



AFFORDABLE CONDOMINIUM FOR MIDDLE-INCOME PEOPLE IN
AN INNER BANGKOK DURING AN OVERGROWTH REAL-ESTATE
AND RESIDENCE PRICE SITUATION

BY

TEERATHORN THOMMANAKARN

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF URBAN DESIGN
URBAN DESIGN AND DEVELOPMENT INTERNATIONAL PROGRAM
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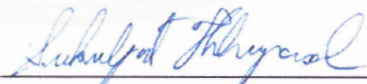
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ABSTRACT

The objective of this research was to find out how an overgrowth real-estate and residence price inside of Bangkok will effect middle-income people who want to live inside of Bangkok in the future, as well as how to make condominium inside of Bangkok area be accessible through both condominium design and policies. This research has used qualitative methods by analyzing secondary data and conducting expert interviews at real estate firms as part of qualitative research. The findings indicated that while middle-class wages did not rise together with the rapidly rising real estate prices in the Bangkok area, middle-class wages did. This created a problem whereby middle-class individuals would eventually be unable to afford condominiums in the Bangkok area. Also, the inability of developers to turn a profit on these kinds of projects discourages them from investing, which makes it more difficult for middle-class individuals to find affordable condominiums in the Bangkok area.

Based on research, the Wang Thonglang and Bang Kapi district are the best places for middle-class residents to live because of their affordable land prices and abundance of accessible areas. These areas are therefore ideal for the development

of middle-income condominiums. The most appropriate design room for a middle-class condominium, according to an expert in the real estate industry, is 30 square meters, with a bedroom and living room ratio of 60% (18 square meters), a bathroom at 20% (6 square meters), a kitchen room at 10% (3 square meters), and a balcony at 10% (3 square meters). These units range in price from 1,700,000 to 2,500,000 Thai Baht per unit, and the minimum condominium amenities include a co-working space, a swimming pool, parking, a laundry room, green space, and a security system.

Furthermore, through a series of support policies, this research has examined ways to facilitate middle-class individuals' access to condominiums in the Bangkok region and to assist developers in offering more affordable condominiums. The findings demonstrated that the collection of supportive policies that can be employed included the housing loan policy, tax reduction, FAR bonus, and construction material cost reduction.

Keywords: Middle-income, Overgrowth real-estate and residence price,
Condominium, Affordable

ACKNOWLEDGEMENTS

The chosen topic for this report is a thesis project for a master's degree in urban design and development program, at Thammasat University. The purpose of this thesis is to analyze the current situation and study the possibility of developing new support methods and policies to tackle the problem of overgrowth real-estate prices inside the Bangkok area and narrate this method through a selected existing area that has this problem ongoing.

Therefore, the author has gone through the process of analysis on the issues and problems, gathered significant information and produced a technical analysis of appropriate case studies to study solutions that could be useful in helping to design a method and support policies for future development, with the determination to an affordable for middle-income people inside of selected area. The author would like to express great gratitude to all the instructors who gave advice and knowledge about the project to make it possible.

The author hopes that this report will be able to educate readers and benefit people who are affected by this problem. If there are any suggestions, the author will request them with great thanks.

Teerathorn Thommanakarn

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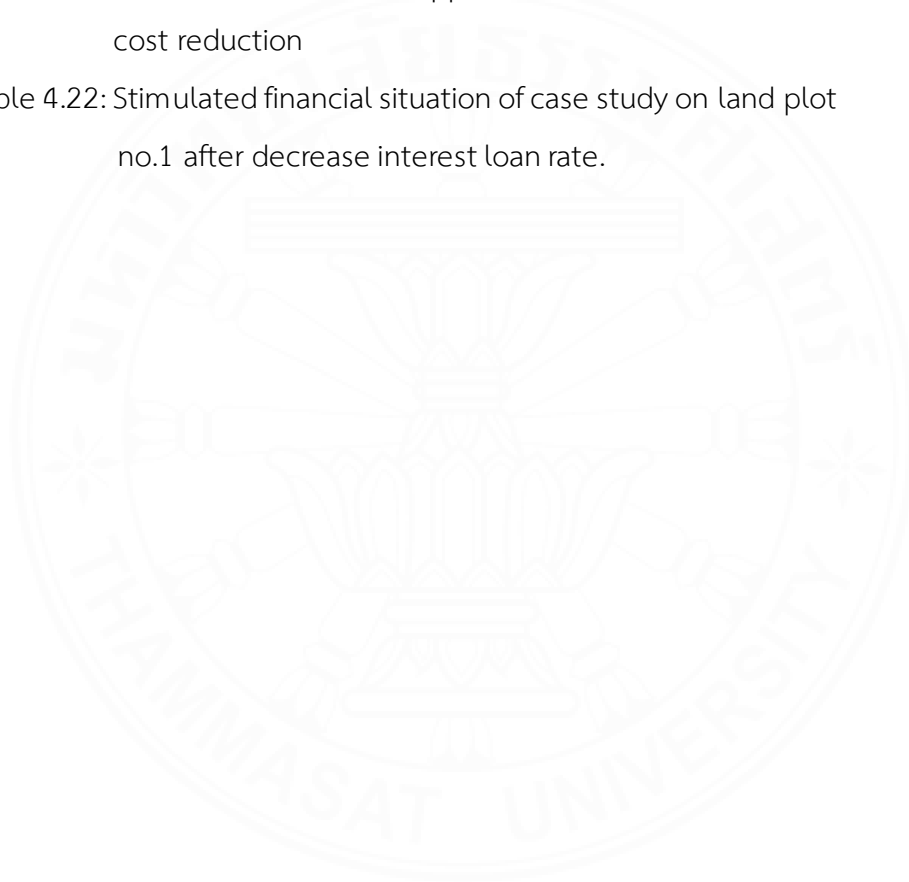
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CHAPTER 1

INTRODUCTION

1.1 Problem Statement

Bangkok is currently dealing with an overgrowth real estate market, which will make it difficult for people with middle-class incomes to access and acquire a home there. While land prices in the area are rising annually, average yearly incomes are staying the same, and most of the land is already owned by large corporations or private individuals, making it difficult for people with middle-class incomes to purchase homes there.

The median monthly household income in Thailand was 26,132 baht in 2020 (National Statistical Office of Thailand, 2020). And estimates that the current average price for residential properties in Bangkok is approximately 3.4 million THB (equivalent to USD 106,383) (Lazudi, 2022). The difference between the median monthly household income in Thailand and the price of residential real estate in Bangkok is demonstrated by these two sets of data.

The real estate market's current position poses a concern and a threat in the future. If we compare the median monthly household income of people with the price of residential properties in Bangkok today, it will demonstrate the difference between household income and residential prices in the Bangkok area, namely that the median monthly household income is significantly less than the price of the housing and did not increase much compared to the increase of real estate market price.

Because their salary is too low relative to the price of residential properties, all of these issues will have an impact on people with middling financial status who are unable to own and access real estate properties.

The top circumstance is similar to what Kamolpat Swaengkit (2018), Country Manager for DDproperty, the top Thailand property website that provides information to an investor or buyer who wants to buy for their personal use or is searching for a home to rent, according to her “pricing appears to be the main barrier

to buying, especially for first-time buyers who are often new jobbers wanting to create a family but have low purchasing power. These first-time buyers, however, will need to make purchase decisions soon as property prices continue to trend upwards which will make entry into the market even more difficult.”.

Reid Kirchenbauer (2023), the founder of Investasian, claimed on his website that “Thai real estate values are too high” in response to criticism from outsiders over the health of the Thai real estate market at the moment. Locals in Thailand are unable to purchase a home at the current prices; however, if Thailand's average annual GDP growth were to increase by 6% or more, their purchasing power would quickly catch up. People are unable to keep up with the escalating cost of real estate properties as a result, making it impossible for them to purchase one.

When this occurs, those who cannot afford to buy a residential property are forced to rent it or take out a loan to buy one. These two options appear to be standard choices, but they are not the best options because renting other land or a place to live indicates that a person doesn't have a sustainable lifestyle, and taking out a loan is only an option for those with high-middle-class financial standing; people with low- to middle-class incomes are not eligible because they lack the income necessary to purchase a condominium in Bangkok or are unable to find any that have good condition residential properties that include accessibility, facilities, environment, and community aspects.

1.2 Research Objective

In this thesis the author has emphasizes on the supply side of the middle income residence in the scope of research, due to the demand side have the unlimited requirements of their residence, but these requirements have been restraining by their affordability.

This thesis has outlines four objectives that might be used to assist developer to provide condominium for middle-class individuals and help them gaining access to residential properties in the greater Bangkok area.

1.2.1 To study how the overgrowth residence price situation in the Bangkok area will create an effect on middle-income people in the future.

1.2.2 Identify the most potential and suitable district to develop condominium for middle-income people in an inner Bangkok.

1.2.3 Find the most suitable condominium design that suitable for affordable condominium.

1.2.4 Develop a new support policy which focuses on supporting middle-income people to have access to own residence properties in Bangkok

1.3 Statement of Purpose

1.3.1 To raise awareness to people about how the overgrowth residence price problem will create an effect on middle-income people in an inner city.

1.3.2 Find the most potential and suitable living district for developer to develop condominium for middle-income people to live during the overgrowth of residence price situation.

1.3.3 Find the most effective condominium design that will allow the developer to make a profit and be affordable for middle-class consumers. This design should be used as a guide for designing condominiums.

