility to urban centers because highly accessible locations generate greater economic returns (Alonso, 1964). Consequently, developers are compelled to maximize the economic productivity of urban land in order to offset increasing acquisition costs. This principle is closely associated with the concept of Highest and Best Use, which defines optimal land use as the legally permissible, physically feasible, financially viable, and maximally productive use of a site (Appraisal Institute, 2022).

The pursuit of efficient land utilization has become a central objective of contemporary urban planning. Rather than encouraging continued suburban expansion, planning policies increasingly emphasize Efficient Land Use, which seeks to maximize the value of existing urban land while reducing infrastructure costs and limiting urban sprawl (Jenks et al., 1996; Carmona, 2021). This objective is commonly implemented through Compact Development, Urban Intensification, and Urban Redevelopment, all of which promote higher development intensity within already urbanized areas while making more effective use of existing infrastructure (Burton, 2000; Carmona, 2021).

An important planning instrument supporting these objectives is the Floor Area Ratio (FAR), which regulates development intensity according

to the carrying capacity of urban infrastructure and planning policies. Higher FAR values generally encourage more intensive land use in areas with sufficient transportation and public services, thereby reinforcing compact urban growth (Carmona, 2021).

Land Governance and Regulatory Framework

Land governance provides the institutional framework through which land use, urban development, and infrastructure provision are regulated. GIS-based expert systems can also support the investigation and interpretation of land-use designations within this regulatory framework (Limsupreeyarat et al., 2017). Through planning regulations, legal standards, and administrative procedures, land governance seeks to balance private development interests with broader public objectives, including orderly urban growth, infrastructure adequacy, and sustainable community development (Needham, 2006; Adams & Tiesdell, 2013). In this context, land subdivision regulations serve not only as legal controls over parcel division but also as policy instruments that establish minimum standards for roads, public utilities, drainage systems, and public spaces required for residential developments.

These principles are closely associated with the concept of self-contained communities, which emphasizes that residential developments should provide adequate infrastructure and essential services within the project itself rather than relying solely on surrounding urban facilities. This planning approach became widely adopted during periods of suburban expansion, when new residential areas were developed in locations with limited existing infrastructure (Adams & Tiesdell, 2013).

In Thailand, these planning principles are embodied in the Land Development Act (2000) and the regulations issued by the Central Land Allocation Board, which prescribe minimum standards for plot size, road width, public utilities, and other infrastructure requirements. Collectively, these regulations reflect the objective of ensuring that land subdivision

projects contribute to the creation of sustainable and well-serviced residential communities.

However, regulatory systems do not always evolve at the same pace as urban development. Legal and governance scholars describe this phenomenon as regulatory lag, whereby regulatory frameworks continue to reflect historical development conditions despite significant changes in economic, social, and spatial contexts (Brownsword et al., 2017). Bangkok's prescriptive building regulations similarly present challenges in responding to contemporary development conditions, indicating the need for regulatory modernization (Mannontaratana et al., 2025). This condition is often reinforced by institutional inertia, which slows the adaptation of regulatory systems even when empirical evidence demonstrates that urban development patterns have fundamentally changed.

Developer Behavior and Regulatory Adaptation

Property development theory views real estate development as more than a physical or financial process; it is a strategic decision-making process shaped by the interaction between land market conditions, site characteristics, market demand, financial feasibility, and regulatory constraints. Developers therefore play an active role in evaluating both development opportunities and limitations before determining project scale, design, and implementation strategies (Healey, 1991; Ball, 1998).

Within this process, the regulatory environment extends beyond statutory requirements to encompass technical standards, approval procedures, administrative practices, documentation requirements, compliance costs, approval timeframes, and the discretionary interpretation of regulations by public authorities. These institutional factors directly influence project feasibility, development costs, risks, and delivery schedules, while recent evidence from Thailand's public construction sector further demonstrates that administrative outcomes can be shaped by interacting project, procedural, and institutional factors (Kaewmorachoen et al., 2026). Consequently, developers must evaluate

regulatory requirements alongside the economic and physical feasibility of a project when making development decisions (Needham, 2006; Adams & Tiesdell, 2013).

Where regulatory systems provide multiple approval mechanisms for similar forms of development, the concept of regulatory pathways explains how developers may choose among alternative approval routes that differ in regulatory requirements, administrative procedures, and compliance obligations. The selection of a regulatory pathway therefore becomes an integral component of project planning rather than merely an administrative step following project design (Needham, 2006).

From this perspective, developer behavior can be understood as a process of strategic decision-making aimed at balancing economic returns, development risks, project timelines, site constraints, and regulatory obligations. Such decisions influence not only site selection and project configuration but also building typology, development intensity, and the choice of regulatory approval processes most appropriate to the characteristics of a project (Healey, 1991; Ball, 1998).

Accordingly, modifications to project scale, design, or approval strategies should not necessarily be interpreted as attempts to evade or circumvent legal requirements. Where alternative approval mechanisms are explicitly permitted within the legal framework, such decisions are more appropriately understood as adaptation to regulation, reflecting developers' capacity to respond strategically to the opportunities and constraints created by the regulatory system (Adams & Tiesdell, 2013).

Urban Informality, Gray Space, and Legal Geography

The concept of urban informality challenges the conventional distinction between formal and informal urban development by arguing that urban space is produced through a spectrum of legal, institutional, and regulatory arrangements rather than a simple legal–illegal dichotomy. Informality therefore extends beyond informal settlements or unauthorized construction to

encompass a wide range of development practices shaped by uneven regulation, selective enforcement, and evolving governance systems (Roy, 2005)

From this perspective, urban development is better understood as a continuum rather than as two mutually exclusive categories. Some developments may comply with one regulatory framework while remaining outside another, whereas others may satisfy building regulations but not fall within the institutional scope of land subdivision legislation. Consequently, the legal status of urban development is often contingent upon the interaction between multiple regulatory systems and administrative approval mechanisms.

This continuum is further conceptualized through gray space, which describes forms of development situated between full legal recognition and outright illegality. Gray spaces emerge where governments tolerate, partially regulate, or selectively enforce planning and development controls, allowing certain forms of development to persist despite their ambiguous legal status (Yiftachel, 2009b). Rather than representing spaces beyond the law, gray spaces are produced through overlapping regulations, fragmented governance, and inconsistencies in legal interpretation.

Such conditions are closely associated with semi-formality, in which developments receive legal authorization in some respects while remaining outside the intended scope or objectives of broader regulatory systems. Unlike illegal development, semi-formal projects operate through legally recognized procedures but produce spatial outcomes that were not originally anticipated by existing regulatory frameworks.

These circumstances often arise from regulatory gaps, where different legal instruments govern separate aspects of urban development without providing an integrated framework. Land subdivision, building construction, land use planning, and infrastructure provision are frequently regulated under separate legislative systems, creating situations in which developments may comply with one set of regulations while remaining outside the oversight intended by another. As a result, issues relating to infrastructure provision, accessibility, and long-term community management may not be

addressed to the same extent as in formally regulated subdivision developments.

The concept of legal geography provides a broader theoretical explanation by emphasizing the reciprocal relationship between law and space. Law is not merely a collection of legal rules. Rather, it actively shapes, organizes, and regulates urban space, while the physical and social characteristics of places simultaneously influence how laws are interpreted and implemented. Regulatory effectiveness therefore depends not only on legal provisions but also on the spatial conditions within which those provisions operate.

This relationship becomes particularly evident in areas characterized by urban fragmentation, where historical land subdivision, inheritance, incremental land transactions, and piecemeal urban development have produced small, irregular parcels served by narrow access roads and constrained infrastructure (Menakanit et al., 2022). Regulatory standards originally designed for large-scale greenfield developments may therefore become difficult to implement within already urbanized inner-city environments.

Bangkok provides a representative example of this condition. Research in Nang Loeng also demonstrates the importance of urban policies that respond to Bangkok's specific social, cultural, and spatial contexts (Marome et al., 2023). Much of its inner urban fabric has evolved through incremental subdivision, narrow alley-based development, and fragmented land ownership, resulting in urban environments dominated by small plots, limited road widths, and fixed infrastructure networks. These spatial characteristics often constrain compliance with conventional land subdivision standards while allowing smaller residential projects to proceed through alternative regulatory mechanisms under building control legislation.

Comparable patterns have been observed in many rapidly urbanizing cities, where urban transformation has outpaced the evolution of regulatory systems. International studies suggest that semi-formal development emerges not because regulations are absent, but because multiple legal systems overlap, regulatory enforcement varies, and developers adapt to existing institutional constraints (McFarlane, 2012; Roy, 2005 ; Yiftachel, 2009b).

Integrated Literature Review and Theoretical Framework

Based on the preceding literature, this study integrates four complementary theoretical perspectives to explain the emergence and characteristics of Micro Subdivision Housing Development in Bangkok's inner urban areas.

The first perspective, Urban Land Market and Efficient Land Use, explains how rising land values, limited land availability, fragmented land ownership, and continuing demand for low-rise housing create pressure for more intensive and economically efficient use of small urban plots. Concepts such as bid rent, highest and best use, housing affordability, compact development, and urban intensification provide the economic and spatial basis for understanding why developers seek to maximize usable floor area and housing output within constrained inner-city sites.

The second perspective, Land Governance and Regulatory Framework, examines how planning regulations, land subdivision controls, building standards, and administrative approval systems shape development possibilities. Although these regulatory mechanisms are intended to ensure adequate infrastructure, accessibility, and community quality, they may retain assumptions derived from large-scale suburban development. Regulatory lag and institutional inertia can therefore create a mismatch between established legal standards and the physical conditions of contemporary inner-city land development.

The third perspective, Developer Behavior and Regulatory Adaptation, explains how developers respond strategically to market conditions, site constraints, financial risks, and regulatory requirements. Developers do not merely comply passively with regulations but assess alternative project configurations and regulatory pathways when determining project size, building typology, development intensity, and approval strategy. Micro subdivision projects may therefore be interpreted as outcomes of strategic adaptation to the opportunities and limitations embedded within the existing regulatory environment.

The fourth perspective Urban Informality, Gray Space, and Legal Geography explains the ambiguous regulatory position of developments that comply with certain legal requirements while

remaining outside the intended scope of other regulatory systems. These projects are neither wholly informal nor fully regulated as formal land subdivisions. Instead, they occupy a semi-formal or gray position produced by overlapping laws, regulatory gaps, fragmented governance, and the spatial realities of small plots, narrow access roads, and historically fragmented urban land structures.

Together, these perspectives form an integrated analytical framework in which urban land conditions generate development pressure, regulatory structures establish both constraints and alternative pathways, developers respond through strategic adaptation, and the resulting projects occupy particular legal and spatial positions within the city. The framework therefore enables Micro Subdivision Housing Development to be examined, not as an isolated form of regulatory avoidance, but as the product of interactions among economic pressures, institutional arrangements, development decisions, and the physical structure of the existing city.

METHODOLOGY

Research Design

This study adopts a qualitative research approach within a socio-legal research framework to examine the relationship between land subdivision regulation and the actual forms of housing development emerging in Bangkok's inner urban areas. Rather than treating law solely as a body of statutory provisions, the study considers it a governance mechanism that shapes developer decision-making, land-use practices, and urban development under contemporary market and spatial constraints.

A qualitative approach is appropriate because the study seeks to explain how and why a particular form of housing development has emerged within the existing legal framework, rather than measure statistical relationships among variables. The analysis therefore focuses on the contextual interaction among the urban land market, regulatory systems, planning controls, and developer behavior.

The study employs a multiple case study design to examine housing projects that share common characteristics but differ in their physical conditions and regulatory contexts. This design enables systematic comparison across projects, facilitates the identification of recurring development patterns, and allows common legal and regulatory issues to be traced across cases. The use of multiple cases also strengthens the credibility of the findings by allowing patterns to be corroborated across different projects.

The analytical framework comprises three principal methods. First, documentary analysis is used to examine legislation, planning regulations, development standards, and project documents. Second, comparative legal analysis is applied to compare the physical characteristics of each project with the requirements of the Land Development Act (2000), the Building Control Act, the Bangkok Comprehensive Plan, and other relevant regulations. Third, cross-case analysis is used to identify recurring development patterns, common regulatory issues, and shared forms of developer adaptation under the current legal framework.

Within this research design, each housing project is treated as the outcome of interactions among land market conditions, regulatory structures, and developer decisions, rather than being assessed solely in terms of compliance with individual legal provisions. The analysis therefore integrates legal, physical, and planning dimensions to evaluate whether the current regulatory framework remains appropriate for contemporary housing development in Bangkok's inner-city areas.

The research process consisted of four main stages: (1) research design, (2) case selection, (3) data collection, and (4) data analysis.

Case Selection Process

This study employed purposive sampling within a multiple case study design to select housing projects that clearly represent the characteristics of Micro Subdivision Housing Development. The objective was not to obtain a statistically representative sample, but to identify information-rich cases that provide meaningful insights into the phenomenon under investigation.

The case selection process began with the compilation of 82 low-rise housing projects launched in Bangkok and its metropolitan region between 2018 and 2024. Project information was obtained from the Real Estate Information Center (REIC), the Government Housing Bank, developers' databases, and publicly available information published on project websites.