1.3.4 Provide policy that support both developer and middle-income people to retaliate overgrowth residence price problem inside of inner city area.

1.4 Scope of Research

1.4.1 Scope of Geographical

This study focuses on searching for the most suitable district for middle-income people to live in the Bangkok area, this area has been selected by employing the established criteria, in this regard, the aforementioned area shall have a land price in range that is affordable for middle-income.

1.4.2 Scope of Respondents /Informants

This thesis has set the scope of respondents to take the interviews the experts from real-estate companies related to suitable land size, the most suitable condominium units' design and facility design that developer can provide to middle-income people according to their affordability, and policies that can be apply to

support developer in provide affordable price condominium project for middle-income.

1.4.3 Scope of Research Tool & Equipment

The researcher employs the mixed research method, thus this thesis applied the following set of tools and equipment, which are:

1.4.3.1 Interview with the 5 selected experts from real-estate companies that include 2 Designers, 1 Business Development Officer and 1 Project Development manager.

1.4.3.2 Secondary data analysis / Archival study on Bangkok background data include real-estate data statistics, population statistics, income rate statistics, Etc.

1.5 Word Glossary

1.5.1 Land Inequality Definition

In this research, the term "Land inequality" refers to a condition in which a person's access to and ownership of land are based on their financial situation. The overgrowth of real estate properties and land inequality are connected issues, which is why the researcher chose the term "Land inequality" within this thesis. These two sets of issues are connected because, as the overpopulation of real estate occurs, those with sound financial standing will have a better opportunity to access and acquire real estate properties.

Since land cannot be generated and its management will have a direct impact on the neighborhood in every way, the problem of land inequality cannot be ignored. Therefore, if we don't have strong laws and policies to manage and encourage land equality for all classes of people, it will cause a lot of issues. According to Ward Anseeuw & Giulia Maria (2020): A complex web of relationships, whether social, economic, political, environmental, or territorial, connects land disparity to other disparities. The majority of these issues are interconnected and have mutually influencing effects, which contribute to the present global problems and trends.

1.5.2 Middle Income People Definition

The median household income in Thailand was 26,132 baht in 2020 (National Statistical Office of Thailand, 2020). Based on this, middle-income households in Thailand are typically those making between 15,000 and 100,000 baht each month. In this thesis, middle-class people will be divided into three groups: low-middle-class households with incomes between 15,000 and 45,000 THB; mid-middle-class households with incomes between 45,000 and 75,000 THB; and high middle-class households with incomes between 75,000 and 100,000 THB. In this thesis research, "middle-class people" will refer to households with incomes between 45,000 and 75,000 THB.

1.5.3 Access Definition

In this thesis word "access" means the ability to legally buy and own a residence place with good physical condition, facility and utility system in the Bangkok area.

1.5.4 Residence Definition

In this research word "residence" refer to vertical residential building such as condominium which will focus on condominium room for one middle-income household which falls in the price range of 1,600,000-2,500,000 THB.

1.5.5. The middle-income housing affordability

The researcher defines the affordability of each household at 25% of its' monthly income (Yingcharoenrungsri, S. 2022), for instance, so in middle-income household that gains 45,000 – 75,000 THB/month, their affordability is approximately 12,500 – 18,750 THB/month or 150,000 – 225,000 THB/year.

1.5.6 The housing loan

The housing loan or home loan is an amount an individual borrows from a financial institution to buy a new or a resell home construct or renovate an existing one. In this research, the expected rate of loan interest is defined by the Marginal Retail Rate of 5 large Thai commercial banks, (6% with a loan period of 20 years, on 1st June, 2023).

CHAPTER 2

REVIEW OF LITERATURE

2.1 Bangkok background

Thailand's capital, Bangkok, is the country's largest metropolis and takes up 1,568 square kilometers. Since 1960, Bangkok has seen rapid growth. Urban sprawl has extended well beyond the city's official borders into the nearby rural areas. The majority of the border districts are now home to both residential and business sections, whereas the core of the city is dominated by commercial activity.

2.2 Bangkok population

According to Bangkok City UN Urban Agglomeration Population Prospects - 1950 to 2035 (World Population Review, 2023), the city of Bangkok saw fast urbanization in 1960 when the population inside the city reached 2 million. Since then, the population has steadily increased every year, reaching 12 million in 2032. (Figure 2.1, Table 2.1)

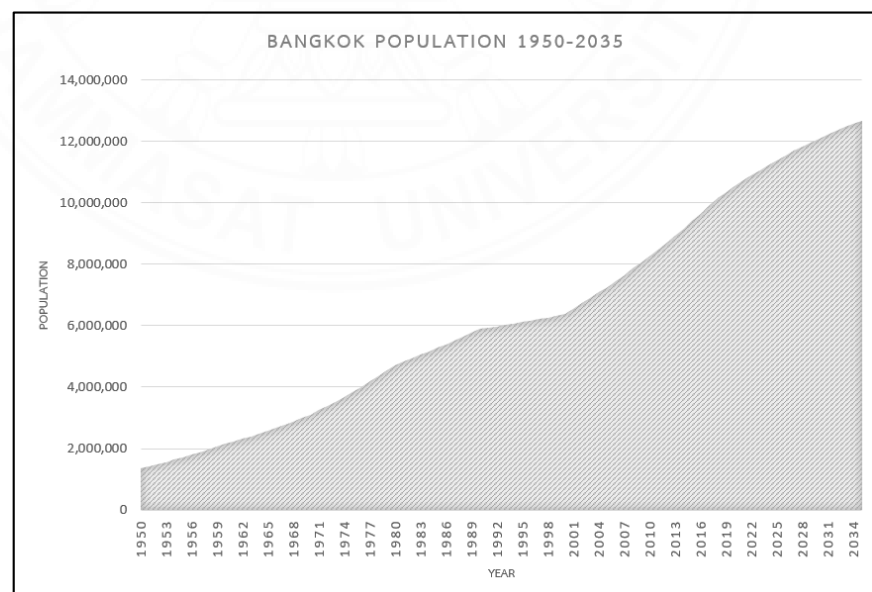


Figure 2.1 Bangkok population statistic **Source:** Bangkok City UN Urban Agglomeration Population Prospects - 1950 to 2035 (World Population Review, 2023)

Additionally, immigrants who relocate from other locations to reside in Bangkok have contributed to this population development. The COVID-19 situation had an impact on Bangkok's immigration statistics as well, but they are now beginning to return to normal, according to data from the 2022 migration survey (National statistical office and the Ministry of the digital economy and Society, 2023), which provide Bangkok migration statistics from 2017 to 2021 and the reasons why they immigrated to Bangkok as shown in **Figure 2.2** and **Figure 2.3**.

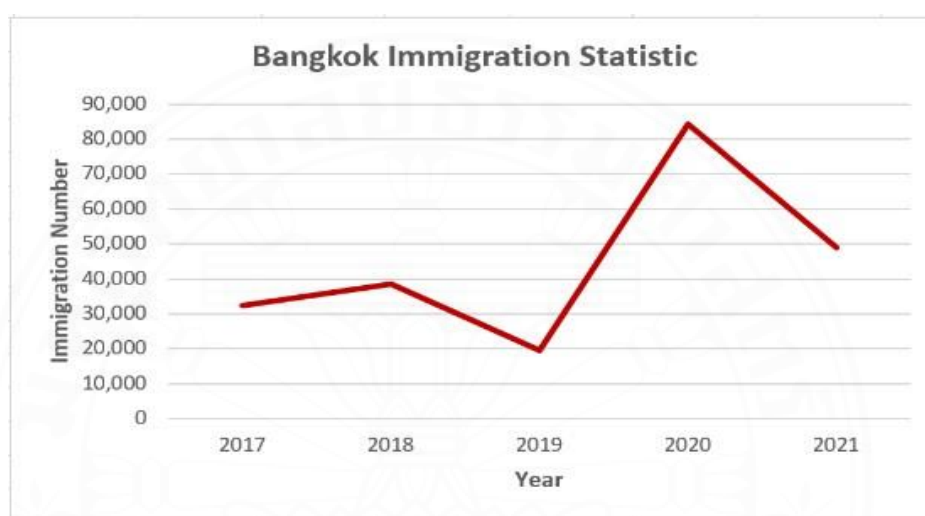


Figure 2.2 Bangkok immigration statistic **Source:** The 2022 migration survey (National statistical office and the Ministry of the digital economy and Society, 2023)

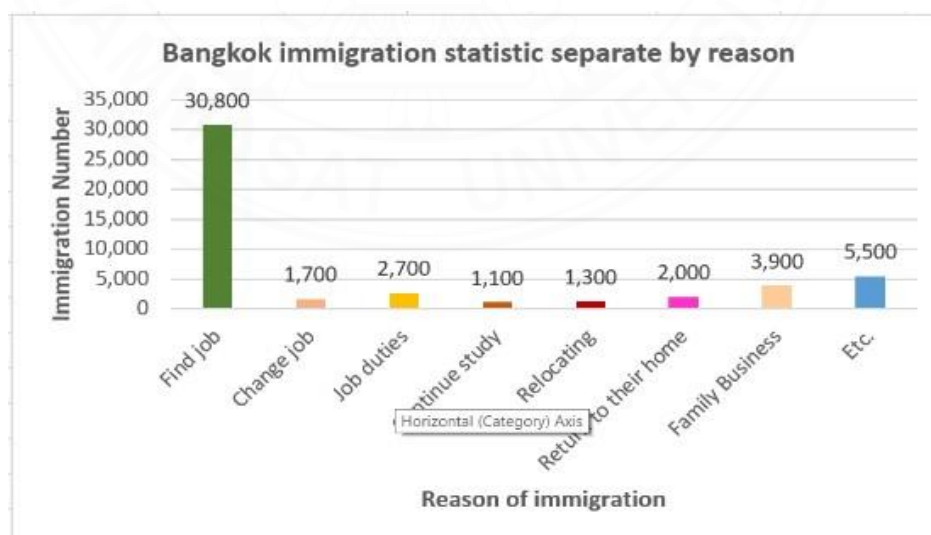


Figure 2.3 Bangkok immigration reason **Source:** The 2022 migration survey (National statistical office and the Ministry of the digital economy and Society, 2023)

The COVID-19 viral pandemic had an impact on Bangkok's immigration status, as is depicted in Figure 2.2, and it recovered after 2020. Figure 2.3, it is indicated that jobs and business are the main reasons why people will move to Bangkok in 2021. The 2022 migration survey (National statistical office and the Ministry of the digital economy, 2023) also give information on resident house registration in Bangkok (Table 2.1), which can be used to estimate the entire population of persons who have access to homes inside of Bangkok and can live sustainably there.