Projects were then screened using predefined selection criteria to identify cases that aligned

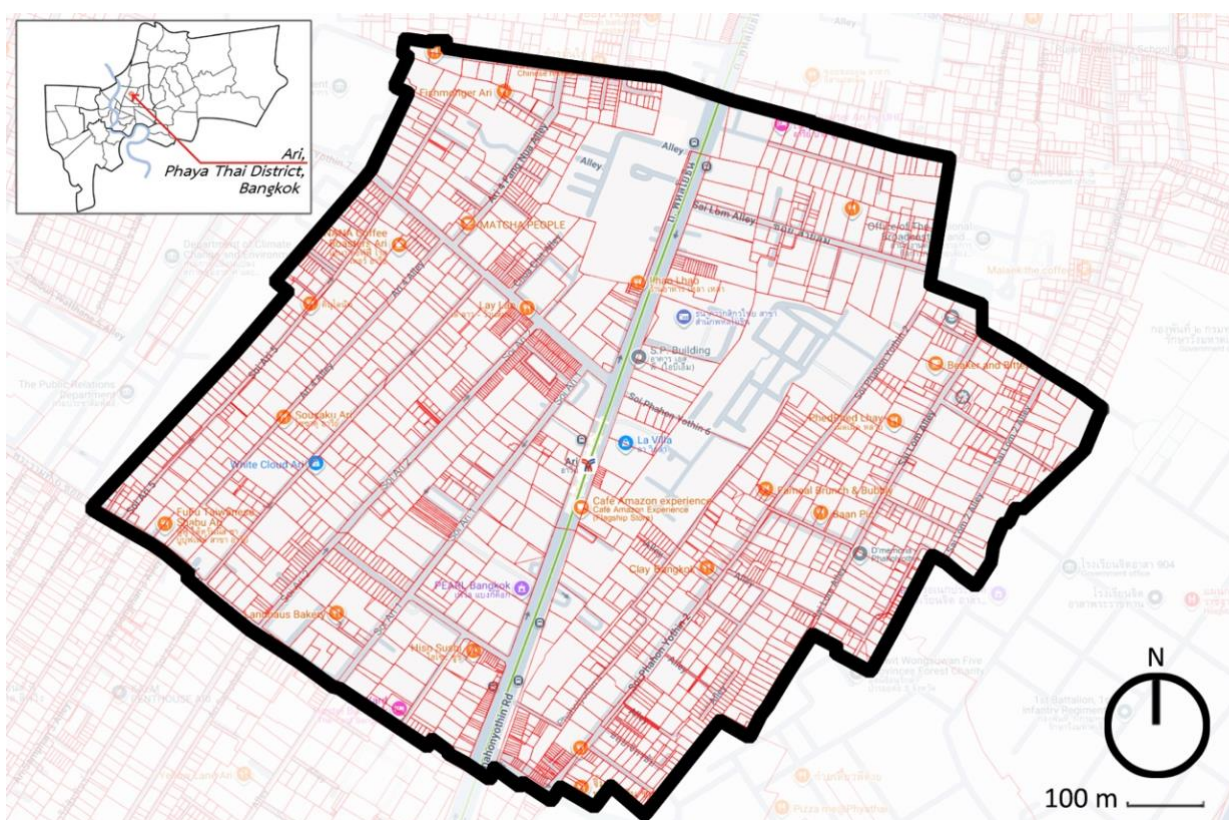
with the objectives of the study. The selection process consisted of four sequential stages: (1) project identification, (2) screening of projects located in Bangkok's inner urban areas, (3) eligibility assessment based on the established criteria, and (4) final case inclusion.

Figure 1. Spatial distribution of land parcels in the Ari area, Phaya Thai District, Bangkok.

Source: Information Technology Bureau, Department of Lands (2026).

Figure 1

Spatial Distribution of Land Parcel Patterns in the Ari Area, Phaya Thai District, Bangkok



Note. Illustrating fragmented and irregular land ownership resulting from incremental urban development. Adapted from *Study and analysis of comprehensive plan measures to promote development in Bangkok's inner and middle urban areas* (Final report), by Chotijinda Consultants Co., Ltd, Department of City Planning, Bangkok Metropolitan Administration, 2016. Copyright 2016 by Bangkok Metropolitan Administration.

Table 1

Distribution of Land Parcels by Parcel Size in the Ari Area, Phaya Thai District, Bangkok

Land Parcel Size (sq.wah)	Number of Parcels	Percentage (%)	Area (sq.wah)	Percentage (%)
Very Small (0–20)	244	15.01	3,316.91	1.39
Small (21–50)	447	27.49	14,977.30	6.29
Medium (51–100)	294	18.08	21,504.99	9.03
Large (101–400)	530	32.60	103,710.92	43.53
Very Large (401–2,000)	107	6.58	66,731.25	28.01
Extra Large (Over 2,000)	4	0.25	27,996.22	11.75
Total	1,626	100.00	238,237.60	100.00

Note. Adapted from *Study and analysis of comprehensive plan measures to promote development in Bangkok's inner and middle urban areas* (Final report), by Chotijinda Consultants Co., Ltd, Department of City Planning, Bangkok Metropolitan Administration, 2016. Copyright 2016 by Bangkok Metropolitan Administration.

The screening process revealed that projects exhibiting the characteristics of Micro Subdivision Housing Development were concentrated in the Phaya Thai and Chatuchak districts. These districts represent high-density inner-city areas characterized by high land values, fragmented land ownership, and significant constraints related to plot size and configuration. Ongoing urban development has substantially reduced the availability of large development sites, leaving predominantly small, irregularly shaped, or remnant land parcels that present considerable challenges for conventional land subdivision under the Land Subdivision Act.

Table 1 presents the distribution of land parcels by parcel size in the Ari area, Phaya Thai District. The area comprises 1,626 land parcels of varying sizes, with small and medium-sized parcels accounting for the majority of individual parcels, while larger parcels constitute most of the total land area. This fragmented parcel structure is representative of Bangkok's inner urban areas and provides an appropriate setting for investigating Micro Subdivision Housing Development.

Six criteria were applied to select the final case studies: (1) the project is a low-rise residential development; (2) it is located within Bangkok's inner urban area; (3) it involves the subdivision of land for residential development but does not require approval under the Land Development

Act (2000), (4) its physical characteristics and project documentation are accessible for verification; (5) sufficient information is available regarding the building permit process and applicable legal requirements; and (6) adequate data are available to support comparative analysis across cases.

Following the screening process, ten case studies were selected, comprising seven projects in Phaya Thai District and three projects in Chatuchak District.

The selected cases were not intended to represent all housing developments in Bangkok. Instead, they were chosen because they exemplify the common characteristics of Micro Subdivision Housing Development under contemporary land market conditions, physical site constraints, and the existing regulatory framework. These cases therefore provide robust empirical evidence for the subsequent legal and comparative analyses.

Data Collection

Data were collected from multiple sources of evidence to capture the physical, legal, planning, and market dimensions of Micro Subdivision Housing Development. A data triangulation approach was employed to enhance the reliability and validity of the research findings by cross-

verifying information obtained from different sources.

Both primary and secondary data were collected and systematically verified through the following sources.

Project Information. Information on project characteristics was obtained from project brochures, marketing materials, developers' websites, architectural drawings, and site layout plans. These documents provided data on housing typology, number of dwelling units, project area, plot size and configuration, building layout, internal circulation, and land-use characteristics.

Spatial Data. Spatial information was collected using Google Earth, Google Maps, and Google Street View to examine existing site conditions, plot characteristics, access road widths, transportation connectivity, and the surrounding urban context. These data were also used to verify the accuracy of information obtained from project documents.

Legal and Planning Documents. The legal analysis was based on the Land Development Act (2000), the Building Control Act, relevant ministerial regulations, notifications issued by the Central Land Allocation Committee, the Bangkok Comprehensive Plan, and applicable land-use regulations. These documents served as the legal framework for comparing the physical characteristics of each case study with the statutory requirements governing residential development.

Property Market Data. Information on housing market conditions was compiled from the Real Estate Information Center (REIC), the Government Housing Bank, and publicly available information released by project developers. These data were used to examine housing market conditions, development trends, and the competitive environment within the study area.

To ensure data quality, information obtained from different sources was systematically cross-checked for consistency before being incorporated into the comparative analysis. Physical characteristics, spatial information, legal documents, and market data were examined collectively to strengthen the robustness of the findings. In addition, the interpretation of key

building control regulations and legal issues was reviewed through consultation with specialists in building regulation, including experts from the Engineering Institute of Thailand and building control engineers from the Bangkok Metropolitan Administration.

Data Analysis

Data analysis followed a qualitative multiple case study approach that integrated physical, legal, and comparative analyses to examine the relationships among urban land characteristics, regulatory requirements, and the forms of housing development observed in the case studies.

The analytical process consisted of three sequential stages.

Stage 1: Within-case Analysis. Each case study was first examined independently to establish a comprehensive understanding of its individual characteristics. The analysis focused on key physical attributes, including plot size and configuration, number of dwelling units, access road width, building layout, parking provision, building height, and development density. These characteristics were then assessed against the relevant legal requirements of the Land Development Act (2000), the Building Control Act, and the Bangkok Comprehensive Plan to evaluate the regulatory context of each project.

Stage 2: Comparative Legal Analysis. The physical characteristics of each project were systematically compared with the applicable legal and planning requirements to examine the relationship between development outcomes and the existing regulatory framework. The comparison covered key regulatory variables, including minimum plot size, frontage width, access road standards, land-use controls, development intensity, and compliance with the relevant legislation. This analysis sought to explain how individual projects were developed within the current legal framework while identifying regulatory constraints and inconsistencies that influence development outcomes.

Stage 3: Cross-case Analysis. The final stage synthesized findings from all ten case studies to identify recurring patterns and shared

characteristics of Micro Subdivision Housing Development. Similarities and differences among the cases were compared in terms of physical characteristics, land-use patterns, site accessibility, regulatory compliance, and developer adaptation strategies. The cross-case analysis was then used to develop broader conclusions regarding the interaction between urban land constraints, developer behavior, and the existing regulatory framework, as well as to assess whether current regulations remain appropriate for housing development in Bangkok's inner urban areas.

RESULTS AND FINDINGS

Characteristics of the Study Area and Development Context

The ten case study projects are located in the Phaya Thai and Chatuchak districts, two high-density inner urban areas of Bangkok characterized by intense economic activity, extensive mass transit accessibility, and continuous commercial redevelopment. These urban dynamics have substantially increased land values while simultaneously reducing the availability of large development sites suitable for conventional low-rise housing projects. As a result, the remaining developable land primarily consists of small and fragmented parcels created through inheritance, partial land sales, and incremental urban development.

All case study projects were completed between 2020 and 2024, a period marked by economic uncertainty, the COVID-19 pandemic, and changing housing preferences. Selecting projects developed within the same market cycle minimized the influence of temporal variations in market conditions and enabled consistent comparisons of physical characteristics, development patterns, and selling prices. To evaluate market competitiveness, each case study was compared with nearby condominium projects launched within the same period and completed within the previous five years, thereby ensuring that price comparisons reflected similar market conditions.

Although the selected projects vary in architectural design, floor area, and market value, they share several common characteristics. All are small-scale residential developments with a limited number of dwelling units located on sites constrained by parcel size, shape, or accessibility. The sample comprises six detached housing projects, two townhouse developments, one semi-detached housing project, and one mixed development combining semi-detached houses and townhouses. This diversity indicates that developers select building typologies according to the physical characteristics of individual sites, access conditions, and regulatory requirements rather than adhering to a single housing format. In several cases, the building type used for construction approval differs from the project's marketing description, reflecting the need to satisfy building control requirements while maintaining market appeal.

Figure 2 presents the physical characteristics of the ten case study projects, including their site layouts, total project areas, individual plot sizes, and numbers of dwelling units. The findings indicate that the projects range in size from 67.6 sq.wah to 1 rai 1 ngan 97.7 sq.wah and contain between three and eight dwelling units. The majority of parcels are narrow, flag-shaped, or elongated in configuration, reflecting long-term patterns of land fragmentation in Bangkok's inner urban areas. Although these sites are often located in economically attractive neighborhoods, their physical configuration limits the feasibility of conventional large-scale residential development.

A common characteristic across all case studies is their location along narrow access roads connected to major streets. In every case, the access road is less than 6 meters wide and typically situated within deep alleys or cul-de-sacs. This condition has significant regulatory implications because both the Land Development Act (2000) and the Building Control Act impose development standards that are directly linked to road accessibility. Consequently, access road width becomes a critical regulatory constraint influencing the scale, form, and feasibility of residential development in Bangkok's inner urban areas.

Overall, the findings indicate that the emergence of Micro Subdivision Housing Development is not primarily a consequence of regulatory avoidance.

Rather, it represents a strategic adaptation by developers to the physical realities of inner-city land, including fragmented ownership, irregular parcel configurations, and limited site accessibility. While larger sites in prime urban locations are generally redeveloped as high-rise projects to maximize land value under the principle of highest and best use, smaller parcels located within narrow urban streets require alternative development strategies. Micro Subdivision Housing Development therefore reflects developers' efforts to optimize land utilization within the constraints imposed by both the urban land market and the existing regulatory framework.