Table 2.1

House registration statistics of residential inside of Bangkok area

House registration of residential inside of Bangkok area	Statistic of Bangkok residential who have residential properties
People who have name in Bangkok house registration	5,133,400 People
People who have name in house registration outside of Bangkok	3,458,000 People
People who have name in house registration at other country but didn't have name in Thailand house registration	283,400 People
People who didn't have name in any house registration	4,300 People

The results in **Table 2.1** show that many residents of the Bangkok region still lack housing sustainability and require residential properties. This subject is related to the issue of an overcrowding real estate property situation that is taking place in Bangkok.

2.3 Bangkok real-estate situation

2.3.1 Real-estate market situation

According to Thailand industry outlook 2022-24 Housing in BMR (Patchara, 2022), the COVID-19 pandemic caused Thailand's housing market to struggle in 2021, but the situation has started to improve. The market situation for single-detached homes, condominiums, townhouses, and land price in 2021 during the COVID-19 situation is as follows:

- During the COVID-19 pandemic, the average price of single-detached houses in Thailand rose by 1.2% in 2021 which is sharply down from the previous year's 5.9% growth and is the lowest increase since 2017.
- Condominium prices increased by 0.1% in 2021 from a year earlier it has slowdown from a rise of 7.9% in 2020.
- Townhouse prices rose by 1.4% in 2021 which is a slowdown from the previous year's 5.5% increase.
- Land prices seem to be more resilient. The land price index rose by 8.4% in 2021, following annual growth of 5.6% in 2020, 1.7% in 2019, and 2.8% in 2018.

The consumer Price Index (CPI) of Housing Utilities in Thailand 2022 has grown to 103.23 points in September from 101.99 points in August of 2022 (**Figure 2.4**) (Tradingeconomics, 2022), Trading Economics's econometric models have predicted that the CPI for housing utilities in Thailand will keep rising every year (**Figure 2.5**).

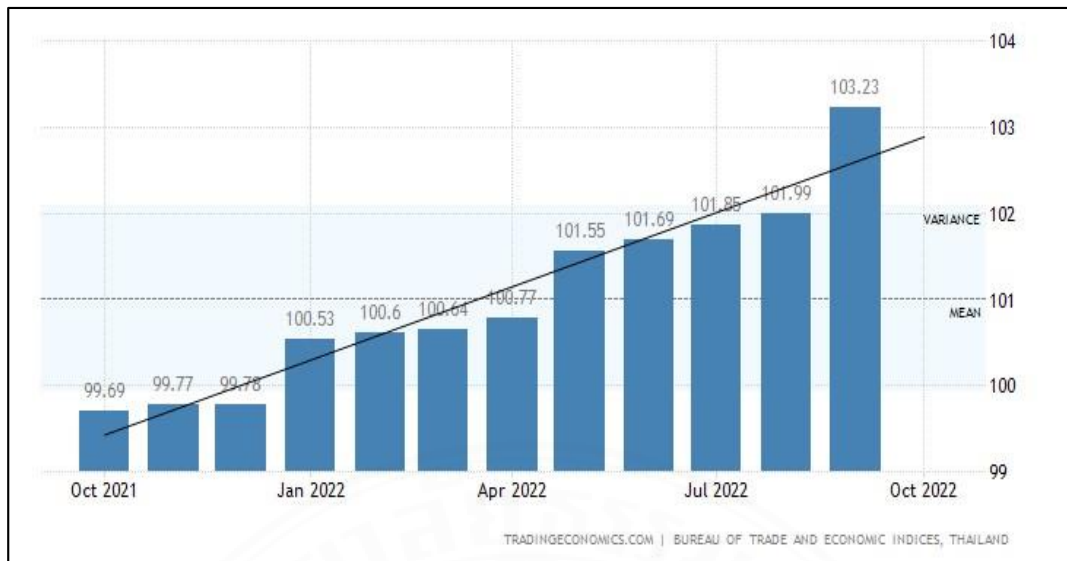


Figure 2.4 CPI Housing Utilities statistic graph in Thailand

Source: Thailand CPI Housing Utilities statistic (Tradingeconomics, 2022)

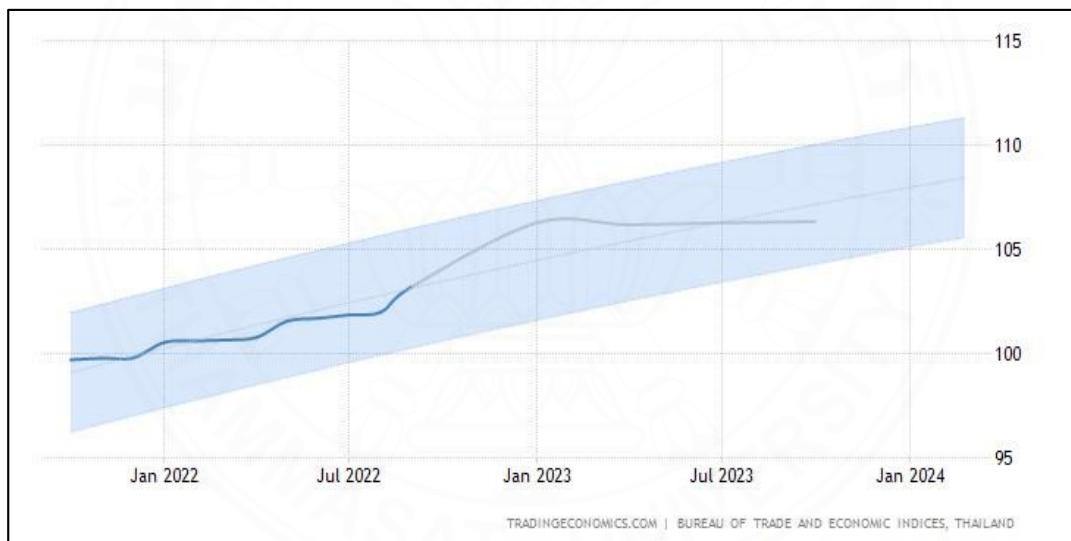


Figure 2.5 CPI of housing utilities in Thailand forecast graph

Source: Forecast Thailand CPI Housing Utilities (Tradingeconomics, 2022)

2.3.2 Land price of each zoning inside Bangkok

In this part of the thesis, the production team has researched the current land price of each zone inside Bangkok (**Figure 2.6**), (**Table 2.2**), (Treasury department, 2023). This set of data will help us to understand how land prices change related to the distance from the city center.

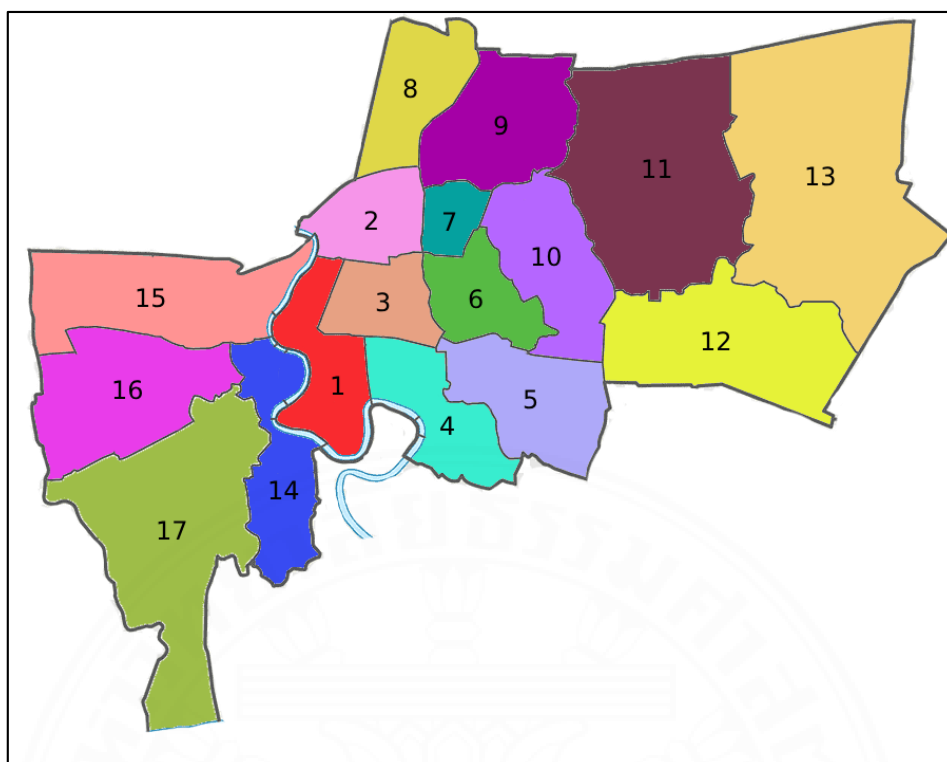


Figure 2.6: Map of each zoning in Bangkok **Source:** Create by Author

Table 2.2

The land price of each zoning in Bangkok

Zone Number	Land price per Sq.m.		
	Minimum	Medium	Maximum
Zone 1	62,500 THB	125,000 THB	250,000 THB
Zone 2	35,000 THB	73,750 THB	112,500 THB
Zone 3	55,000 THB	90,000 THB	125,000 THB
Zone 4	35,000 THB	111,250 THB	187,500 THB
Zone 5	15,000 THB	45,000 THB	75,000 THB
Zone 6	12,500 THB	31,250 THB	50,000 THB
Zone 7	12,500 THB	27,500 THB	42,500 THB
Zone 8	32,500 THB	35,000 THB	37,500 THB
Zone 9	8,750 THB	35,625 THB	62,500 THB
Zone 10	12,500 THB	22,500 THB	32,500 THB
Zone 11	3,750 THB	15,625 THB	27,500 THB

Table 2.2

The land price of each zoning in Bangkok (Conts.)

Zone 12	5,750 THB	11,000 THB	16,250 THB
Zone 13	3,000 THB	5,875 THB	8,750 THB
Zone 14	14,250 THB	63,375 THB	112,500 THB
Zone 15	7,500 THB	28,750 THB	50,000 THB
Zone 16	9,250 THB	29,625 THB	50,000 THB
Zone 17	1,250 THB	18,750 THB	36,250 THB

A researcher developed criteria to categorize the land into three groups, which are as follows: 1. High land price (having an average land price of more than 50,000 baht per sq. m.) 2. Land prices on average (between 25,000 and 50,000 baht per square meter). 3. To illustrate how distance from the city center influences the land price, the production team and affordable land price (having an average land price lower than 25,000 baht per sq. m.) have produced a map (**Figure 1.7**).

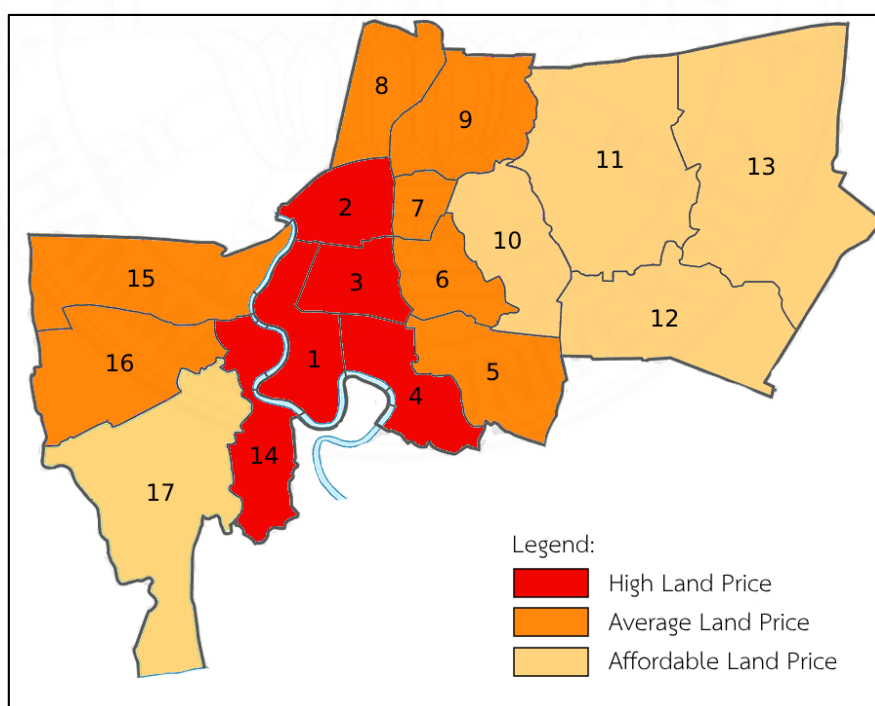


Figure 2.7: Land price created criteria map **Source:** Create by Author

The land price created criteria map has demonstrated the relationship between land price and distance from the city center. If the land is located close to the city center, it will have a higher land price than land located in the outer zone of the city, which can represent why middle-class people who work in the city center can't afford to buy residential properties and why they have no choice but to rent or live outside of the city.

2.3.3 Condominium price statistic

2.3.3.1 Average selling price of a condominium in Bangkok

Average price of condominiums in the central business district of Bangkok in 2021-2023 is around 240,000 – 252,000 THB per square meter. (Statista, 2022) (Figure 2.8).

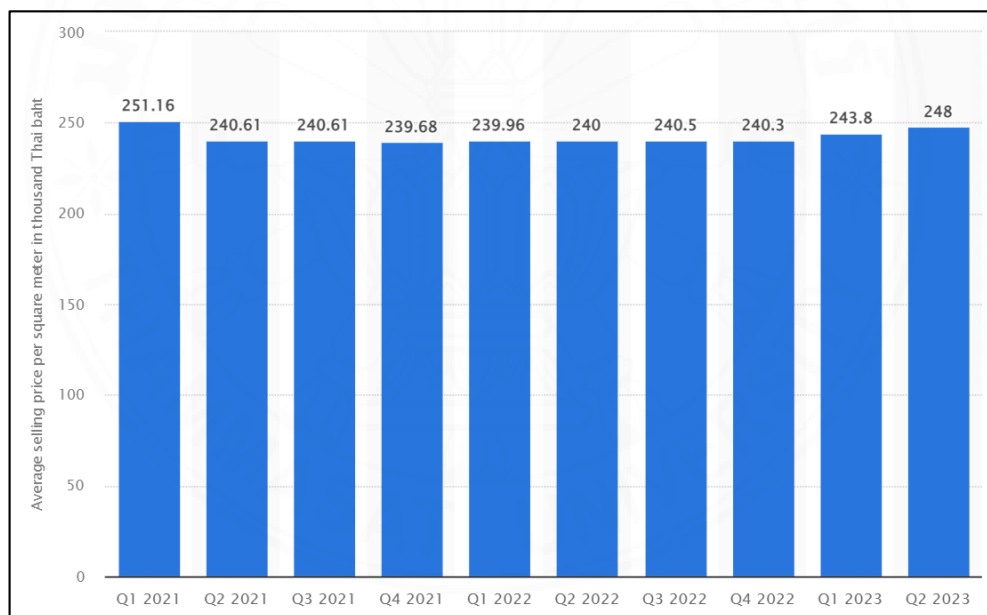


Figure 2.8 Average selling price per square meter of Bangkok condominiums in central business district in Thailand from 1st quarter 2021 to 2nd quarter 2023

Source: Average selling price per square meter of Bangkok condominiums in central business district in Thailand from 1st quarter 2021 to 2nd quarter 2023 (Statista, 2022)

When the price data is compared to the median income of the population, it shows that middle-class families cannot afford to purchase condominiums in inner-city neighborhoods and must take out loans to do so.

2.3.3.2 Suitable price of condominium for middle-income

A condominium should cost between 1,750,000 and 2,900,000 THB for those with a moderate salary. The pricing for this product has been determined by taking the bank's 20-year marginal retail rate (MRR) of 5.50% and utilizing the middle-class household's ability to pay range of 11,250 to 18,750 THB (or 25% of monthly income) which is match with the middle-income housing affordability from 1.5.5. (Only square metres; tax costs not included.)

2.3.4 Related support law & policy

Thailand's laws and regulations supporting real estate, from their inception to the present, will be described in this section. For middle-class individuals, Table 2.3 offers details on current support laws and programs; Table 2.4 offers similar information for low-income individuals.

Table 2.3

Real-estate support law & policies for middle-income people

Policy Name	Publish Date – Expired Date	Policy Detail
House loan interest can be used as a tax reduction	2007 - Present	A home buyer can use the interest on their mortgage to save <100,000 THB in income tax each year.

Table 2.3

Real-estate support law & policies for middle-income people (Cont.)

First home buyer tax reduction	21 Sep 2011 – 31 Dec 2012	The first home buyer will be entitled to a 5year, 10% income tax exemption on the purchase price of the home.
First home buyer tax reduction (2)	13 Oct 2015 – 31 Dec 2016	The first home buyer will be entitled to a 10% income tax exemption for the duration of the loan (up to 5 THB).
Give back house down payment	11 Dec 2019 – 31 Mar 2020	To lessen the financial strain on citizens and the price of building new homes, persons who make less than 1.2 million THB annually can receive a refund of 50,000 THB from their down payment on a home.
Reduce property transfer and register fees of real-estate	1 Feb – 31 Dec 2021 (Latest Policy)	A common policy that reduces the 2% transfer charge and the 1% registration cost of the appraised price to 0.01% seeks to lighten the burden on citizens.