Plot Configuration and Legal Constraints

Analysis of the ten case study projects indicates that the principal constraint on residential development in Bangkok's inner urban areas is not the overall size of land parcels but their geometric characteristics, particularly frontage width, plot depth, and parcel configuration. These dimensions exert a greater influence on the feasibility of development under the Land Development Act (2000), than total site area alone.

Under the notifications of the Central Land Allocation Committee, the minimum plot sizes are 50 sq.w. for detached houses, 35 sq.w. for semi-detached houses, and 16 sq.w. for townhouses. The findings show that most case study projects satisfy these minimum area requirements. Only two projects, both located in the Phaya Thai district, contain plots smaller than the prescribed standards. Both projects are located within high-density residential zones under the Bangkok Comprehensive Plan, where permissible Floor Area Ratios (FARs) of 7:1 and 8:1 reflect the area's capacity to accommodate intensive urban development.

However, compliance with minimum plot area did not necessarily result in compliance with land subdivision regulations. Although most projects met the minimum area requirement, seven of the ten case studies failed to satisfy the statutory requirements governing frontage width or plot

depth. This finding demonstrates that regulatory compliance depends not only on plot area but also on parcel geometry. In practice, land parcels may contain sufficient area for residential development while remaining ineligible for formal land subdivision because their dimensions do not conform to the prescribed standards, as illustrated in Table 2.

These findings reflect the historical evolution of land ownership in Bangkok's inner urban areas, where repeated subdivision through inheritance, partial land transfers, and incremental urban development has produced numerous narrow, elongated, and irregularly shaped parcels. Although many of these sites possess sufficient area to support residential development, their physical configuration frequently prevents compliance with the dimensional standards established under the current land subdivision regulations.

When considered alongside the Bangkok Comprehensive Plan, the results reveal a notable inconsistency between planning policy and subdivision regulation. All case study projects are located in zones with relatively high permissible FARs, indicating that urban planning policy encourages intensive and efficient land utilization in these areas as part of a compact urban development strategy. Nevertheless, the Land Subdivision Act continues to apply minimum plot dimensions originally developed for conventional suburban housing estates. Consequently, many inner-city sites with substantial development potential cannot proceed under the formal land subdivision system despite being capable of accommodating higher-density residential development.

Overall, the findings suggest that the primary barrier to residential development in Bangkok's inner urban areas is not land scarcity itself but the mismatch between contemporary urban land conditions and regulatory standards derived from earlier suburban development models. Faced with these constraints, many developers have chosen to obtain approval under the Building Control Act rather than the Land Subdivision Act, allowing residential development on small and irregularly configured parcels while remaining within the existing legal framework.

Figure 2

Presents the Physical Characteristics of the Ten Selected Case Study Projects, Including Site Layouts, Project Areas, Individual Plot Sizes, and Number of Dwelling Units.

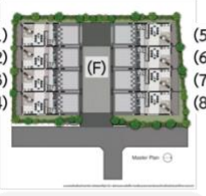
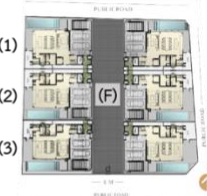
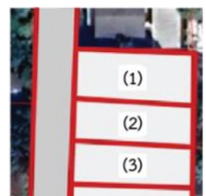
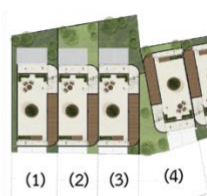
Project Name	A	B	C	D
Land Information	 (1) 38.2 sq.wa. (5) 38.8 sq.wa. (2) 27.5 sq.wa. (6) 28.5 sq.wa. (3) 27.7 sq.wa. (7) 29.3 sq.wa. (4) 38.3 sq.wa. (8) 46.6 sq.wa. (F) 70.1 sq.wa. 0-3-45 rai	 (1) 53.8 sq.wa. (4) 52.4 sq.wa. (2) 53.5 sq.wa. (5) 54.8 sq.wa. (3) 57.6 sq.wa. (6) 57.9 sq.wa. (F) 77.0 sq.wa. 1-0-7 rai	 (1) 39.3 sq.wa. (4) 40.6 sq.wa. (2) 30.1 sq.wa. (5) 30.3 sq.wa. (3) 40.5 sq.wa. (6) 43.3 sq.wa. 0-2-24.1 rai	 (1) 61.1 sq.wa. (3) 57.6 sq.wa. (2) 57.1 sq.wa. (4) 58.2 sq.wa. (F) 46.1 sq.wa. 0-2-80.1 rai
Number of Units	8	6	6	4
Project Name	E	F	G	H
Land Information	 (1) 73.0 sq.wa. (3) 64.0 sq.wa. (2) 63.0 sq.wa. (4) 63.0 sq.wa. 0-2-63 rai	 (1) 15.4 sq.wa. (4) 16.5 sq.wa. (2) 16.2 sq.wa. (5) 16.1 sq.wa. (3) 17.3 sq.wa. (6) 15.9 sq.wa. (F) 48.6 sq.wa. 0-1-46 rai	 (1) 56.3 sq.wa. (2) 51.2 sq.wa. (3) 62.9 sq.wa. 0-1-70.4 rai	 (1) 14.1 sq.wa. (4) 13.6 sq.wa. (2) 13.4 sq.wa. (5) 12.1 sq.wa. (3) 14.4 sq.wa. 0-0-67.6 rai
Number of Units	4	6	3	5
Project Name	I	J		
Land Information	 (1) 55.0 sq.wa. (4) 53.6 sq.wa. (2) 53.4 sq.wa. (5) 53.0 sq.wa. (3) 56.4 sq.wa. (6) 56.0 sq.wa. (F) 74.8 sq.wa. 1-0-2.2 rai	 (1) 62.1 sq.wa. (5) 50.6 sq.wa. (2) 59.9 sq.wa. (6) 50.2 sq.wa. (3) 59.9 sq.wa. (7) 50.1 sq.wa. (4) 64.0 sq.wa. (8) 53.5 sq.wa. (F) 147.4 sq.wa. 1-1-97.7 rai		
Number of Units	6	8		

Table 2

Comparison of the Physical, Architectural, and Market Characteristics of the Ten Case Study Projects.