Source: Affordable Housing: Buy or rent a home? We should be able to bear the burden' (Thaengphet, C., 2021)

Table 2.4

Real-estate support law & policies for low-income people

Policy Name	Publish Date – Expired Date	Policy Detail
Bhanmhun Khong housing program	2003 - Present	This program is a cooperation program of the government, MSDSH, CODI and local authorities to solve a problem & support the development of low-income communities.
Uea Arthon housing program	2003 - Present	This program seeks to build one million homes for families with monthly incomes of between 10,000 and 15,000 THB, with a house costing between 400,000 and 700,00 THB.
Pracharat housing	2016 - Present	The government provided low-income earners with 70 billion THB in credit to enable them to purchase a home with low interest, which included:

Table 2.4

Real-estate support law & policies for low-income people (Cont.)

		1) Real estate industry financing to develop houses 2) Loan credit to low income individuals who have never owned real estate before, enabling them to acquire housing at a price not exceeding 1.5 million THB or repair and renovate housing with a project term of two years beginning in March 2016.
Million house program	2018 - Present	Bank of Thailand has offered special loan prices for those whose monthly income does not exceed 25,000 THB, with a 40-year loan term, a fixed interest rate of 3% per annum for borrowers, or a fixed interest rate of 3% per annum for borrowers with a lower income, to encourage people to access commercial bank loans to buy or build

Table 2.4

Real-estate support law & policies for low-income people (Cont.)

		their own homes with prices no higher than 1 million THB. have a monthly income of more than 25,000 THB, except for borrowers whose monthly income does not exceed 25,000 THB who are exempt from several levies.
Suk pracha housing	2021 - Present	According to the 20-year housing development master plan, this project seeks to lower the cost burden and increase the chances for low-income individuals to access housing by building additional rental housing at a rate of at least 100,000 units per year for a period of five years (2021–2025).

Source: “Home” of low-income people (The Active, 2021)

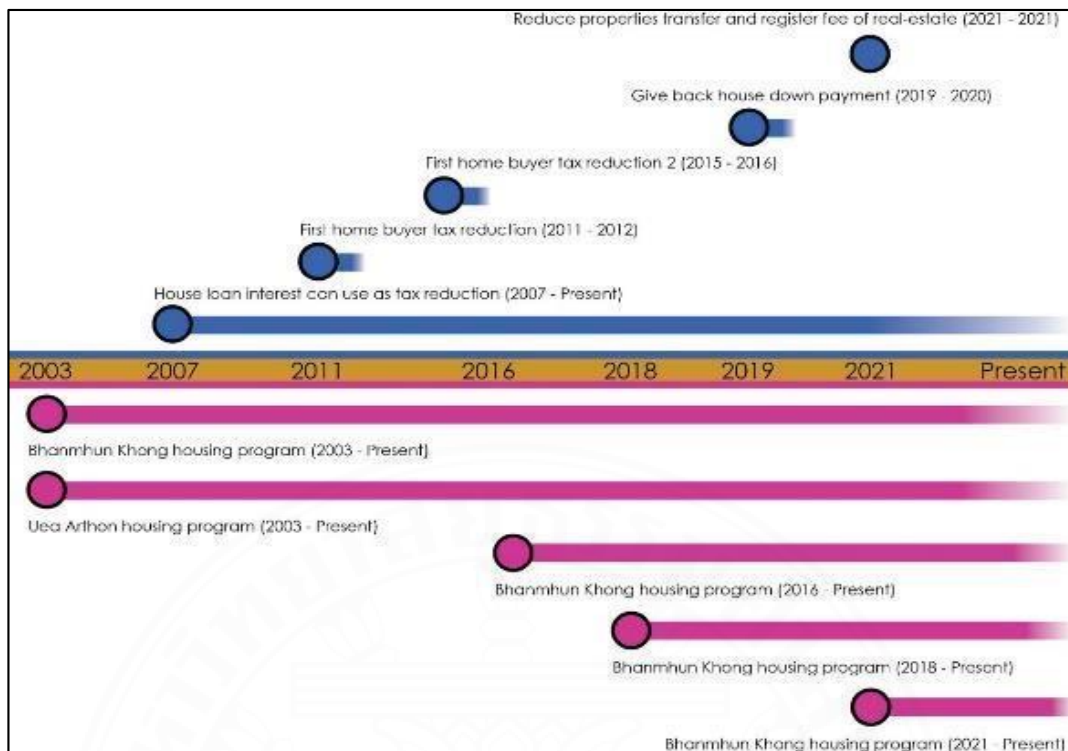


Figure 2.9 Comparison Timeline between support law and policies for middle-income and low-income

Source: Create by Author

Low-income people receive more attention than middle-class people because there are more support laws and policies for them. This is shown by comparing the real estate support laws and policies for low-income people (**Table 2.4**) with the support laws and policies for low-income people (**Table 2.3**) in the form of a timeline diagram (**Figure 2.9**). Unlike low-income individuals, who are updated on a regular basis, most middle-class support measures also expired. The focus of this thesis is on middleclass individuals' real estate support laws and policies, which is strongly justified by the evidence that shows middle-class people did not receive enough attention from the government and other organizations.

2.3.5 Organization & Stakeholder in Real Estate Management

This section of the research study will include a list of notable companies and organizations who manage real estate properties in the Bangkok area.

These groups can be divided into two categories: public or governmental entities make up the first group. Private companies and stakeholders rank second.

Table 2.5

Government or Public Organization detail table

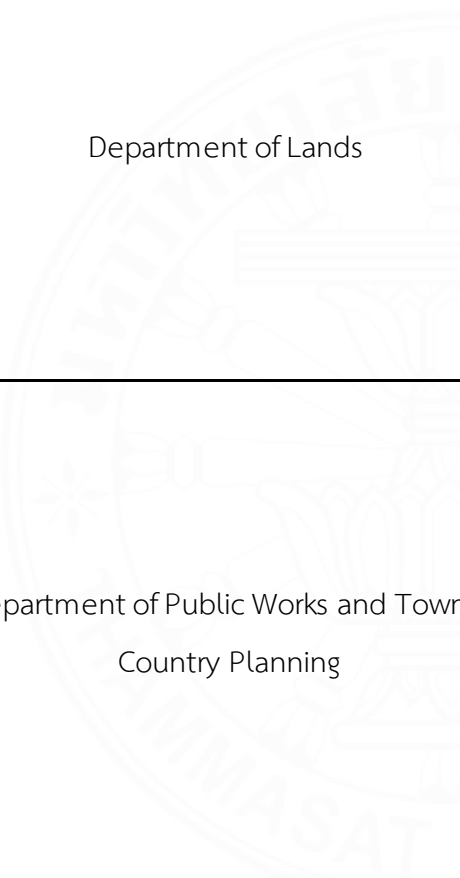
Name & Logo	Action & Role
 Department of Lands	- Issue certificate of title for citizen - Give a service about register ownership, a juristic act related to land and real estate properties - Estimate land and real estate property price - Provide work place for citizen - Control land management
Department of Public Works and Town & Country Planning	Department of Town & Country Planning and Public Works at different levels, there are tasks linked to public works, design, construction, and building construction oversight. By creating and managing land use rules, local government entities can assist urban, regional, and rural development. infrastructure and the habitation system
The Treasury Department	- Manage control land and real estate property price - Owner of some part of the land in Bangkok - Have going on a project about affordable housing

Table 2.5

Government or Public Organization detail table (Conts.)

Bangkok Metropolitan Administration	- Verify and approve laws and policies that apply to use inside of the Bangkok area. - Verify and approve the design and construction plan inside of the Bangkok area.
Crown property bureau	- Manage and control land that was owned by the king - Owner of some part of the land in Bangkok - Have going on a project about affordable housing

Table 2.6: Private Stakeholder and Company

Name & Logo	Action & Role
Bank Companies (Ex: SCB, K-Bank, Krungthai, Krungsri, Etc.)	- Provide a money loan program for people who want to buy residential properties. - Each bank companies have a different interest loan rate
Real estate companies (Ex: LPN, Supalai, Sansiri, L&H, AP, Etc.)	- Owner of some private land and realestate project

2.4 Book / Research paper

2.4.1 Land Inequality at the Heart of Unequal Societies Research (Ward, A. & Giulia, M. *International Land Coalition*, 2020), seeks to provide us a thorough grasp of the ways in which land inequality impacts us and the reasons why it is so important that it cannot be ignored. This essay argues that disparities in land play a significant role in other forms of inequality, including those related to wealth, power, gender, health, and the environment. A number of other problems, such as the decline of democracy, pandemics, mass migration, unemployment, and intergenerational injustice, are also linked to land inequality. A sustainable manner of living may result from using lands, a natural resource, to produce food and water. Because land is a limited resource that cannot be produced or cultivated, its management has an immediate impact on both human populations and the environment.

2.4.2 Land policy for affordable and inclusive housing (Julie, L. & Hannu, R., 2020), This paper focuses on the definition of land policies, how they affect land inequality, how they can be used to develop affordable housing, and a list of established policies and practices that work to influence land markets and enhance opportunities for the development of inclusive and affordable housing in a range of national contexts.

This study suggests that land policy can be used as a tool to influence initiatives that could affect the economy, social welfare, environment, and general well-being. It is related to town, state, market, and citizen relations in the form of land ownership and usage rights. It is influenced by a wide range of stakeholders, including legislators, who differ in their levels of power and resources. These stakeholders could include anyone, including farmers, city people, governments, land developers, and real estate speculators.

In general, the cost of both new and existing housing is heavily influenced by land. Land prices are usually higher in areas with excellent access and services. Because a well-located site is often scarcer and more expensive, developers of affordable housing without a land strategy are compelled to search for less desired places with fewer amenities, build at higher densities, or with worse quality. Certain

governments intervene to reduce the cost of land required for the creation of affordable homes. A number of land policy instruments that interact to affect housing access and affordability are as follows:

- Shaping the balance of power between public and private property rights and responsibilities, through legislation, case law and regulation.
- Shaping the market for land via land registration systems, securing ownership, occupancy rights, usage rights and their processes of exchange.
- Developing a clear vision of desired development through strategic and master planning.
- Delineating zoning or attaching covenants restricting the use of land or property which are legally binding agreements are on the property deeds.
- Acquiring land for a public purpose and either based on former or future use rights.
- Establishing a system for land use conversion and processes for land value capture.
- Using land as collateral to back mortgage financing of desired housing or urban development.
- Engaging in land markets through land banking and releasing land to achieve a desired strategy, focused on public or private goals or a combination of both.
- Intervening in land markets via land readjustment, consolidating multiple pieces of land into a more orderly pattern and preparing for desired use and development.
- Regulatory future development via involving (inclusionary) zoning, and development approval processes.
- Negotiating with key stakeholders through dialogue and providing incentives, such as density bonuses, to secure desired public interest outcomes.
- Using tax instruments such as Tax Increment Financing, to encourage investment and stimulate development.

This research paper has provided a list of well-established policies and practices that aim to influence land markets to increase opportunities for the development of affordable and inclusive housing in many countries. This thesis has examined it as a reference and a base to create our support law & policy.

2.4.3 Cities for People not for profit critical urban theory and the right to the city (Neil, B. & Peter, M. & Margit M., 2012), This book has been chosen as a reference for studies on theories and issues about the unviability and destructiveness of neoliberal forms of urbanization. Authors, theorists, and urbanists such as Jane Jacob, Engels, and Henri Lefebvre contributed to the urban conceptions in this book. The researcher has chosen to focus on Chapter 13: A Critical Approach to Solving the Housing Problem since it is closely tied to the issues that exist in Bangkok. The subprime mortgage crisis in the United States is covered in this chapter. These mortgages are provided to borrowers who are judged ineligible for a conventional mortgage because of low income, low credit, or insufficient home equity. Subprime mortgages, on the other hand, have higher interest rates and are perceived to carry a larger chance of foreclosure owing to nonpayment. It is the outcome of the housing market system's incapacity to satisfy the demands of numerous people for adequate, reasonably priced dwelling.

This is among the main reasons behind the subprime mortgage crisis, which is connected to the problem in Bangkok and other proposed policies aimed at promoting the ultimate deregulation of the profit-driven private sector in the real estate industry.

One pillar that is linked to the circumstances in Bangkok is the private, profit-driven housing market, which only offers homes to people who can afford to pay enough to make a profit for its supplier. An alternative is to receive assistance from the government in the form of mass transit, environmental standards, zoning laws, water and sewage systems, and roads. Furthermore, it supervises the application of building laws, health and safety requirements, planning constraints, and height restrictions in the delivery of housing. Rent control is an important way to achieve this, as it can help those who are looking for renting options after experiencing mortgage foreclosure and prevent the speculative rise in housing costs in general.

2.4.4 The Affordable City: Strategies for Making Housing Affordable and Keeping It There (Shane, P., 2020), Research on the economic variables influencing urban housing costs and the role of the private sector in the development and maintenance of affordable housing has referenced this work. The various strategies that could be used to address the problem of growing housing costs in metropolitan areas are thoroughly examined in this book. The book goes into great detail on the economic factors—like supply and demand, interest rates, and income levels—that have an impact on house costs. It also takes into account how urban planning and zoning regulations may affect the affordability of homes.

The book covers several housing policies and initiatives, including inclusionary zoning, public housing, and rent control, that can aid in boosting the availability of affordable housing. It also looks at the possibility of cutting-edge financing techniques like community land trusts, land value capture, and social impact bonds as well as the contribution of the private sector to the creation and preservation of affordable housing. The economic issues that influence housing costs in metropolitan areas are discussed in this book. It has been stated that supply and demand, interest rates, and income levels are the primary economic factors that influence housing affordability.

2.4.4.1 Supply and demand:

The book looks at how shifts in housing supply and demand might impact home values. It makes the case that housing costs will increase if there is a high demand for homes and a constrained supply. In contrast, house prices will decrease when there is a low demand for housing and a high supply.

2.4.4.2 Interest rates:

The book also examines the impact of interest rates on the cost of housing. It explains that when interest rates are low, borrowing money to purchase a home is more affordable for consumers, which can raise demand for property and raise prices. People find it more expensive to borrow money when interest rates are high, which can reduce demand for houses and lower prices.

2.4.4.3 Income levels:

The book also looks at how income levels might impact how affordable housing is. It makes the case that people can afford to buy or rent a home

when salaries are high, which can boost demand for housing and raise prices. Low salaries make it harder for people to afford to buy or rent a home, which can reduce demand and lower housing costs.

Additionally, it discusses the private sector's role in developing and maintaining affordable housing in urban areas through private-public partnerships, a program whereby the private sector collaborates with the public sector or nonprofit groups to build and maintain affordable housing. Through these collaborations, private developers may be given access to financial aid and tax concessions while the public sector gains from the construction of more affordable housing units.

2.5 Case Studies / Related Model:

2.5.1 Vienna Affordable Housing

To find the solution to the question, "How can we make the rent system more sustainable?" researchers have examined these case studies of Vienna. To assist affordable housing, Vienna has several policies and programs in place, including the following:

1. **Social housing:** Vienna has a sizable stock of social housing that is rented out to low-income households at prices below market rates. The city owns and operates these apartments, and a waiting list is used to choose the tenants.

2. **Building regulations:** Building regulations in Vienna mandate that a specific number of social housing units be included by developers in all new construction. This makes it more likely that low-income households can afford the new home that is being constructed.

3. **Rent controls:** Rent restrictions, which set a cap on what landlords can demand for rent, have been put in place in the city. Renters can afford housing costs because of this.

4. **Cooperative housing:** Cooperative housing, which is owned and run by the people themselves, is also encouraged in Vienna. Due to tenants' shared responsibility for property maintenance, this type of housing is frequently more affordable than other housing types.

5. Public funding: The city additionally contributes public funds to nonprofit groups and private developers to help with the development and renovation of projects for affordable housing.

Around 60% of the population lives in social housing, and the majority of the population considers housing affordability to be favourable thanks to these laws and programs, which have allowed Vienna to maintain a comparatively high level of affordable housing.

2.5.2 Korea housing – Finance Corporation (HF)

This case study of Finance Corporation has been picked up in this research to answer the question of how we can support loans for low-income people. Korea Housing Finance Corporation (HF) is a public financial company established in March 2004. It is a State-Run Enterprise that Facilitates the Long-Term, Stable Supply of Housing Funds and Other Related Instruments, Thereby Promoting National Welfare and Developing the National Economy. Committed to serving as a trusted partner for low and middle-income families, they have wide-ranging housing finance operations including 1. supply of Bogeumjari Loan and Confirming Loan 2. Guarantees for housing finance 3. Supply of home pension (Reverse Mortgage) 4. Issuance of MBS and MBB. HF will give a loan interest rate is around 2.1%-2.4%, a fixed interest rate for 30 years, reduced according to income level.

2.5.2.1 Supply of Bogeumjari Loan and Confirming Loan

Long-term fixed-rate mortgage loans with principal and interest payments made in instalments over 10 years or longer, instruments allow new homeowners to pay back their loans on a stable basis without the risk of interest fluctuations.

2.5.2.2 Guarantees for housing finance

To help make good housing more widely accessible, HF issues letters of guarantee to eligible prospective home buyers to obtain chosen loans or apartment instalment payment loans from financial institutions. For home builders, HF issues letters of guarantee for loans to build apartment houses to promote housing construction.

2.5.2.3 Supply of home pension (Reverse Mortgage)

HF helps improve the welfare of senior citizens by offering Home Pensions, which enables those aged at least 55 who own homes to put up their homes as collateral and receive monthly pensions from financial institutions for the remainder of their lives.

2.5.2.4 Issuance of MBS and MBB.

HF issues Mortgage-Backed Securities (MBS) and Mortgage-Backed Bonds (MBB) using mortgage loans transferred from financial institutions as the underlying assets and sells them to investors to raise long-term, low-interest capital from the bond market. This has greatly increased the availability of funds for loans.

Another way that the HF may support loans for low-income people is by working with non-profit organizations that provide housing counselling and financial education. These organizations can help low-income borrowers improve their credit scores, learn about loan options, and prepare to buy a home.

The HF may also work with other government agencies and organizations to provide a range of housing services to low-income people, such as rental assistance, home repair loans, and other forms of support. These programs may be targeted to specific groups such as veterans, disabled people, or people with low incomes.

2.5.3 Mortgage bank, Denmark

This case study of a Mortgage bank in Denmark has been picked up in this research to answer the question of how we can support loans for low-income people.