Project Name	A	B	C	D
Project Site Area	0-3-45 rai	1-0-7 rai	0-2-24.1 rai	0-2-80.1 rai
Housing Type	Townhouse	Detached House	Townhouse	Detached House
Usable Area	254 sq.m.	511 sq.m.	295 sq.m.	580 sq.m.
Starting Price	THB 18.9 million	THB 32 - 48 million	THB 16.5 - 17.7 million	THB 52 - 65 million
Unit Price	THB 74,409.45 /sq.m.	THB 62,622.31 /sq.m.	THB 55,932.20 /sq.m.	THB 89,655.17 /sq.m.
No. of House Types	1	1	2	4
No. of Stories	3.5	3.5	3.5	3.5
Frontage Width	6.13 m.	n/a	7.5 m.	7.58 m.
Interior Features	• 3 bedrooms • 4 bathrooms • 2-3 parking spaces	• 5 bedrooms • 6 bathrooms • 1 maid's room • 3-4 parking spaces • Optional auto parking	• 1 bedroom • 4 bathrooms • 6 parking spaces	• 4 bedrooms • 6 bathrooms • 2 maid's room • 4 parking spaces • Private elevator • Swimming pool
Project Name	E	F	G	H
Project Site Area	0-2-63 rai	0-1-46 rai	0-1-70.4 rai	0-0-67.6 rai
Housing Type	Detached House	Detached House	Detached House	Semi-detached House +Townhouse
Usable Area	650 - 750 sq.m.	169 sq.m.	570 sq.m.	135 sq.m.
Starting Price	THB 60 - 80 million	THB 12.9 million	THB 75 million	THB 12.6 million
Unit Price	THB 92,307.69 /sq.m.	THB 76331.36 /sq.m.	THB 131,578.95 /sq.m.	THB 93,333.33 /sq.m.
No. of House Types	1	1	3	2
No. of Stories	4.5	3 + rooftop	3.5	3
Frontage Width	n/a	6.5 m.	8.6 - 12.9 m.	n/a
Interior Features	• 4 bedrooms • 6 bathrooms • 5 parking spaces	• 2 bedrooms • 2 bathrooms • 2 parking spaces	• 4 bedrooms • 5 bathrooms • 4 parking spaces	• 2 bedrooms • 3 bathrooms • 2 parking spaces
Project Name	I	J		
Project Site Area	1-0-2.2 rai	1-1-97.7 rai		
Housing Type	Detached House	Semi-detached House		
Usable Area	550 sq.m.	489.31 - 525.39 sq.m.		
Starting Price	THB 82 million	THB 62 million		
Unit Price	THB 149,090.91 /sq.m.	THB 126.709.04 /sq.m.		
No. of House Types	1	1		
No. of Stories	3.5	5		
Frontage Width	12 m.	7.4 - 8 m.		
Interior Features	• 5 bedrooms • 5 bathrooms • 3+1 parking spaces	• 3 bedrooms • 3 bathrooms • 1 maid's room • 1 Powder Room • 3 parking spaces		

Note. The comparison includes project area, housing typology, usable floor area, selling price, price per square meter, number of dwelling units, building height, frontage width, and principal design features.

Building Design, Land-use Efficiency, and Economic Performance

The findings indicate that developers have successfully delivered low-rise housing on small urban parcels by optimizing building design rather than increasing plot size. Instead of relying on larger development sites, developers adapted architectural layouts and spatial arrangements to accommodate the physical constraints of inner-city land while complying with building control regulations. This development strategy demonstrates how land-use efficiency can be enhanced under conditions of high land values and limited land availability.

All ten case study projects comprise three- to five-story residential buildings. Rather than expanding horizontally, developers increased usable floor area through vertical design, enabling most units to provide more than 200 m² of living space despite being constructed on relatively small land parcels. This approach allows developers to maximize development potential while offering living spaces comparable to those of conventional detached houses.

A consistent internal layout was observed across almost all projects. Ground floors are primarily allocated to parking, while the principal living spaces including living rooms, dining areas, and kitchens are located on the second floor. Bedrooms are generally positioned on the uppermost floors, as illustrated in Figure 3. This configuration enables each dwelling to accommodate between two and six parking spaces, exceeding the parking provision typically found in conventional urban housing and reducing on-street parking demand within narrow residential streets.

Relocating the main living spaces above ground level also provides additional environmental and residential benefits. Upper-floor living areas offer greater privacy while reducing exposure to traffic noise, dust, and other forms of urban pollution. At the same time, elevated living spaces improve access to natural daylight and cross-ventilation, representing an architectural response well suited to the environmental conditions of high-density urban neighborhoods.

The study further demonstrates that most projects achieve relatively intensive land utilization, with Floor Area Ratios (FARs) approaching the maximum levels permitted under applicable building regulations. Despite this intensive use of land, the developments remain compliant with building control requirements governing setbacks, ventilation, and open space. Nevertheless, the narrow and elongated configuration of many sites results in buildings being positioned closer to property boundaries than is typically observed in conventional land subdivision projects, reflecting efforts to maximize usable floor area within the constraints of the site.

From an economic perspective, Micro Subdivision Housing Development offers a competitive alternative to condominium development in Bangkok's inner urban areas. Because these projects consist of low-rise buildings, developers avoid the substantial capital investment required for high-rise structural systems and complex building services, including elevators, large-scale mechanical and electrical systems, high-rise fire protection systems, and extensive common facilities. As a result, a greater proportion of the project area can be converted into saleable space, improving overall development efficiency.

These cost advantages are reflected in market performance. Comparison with nearby condominium projects shows that the average selling price per square meter of usable floor area is approximately 34.10% lower than that of comparable condominium units in the same locations. Consequently, buyers obtain substantially larger living spaces together with freehold ownership of both the building and the underlying land, providing greater functional flexibility and long-term asset value than condominium ownership within the same urban market.

Overall, the findings demonstrate that Micro Subdivision Housing Development represents more than a response to regulatory and physical constraints. It constitutes an effective strategy for improving land-use efficiency, enhancing the economic viability of residential development, and expanding housing choices within Bangkok's high-value inner urban areas while remaining compatible with prevailing market conditions and regulatory requirements.

Figure 3
Site Planning Configurations in Micro-Subdivision Housing Developments.



Note. The figure illustrates how buildings and internal site elements are arranged on small and constrained land parcels to maximize usable floor area and development intensity while remaining compliant with building control regulations.

Regulatory Interpretation and Policy Implications

The findings from all ten case studies indicate that Micro Subdivision Housing Development is not an isolated phenomenon but a systematic response to the changing spatial and regulatory conditions of Bangkok's inner urban areas. Rather than reflecting exceptional development practices, the ten case study projects demonstrate how contemporary residential development has evolved beyond the assumptions that originally informed Thailand's land subdivision regulations.

The analysis shows that developers do not avoid government regulation; instead, they utilize an alternative statutory approval pathway provided within the existing legal framework. Projects involving fewer than ten land parcels are exempt from approval under the Land Development Act (2000) and may proceed through the building permit process under the Building Control Act. The widespread adoption of this approach therefore represents regulatory adaptation rather than regulatory evasion, as developers continue to operate within legally recognized approval procedures.

Nevertheless, this regulatory pathway results in projects being exempt from several planning and infrastructure requirements that normally apply to formal land subdivision developments. Standards relating to internal roads, common facilities, certain infrastructure provisions, and long-term environmental management are not assessed under the same regulatory framework. Consequently, although individual buildings comply with the Building Control Act, the overall development is not evaluated against the broader community planning objectives embodied in the Land Subdivision Act.

These findings reveal a regulatory gap arising from the coexistence of legal frameworks designed to achieve different regulatory objectives. The Land Subdivision Act primarily governs community planning, infrastructure provision, and long-term residential development standards, whereas the Building Control Act focuses principally on building safety and construction standards. As a result, residential projects with similar physical characteristics may be subject to substantially different regulatory

requirements depending on the approval pathway through which they are developed.

The study also identifies an institutional mismatch between land subdivision regulation, building control legislation, and urban planning policy. While the Bangkok Comprehensive Plan promotes compact urban development by permitting relatively high Floor Area Ratios (FARs) within inner-city areas, the Land Subdivision Act continues to apply minimum plot standards largely derived from conventional suburban development patterns. This inconsistency creates conflicting regulatory objectives and limits the efficient utilization of strategically located urban land despite planning policies that encourage higher development intensity.

The emergence of Micro Subdivision Housing Development can therefore be interpreted through the concept of Gray Space, where development is neither illegal nor fully regulated according to the original intent of planning legislation. These projects occupy an intermediate regulatory position between formal land subdivision and conventional building development. Although legally permissible, they remain outside several regulatory mechanisms intended to ensure adequate infrastructure provision, accessibility, and long-term environmental quality at the community level.

The findings suggest that future regulatory reform should not seek to restrict or eliminate Micro Subdivision Housing Development. On the contrary, this form of development contributes to more efficient land utilization, expands housing choices within high-value urban areas, and supports the objectives of compact city development. Instead, policy reform should focus on establishing a regulatory framework that is better aligned with contemporary urban conditions by introducing standards specifically tailored to small-scale inner-city developments. Greater integration between the Land Subdivision Act, the Building Control Act, and urban planning regulations would help ensure that efficient land use is achieved without compromising infrastructure provision, environmental quality, or long-term community sustainability.

CONCLUSION

Main Findings

This study demonstrates that Micro Subdivision Housing Development has emerged as an adaptive response to fragmented land ownership, rising land values, and the limited availability of development sites in Bangkok's inner urban areas. Rather than representing regulatory avoidance, these developments illustrate how developers adapt to changing urban conditions while operating within the existing legal framework.

The findings indicate that parcel geometry, rather than parcel area, has become the principal constraint on inner-city residential development. In response, developers utilize alternative approval pathways under the Building Control Act and adopt vertical building designs to maximize land-use efficiency and provide larger living spaces on relatively small sites.

The study also shows that this development model offers an economically competitive housing option by combining efficient land utilization with lower costs per square meter than comparable condominium developments, while maintaining compliance with building regulations.

Finally, the findings reveal an institutional mismatch between the Land Subdivision Act, the Building Control Act, and the Bangkok Comprehensive Plan. This inconsistency creates regulatory gaps and suggests that the current regulatory framework no longer adequately reflects the realities of contemporary inner-city development.

Theoretical Contributions

This study contributes to the literature by explaining Micro Subdivision Housing Development as a legally compliant adaptive response to changing urban land conditions rather than as informal or illegal development. The findings extend the concept of regulatory adaptation by showing how developers adjust their strategies to operate within existing legal frameworks.

The study also supports the concept of Gray Space by demonstrating that micro subdivision developments occupy an intermediate regulatory position created by overlapping planning and development regulations. Although legally permitted, these projects remain outside several planning mechanisms intended for conventional land subdivision.

More broadly, the findings highlight the importance of institutional coordination in achieving efficient land use. They suggest that regulatory flexibility, together with better integration between land subdivision, building control, and urban planning systems, is essential for supporting sustainable housing development in high-density urban environments.

RECOMMENDATIONS

Policy Implications

Based on the findings, three policy priorities are proposed. **First**, the current ten-plot threshold should be reviewed by incorporating additional criteria such as housing unit numbers, building floor area, infrastructure demand, and development impacts. **Second**, a dedicated regulatory framework should be established for Micro Subdivision Housing Development, with standards appropriate for small-scale urban projects. **Third**, stronger integration between land subdivision, building control, and urban planning regulations is needed to reduce regulatory gaps while supporting efficient land use, housing affordability, and sustainable urban development.

Limitations and Future Research

This study is subject to several limitations. It is based on ten case studies located in the Phaya Thai and Chatuchak districts and focuses exclusively on Micro Subdivision Housing Development in Bangkok's inner urban areas. In addition, the long-term performance of these developments was beyond the scope of this research.

Future research should examine the applicability of this development model in other urban

contexts and evaluate its long-term outcomes, including infrastructure performance, resident satisfaction, property values, and neighborhood integration. Such evidence would support the development of more context-sensitive land subdivision policies for high-density urban environments.

DISCLOSURES AND ACKNOWLEDGEMENTS

The authors would like to thank the anonymous reviewers for their insightful suggestions and careful reading of the manuscript. This research was supported by a research grant provided by the Faculty of Architecture, Chulalongkorn University, for the fiscal year 2025.