A mortgage bank in Denmark is a bank that operates separately from general commercial banks and will act as an intermediary between loaners and investors, providing a covered bond to use as a fund for homebuyers to loaners at the same interest rate for every loaner which is 0.5 % for 20 years. Mortgage banks in Denmark may support loans for low-income people through several different mechanisms. One common approach is to offer government-backed loans, which are guaranteed by the government and have more lenient credit requirements and lower interest rates than traditional loans. Additionally, mortgage banks may offer special loan programs that are specifically designed for low-income borrowers. These

programs may have lower down payment requirements, higher debt-to-income ratios, or other features that make them more accessible to borrowers with lower incomes.

Another way mortgage banks support loans for low-income people is by working with non-profit organizations that provide housing counselling and financial education. These organizations can help low-income borrowers improve their credit scores, learn about loan options, and prepare to buy a home.

Additionally, In Denmark, there are a few schemes that the government has implemented to help low-income people buy homes, such as the "BoligKontant" scheme which grants low-income families with children a grant of DKK 80,000 for buying a home. Other such schemes like "BoligJob" and "BoligPlus" also exist which help with the down payment and financing respectively.

2.5.4 Singapore's public housing program

This case study of Singapore's public housing program has been picked up in this research to answer the question of how a large-scale, government-led program can address the problem of rising housing costs in an urban area.

Singapore's public housing program is often cited as a successful model for addressing the problem of rising housing costs in urban areas. The program, which is managed by the Housing and Development Board (HDB), has several key features that contribute to its success:

2.5.4.1 Large scale of production:

HDB builds and sells a large number of affordable housing units, which helps to increase the overall supply of housing and keep prices more affordable.

2.5.4.2 Subsidies and grants:

HDB provides subsidies and grants to help lower-income residents afford to purchase a home. This helps to ensure that housing is affordable for a wide range of residents.

2.5.4.3 Rent-to-buy option:

Singapore has a Rent-to-buy scheme, which allows residents to rent a public housing unit for a while before committing to purchase it. This makes it possible for residents to save up for a down payment and buy a home even if they have limited financial resources.

2.5.4.4 Homeownership:

The program promotes homeownership, which helps to create a more stable housing market and a sense of community among residents.

2.5.4.5 Long-term planning:

HDB has a long-term planning approach that allows it to anticipate future housing needs and build accordingly, this helps to ensure that the housing supply can keep up with population growth and demand.

2.5.4.6 Regular upgrading:

HDB has a regular upgrading program that allows it to improve the quality of the public housing units over time. This helps to ensure that public housing remains desirable and that residents can live in good-quality housing.

Note: Singapore's public housing program can help to increase the supply of affordable housing and address the problem of rising housing costs in an urban area. However, we have to note that the context of Singapore is unique, it may not be easily replicated in the Bangkok area.

2.5.5 New York City's inclusionary zoning policy

This case study of New York City's inclusionary zoning policy has been picked up in this research to answer the question of how zoning policy addresses the problem of rising housing costs in an urban area.

New York City's inclusionary zoning policy is a policy that requires developers to include a certain percentage of affordable housing units in new developments. This can help to increase the overall supply of affordable housing and make it more accessible to low-middle-income residents. This New York City's inclusionary zoning policy has five goals including:

2.5.5.1 Increasing affordable housing stock:

By requiring developers to include a percentage of affordable units in new developments, inclusionary zoning helps to increase the supply of

affordable housing in the city, which can help to keep prices more affordable for low- and moderate-income residents.

2.5.5.2 Helping low-income residents:

By making affordable units a requirement of development, inclusionary zoning policies can help ensure that new developments include a mix of incomes, and that low-income residents are not priced out of certain neighborhoods.

2.5.5.3 Flexibility:

Inclusionary zoning policies can be tailored to the specific needs of a city and can be adjusted over time as housing market conditions change.

2.5.5.4 Voluntary compliance:

Some cities offer incentives such as density bonuses, tax exemptions, or other benefits to developers who choose to comply with inclusionary zoning requirements voluntarily.

2.5.5.5 Encourage mixed-income communities:

Inclusionary zoning can help to create mixed-income communities, where people of different income levels live close to one another, which can have a positive impact on social cohesion and community well-being.

Note: inclusionary zoning alone may not be enough to solve the problem of overgrowth residence prices and it's important to consider it as a part of a comprehensive housing strategy, along with other policy tools such as subsidies and tax incentives.

Table 2.7

Comparison between support methods in affordable housing between Bangkok and foreign countries

Foreign Case Studies	Bangkok Situation	Comparison
Vienna Affordable Housing: - has a large stock of social housing. - rented out at below market rates to low income households. - owned and managed by the city. - tenants are selected through a waiting list system. - require developers to include a certain percentage of social housing units in new developments. - rent controls - limit the amount that landlords can charge for rent. - provides public funding to support the construction and rehabilitation of affordable housing projects.	Thailand Affordable Housing: - Housing subsidies: The government provides subsidies for low-income families to purchase or rent affordable housing units. - Public housing projects: The government builds and manages public housing projects for low-income families. - Tax incentives for developers: Developers who build affordable housing units may be eligible for tax incentives to encourage construction. - Land allocation for affordable housing: The government sets aside land for affordable housing development, which helps to keep construction costs low.	Have in common: - The government has built and provided public housing projects. - Public housing have lower rent price than market rates. - Has provides subsidies and grants to help lower income residents Differentiate: - Thailand didn't have a large stock of social housing as a result of not having strict laws and policies for developers to include social housing in development compared to Vienna. - Thailand didn't have a large number of affordable housing as a result of not having a long-term planning approach that includes future housing needs.

Table 2.7

Comparison between support methods in affordable housing between Bangkok and foreign countries (Cont.)

Singapore's public housing program: - builds and sells a large number of affordable housing units. - increase the overall supply of housing and keep prices more affordable. - provides subsidies and grants to help lower-income residents afford to purchase a home. - has a Rent-to-buy scheme, which allows residents to rent a public housing unit for a while before committing to purchase it. - has a long-term planning approach that allows it to anticipate future housing needs and build accordingly. - upgrading program that allows it to improve the quality of the public housing units over time.	- Home loan programs: The government offers low interest home loans to eligible families to help them purchase affordable housing units.	- Thailand didn't have rent price controls and didn't have tenants selected system for affordable housing which created an opportunity for the elite to take control over public housing projects. How Thailand can be improving: - Provide new strict laws and policies that make developer to include affordable housing program inside of their project to increase number of available residential place in Thailand. - Provide rent price controls laws and tenants selected system for affordable housing to assure that low-middle income people will have an access to residence.
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Table 2.8

Comparison between support methods in finance for housing between Bangkok and foreign countries

Foreign Case Studies	Bangkok Situation	Key Consideration
Korea housing – Finance Corporation (HF): - Long-term fixed-rate mortgage loans with principal and interest payments made in instalments over 10 years or longer. - provide letters of guarantee to eligible prospective home buyers to obtain an apartment instalment payment loans from financial institutions. - offering Home Pensions, which enables those aged at least 55 who own homes to put up their homes as collateral and receive monthly pensions from financial institutions for the remainder of their lives.	Support method of Thai bank for low-income people: Government Housing Bank Loan objective: - To buy already built land with buildings or condominiums. - To construct a building or to buy ready-to-build land. - To redeem mortgage land with building, vacant land or condominium from another financial institution along with building construction. * Not include rental houses and Flats. Loan amount & loan period: - The maximum loan amount is no more than 3,000,000 baht per person & collateral. - Minimum loan period is 3 years and no more than 40 years, and the borrower's age combined with the number of years requested for a loan	Differentiate: - Government housing bank, Thailand didn't have letters of guarantee provided for loaner to eligible prospective home buyers to obtain an apartment instalment payment loans from financial institutions. - Korea housing finance corporation has provided Home Pensions to customer but Government housing bank of Thailand didn't have this program - Thailand loan interest rate is higher than two other banks but have longer loan period. - Mortgage bank, Denmark has provided housing counseling and financial education for people which

Table 2.8

Comparison between support methods in finance for housing between Bangkok and foreign countries (Conts)

Mortgage bank, Denmark: - be an intermediary between loaners and investors, providing a covered bond to use as a fund for homebuyers to loaners at the same interest rate for every loaner which is 0.5 % for 20 years. - offer government backed loans, which are guaranteed by the government and have more lenient credit requirements and lower interest rates than traditional loans. - working with non-profit organizations that provide housing counselling and financial education	must not exceed 70 years, except for government officer that have a retirement age more than 60 years which the age of the borrower when combined with the period The applicant must not exceed 75 years of age.	Government housing bank, Thailand didn't have. - Government housing bank, Thailand only allow people who have total income less than 13,000 baht.
	Loan interest rate: - 1st Year: 2.8% per year - 2nd Year: 2.4% per year - 3rd Year: 1.8% per year - 4th - until the end of contract period 0.75% per year Accessibility: - Have total income less than 35,000 Baht	How Thailand can be improving: - Provide housing counseling and financial education program for people. - Decrease loan interest rate for low-middle income people. - Bring in and use letters of guarantee for loaner to eligible prospective home buyers to obtain apartment installment payment loans from financial institutions.

2.6 Conclusion

After conducting secondary data analysis and a literature review, it was determined that the price of real estate properties inside Bangkok is currently very high when compared to middle-class people's monthly income and will likely continue to rise in the future. This is in contrast to people's income, which did not increase significantly when compared to the price of real estate properties. If this issue persist, middle-class individuals will find it impossible to purchase and live in central city areas, which will result in additional issues like living expenses due to transportation and mental health issues. This issue wasn't limited to Bangkok; it also affected an urban area in another nation. To address it, their public organizations developed methods and regulations to assist their citizens in accessing housing within their metropolitan area. However, Bangkok also has strategies and policies that support people in this regard, but they primarily concentrate on low-income people, leaving middle-income people out if the current trend continues. For example, if the current trend continues, the next generation of people will have difficulty finding housing in the Bangkok region because they won't be able to afford the price of residential space in Bangkok, which is constantly rising, and they won't have any support policies that can assist them.