REFERENCES

- Adams, D., & Tiesdell, S. (2013). *Shaping places: Urban planning, design and development*. Routledge.
- Alonso, W. (1964). *Location and land use: Toward a general theory of land rent*. Harvard University Press.
- Appraisal Institute. (2022). *The appraisal of real estate* (15th ed.). Appraisal Institute.
- Ball, M. (1998). Institutions in British property research: A review. *Urban Studies*, 35(9), 1501–1517. <https://doi.org/10.1080/0042098984259>
- Brownsword, R., Scotford, E., & Yeung, K. (Eds.). (2017). *The Oxford handbook of law, regulation and technology*. Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199680832.001.0001>
- Building control Act, B.E. 2544 (2001). <https://bmc.go.th/wp-content/uploads/2020/05/169.pdf>
- Burton, E. (2000). The compact city: Just or just compact? A preliminary analysis. *Urban Studies*, 37(11), 1969–2006. <https://www.jstor.org/stable/43196473>
- Carmona, M. (2021). *Public places, urban spaces: The dimensions of urban design* (3rd ed.). Routledge.
- Denpaiboon, C., Panitchpakdi, K., Kanegae, H., Selanon, P., & Boonnun, Y. (2018). Influences of urban infrastructure development on urban forms and lifestyle of Greater Bangkok. *Nakhara: Journal of Environmental Design and Planning*, 14, 95–110. <https://doi.org/10.54028/NJ20181495110>
- Department of City Planning, Bangkok Metropolitan Administration. (2016). *Study and analysis of comprehensive plan measures to promote development in Bangkok's inner and middle urban areas* [Final report prepared by Chotijinda Consultants Co., Ltd.]. Bangkok Metropolitan Administration.
- Eiamsamang, A. (2023). Decision-making process on buying a moderate-price townhome during the COVID-19: A case study of four townhome projects on sale from 2020 to 2022 in Don Mueang, Bangkok. *Sarasatr: Journal of Architecture and Design*, 20(2), 379–388. <https://so05.tci-thaijo.org/index.php/sarasatr/article/view/265209>
- Evans, A. W. (2004). *Economics, real estate and the supply of land*. Blackwell Publishing. <https://10.1002/9780470698860>
- Healey, P. (1991). Models of the development process: A review. *Journal of Property Research*, 8(3), 219–238. <https://doi.org/10.1080/09599919108724039>
- Information Technology Bureau, Department of Lands. (2026). *LandsMaps*. <https://landsmaps.dol.go.th/>
- Jenks, M., Burton, E., & Williams, K. (Eds.). (1996). *The compact city: A sustainable urban form?* Routledge.

- Kaewmoracharoen, M., Jongvivatsakul, P., Peansupap, V., Charnwasununth, P., & Likitlersuang, S. (2026). Explainable AI for understanding bid cancellations in Thailand's public construction. *International Journal of Construction Management*, 1–20.
<https://doi.org/10.1080/15623599.2026.2630234>
- Limsupreeyarat, P., Kaewkeaw, S., & Charnwasununt, P. (2017). Developing the GIS-expert system for investigating land use designations. In *Proceedings of the 34th International Symposium on Automation and Robotics in Construction (ISARC 2017)* (pp. 132–139). International Association for Automation and Robotics in Construction.
<https://doi.org/10.22260/ISARC2017/0100>
- Limthongsakul, S., Nitivattananon, V., & Arifwidodo, S. D. (2017). Localized flooding and autonomous adaptation in peri-urban Bangkok. *Environment and Urbanization*, 29(1), 51–68.
<https://doi.org/10.1177/0956247816683854>
- Magluntong, M., Panitchpakdi, K., & Khotcharee, Q. (2025). A comparative analysis of 21st century housing development planning in Asian metropolises. *Nakhara: Journal of Environmental Design and Planning*, 24(2), Article 516.
<https://doi.org/10.54028/NJ202524516>
- Mannontaratana, P., Laovisutthichai, V., Viryasiri, T., Jamnothai, M., & Poonpermpun, W. (2025). Prescriptive-based building regulations: Challenges and recommendations for modernization in the case of Bangkok. *Nakhara: Journal of Environmental Design and Planning*, 24(3), Article 519.
<https://doi.org/10.54028/NJ202524519>
- Marome, W., Sununtharod, S., Natakun, B., & Liengboonlertchai, P. (2023). Urban policy supporting cultural adequacy in Nang Loeng, Bangkok. *Nakhara: Journal of Environmental Design and Planning*, 22(2), Article 311.
<https://doi.org/10.54028/NJ202322311>
- McFarlane, C. (2012). Rethinking informality: Politics, crisis, and the city. *Planning Theory & Practice*, 13(1), 89–108.
- Menakanit, A., Davivongs, V., Naka, P., & Pichakum, N. (2022). Bangkok's urban sprawl: Land fragmentation and changes of peri-urban vegetable production areas in Thawi Watthana District. *Journal of Urban and Regional Analysis*, 14(1), 59–78.
<https://doi.org/10.37043/JURA.2022.14.1.4>
- Ministerial Regulation Enforcing the Comprehensive Plan of Bangkok Metropolis, B.E. 2556 (2013). Thai Government Gazette, 130(41A), 1–65.
- Ministerial Regulation No. 55, B.E. 2543 (2000). Thai Government Gazette, 117(75A), 1–10.
- Ministerial Regulation No. 7, B.E. 2517 (1974). Thai Government Gazette, 91(86), 1–4.
- Needham, B. (2006). *Planning, law and economics: The rules we make for using land*. Routledge.
- O'Sullivan, A. (2019). *Urban economics* (9th ed.). McGraw-Hill Education.
- Phra ratchabanyat kan chatsan thidin B.E. 2543* [Land Development Act, B.E. 2543]. (2000). Royal Thai Government Gazette. Vol. 117, No. 43a, pp. 1–25.
- Puggioni, F., & Tontisirin, N. (2025). Mixed-use developments and urban megaprojects in the Global South: A systematic review and interpretation of a blurred intersection. *Nakhara: Journal of Environmental Design and Planning*, 24(1), Article 508.
<https://doi.org/10.54028/NJ202524508>
- Regulations on Land Subdivision for Residential and Commercial Purposes in the Bangkok Metropolitan Area, B.E. 2565. (2022). Thai Government Gazette, 139(Special 75 D), 48–62.
- Regulations on Land Subdivision, B.E. 2530. (1987). Thai Government Gazette, 140(221), 339–351.

Roy, A. (2005). Urban informality: Toward an epistemology of planning. *Journal of the American Planning Association*, 71(2), 147–158. <https://doi.org/10.1080/01944360508976689>

Siri, Y. (2026). *Guidelines for determining the size of sub-plots in land development projects to align with economic, social, and physical conditions under the Land Development Act: A case study of projects that subdivide land without qualifying as land development* [Unpublished manuscript]. Faculty of Architecture, Chulalongkorn University.

Srisomboon, S., & Charnwasununt, P. (2020). Effect of sale plot location within project towards townhouse sale price setting in Bangkok and vicinity. *Sarasatr: Journal of Architecture and Design*, 3(3), 571–583. <https://so05.tci-thaijo.org/index.php/sarasatr/article/view/240411>

Suwanwallaikorn, S. (2022). Business strategies of small-sized family and non-family real estate companies developing low-rise housing projects in Bangkok Metropolitan Area. *Sarasatr: Journal of Architecture and Design*, 5(2), 358–370. <https://so05.tci-thaijo.org/index.php/sarasatr/article/view/258734>

Yiftachel, O. (2009a). Critical theory and “gray space”: Mobilization of the colonized. *City*, 19(2–3), 246–263. <https://doi.org/10.1080/13604810902982227>

Yiftachel, O. (2009b). Theoretical notes on “gray cities”: The coming of urban apartheid? *Planning Theory*, 8(1), 88–100. <https://doi.org/10.1177/1473095208099300>