CHAPTER 3

RESEARCH METHODOLOGY

This research in topic of “How to create a condominium project in an inner Bangkok area that middle-income people can afford during an overgrowth real-estate and residence price situation” has use the qualitative methods by analyzing secondary data and conducting expert interviews at real estate firms as part of qualitative research. For this study, real estate businesses' designers and developers were chosen as the specialists to speak with. The techniques, methodologies, and strategies that were employed in this study are listed below.

3.1 Research Tools

This section in the research paper will show the method that was used which is mixed methods included of 1. Secondary data analysis / Archival study method 2. Observation method.

3.1.1 Secondary data analysis / Archival study method

A detailed description, explanation, and analysis of the present state of knowledge on a particular subject that was found in scholarly books, journal articles, and all other sources related to the subject of research constitute a literature review. This section tries to give a summary of the sources the author has looked into while conducting research on a specific issue and to show how that research fits into the greater field of study. This method was primarily used in the first section of the thesis to analyze data from reports, studies, and books that had already been published and dealt with the subject of rising residential property prices. These sources included literature review books and papers, historical data about Bangkok, the city's real estate market, and laws and policies that were pertinent to Bangkok. By employing this research methodology, it will demonstrate how middle-class individuals will be impacted in the future by the current residential and real estate conditions in the Bangkok area (Objective 1). And how can we, using support policies

on both the supplier and customer sides, enable them to have access to condominiums within the Bangkok area in the future (Objective4).

3.1.1.1 Principle and Strategies

(1) Metro Mayors Coalition Regional Housing Task Force

In the case of the European nations, it was discovered that The Metro Mayors Coalition Regional Housing Task Force is a collection of mayors from towns in a certain area who have banded together to address the issue of affordable housing in their areas. The task group may design and carry out programs and policies targeted at expanding the accessibility and availability of affordable housing for city inhabitants. This task force has been used in Chapters 1 and 2 of this thesis paper as a research important factor.

(2) Criteria principle for site selection

1.Affordability: Due to its significant impact on the project's overall cost, this factor should be carefully considered while selecting a location. The price of a piece of land goes up with the cost of building a condominium on it, making the resulting homes more expensive and less appealing to prospective buyers or tenants.

How: Finding the best land plot in the most suitable district to build a condominium can be done using the property selling website. By taking into account the land price, land size, construction costs, and selling costs after calculating FAR & OSR, the best land plot will be found for both the developer and the buyer.

2.Accessibility: In order to find a place to live in the city, it is important to take the transportation system and accessibility into account. And for the following reasons, it's crucial:

- **Commute time:** An efficient transportation system can help locals save time and energy by drastically cutting down on commuting times.
- **Cost:** If locals must use taxis or ride-hailing services to get around, the cost can add up rapidly. They can reduce their transportation costs by having a dependable and effective public transit system.

- **Mobility:** If a person doesn't own a car, having access to a reliable transportation system is crucial for mobility. You can go around the city more easily and access different areas for business, social gatherings, and other activities.
- **Quality of life:** Access to transportation can enhance the quality of life by making it simpler to reach essential amenities and services like hospitals, supermarkets, and cultural events.
- **Environmental impact:** A well-designed transportation system can aid in the reduction of traffic jams, carbon emissions, and environmental pollution.

In conclusion, the city's transportation system and accessibility should be taken into account while deciding where to live. They may affect a person's mobility, financial condition, and overall quality of life, among other things. The author will address the second objective identifying the most promising and appropriate neighborhood in an inner Bangkok neighborhood for the development of condominiums for middle-class residents by employing this research methodology.

How: Create an accessible buffer zone around any land plots with reasonable land prices, and then assess each one's accessibility conditions to determine which is best.

3.2 Interview method

To gather the information that supports or contributes to the overall research aims and aids in addressing research questions or hypotheses, an interview method was used. This thesis' interview section used semi-structured interviews to speak with real estate industry experts about condominiums for middle-class families. The author of this thesis has selected experts according from their experiences in the middle-income housing design and management and their specialty in condominium design. By employing this research method, it will scope the most suitable design of condominium for middle-income people (Objective 3).

3.3 Observation method

The selected site analysis chapter employed the observational method to gather site data and information on accessibility, land price. This collection of data and information explains why the selected site data is appropriate and most effective for middle-class people. The second research objective, which is to identify the most suitable plot, can also be addressed with this methodology.



CHAPTER 4

RESULTS AND DISCUSSION

In order to determine the most efficient way of granting middle-class individuals access to private housing (condominium units) in Bangkok, the author of this thesis employed observational methods and interview techniques to gather and evaluate data, which was then arranged in this manner.

4.1 Affordable price of middle-income people

4.2 Data analysis from an interview of real-estate company experts.

4.3 The most suitable district and site to develop condominium project for middle-income people.

4.4 The most appropriate condominium design for middle-income people.

4.5 The legal issues such as law and policies regard to the residential access support for middle-income people.

4.1 Affordable price of middle-income people

The median household income in Thailand was 26,132 baht in 2020 (National Statistical Office of Thailand, 2020). Based on this, middle-income households in Thailand are typically those making between 15,000 and 100,000 baht each month. In this thesis, middle-class people will be divided into three groups: low-middle-class households with incomes between 15,000 and 45,000 THB; mid-middle-class households with incomes between 45,000 and 75,000 THB; and high-middle-class households with incomes between 75,000 and 100,000 THB. And this research will focus on "mid-middle-class households" that refer to households with incomes between 45,000 and 75,000 THB. And researcher defines the affordability of each household at 25% of its' monthly income (Yingcharoenrungsri, S. 2022), for instance, so in middle-income household that gains 45,000 – 75,000 THB/month, their affordability is approximately 12,500 – 18,750 THB/month or 150,000 – 225,000 THB/year.

4.2 Data analysis from an interview of real-estate company experts.

The researcher interviewed experts from five real estate companies, including two designers, one business development officer, and one project development manager, in order to determine the best location, type of condominium, and state of residential access support policy for middle-class individuals. The data was then analysed and presented in the table below.

4.2.1 An attributions of interviewees

These attributes relate to the five experts that were interviewed.

Table 4.1

Interviewees attributes

	Expert No. 1	Expert No. 2	Expert No. 3	Expert No. 4	Expert No. 5
Working Experience (Years)	13 Years	6 Years	17 Years	8 Years	7 Years
Position	Project development manager	Section Manager of Business Development & Land Acquisition	-	Architecture	Architecture
Education	Master degree in master of program in innovative real estate development	Master degree in master of program in innovative real estate development	Doctoral degree (Ph.D.).	Master degree in master of program in innovative real estate development	Master degree in master of program in innovative real estate development

Table 4.1

Interviewees attributes (Conts.)

	Expert No. 1	Expert No. 2	Expert No. 3	Expert No. 4	Expert No. 5
Location of the Project	Bangkok Area	Bangkok Area	Bangkok Area	Bangkok Area	Bangkok Area
Project Type	High / low rise condominium	Low rise condominium	Low rise / middle to high price	High / low rise condominium	High rise Luxury condominium

4.2.2 Interview data analysis

The expert's response to each question in the form of a table, consisting of ten tables arranged in the order of interview questions 1 through 10, had been summarized in order to analyze and draw conclusions from all the data that was obtained through the interview method.

Table 4.2

Answer of each interviewee on 1st question: “Did you think that people who have an income between 45,000-75,000 THB will face a difficulty to buy a condominium room inside of Bangkok area? And the reason why you think like that”

Interviewee	Answer
Expert number 1	No, since condominiums in Bangkok can be afforded by those with an income between 45,000 and 75,000 THB.
Expert number 2	No, because a product's price is influenced by various factors, such as the location and segment it belongs to. If you want to live close to the BTS green line, for instance, and your salary is 45,000 THB, you might need to

Table 4.2

Answer of each interviewee on 1st question: “Did you think that people who have an income between 45,000-75,000 THB will face a difficulty to buy a condominium room inside of Bangkok area? And the reason why you think like that” (Conts.)

Interviewee	Answer
	relocate a little further into suburbs area. However, this won't stop you from buying a home.
Expert number 3	Yes, they will Having trouble buying a place to live in the city center but for outer Bangkok or the extension of the city, there are still condos that are affordable to own.
Expert number 4	No, if the condominium is in an outer zone inside the Bangkok region, they can reach it; but, if it's an inner zone, such from Kaset or Phrakhanong to the inner city, they cannot, as the inner zone's land price per square meter is significantly more than the outer zone's. Furthermore, the conditions aren't going to be great if they find an affordable condominium in an inner city.
Expert number 5	No, if the condominium is in an outlying area, like a suburban area, people with an income between 45,000 and 75,000 THB can afford to buy it. However, there are still some reasonably priced condominiums in inner cities, but in terrible condition.

According to the interviews, the majority of informants (4 out of 5) stated that middleclass households earning between 45,000 and 75,000 Baht per month could afford condominiums in the vicinity of Bangkok. However, only one interviewee said that middle-class families would have trouble covering their living expenses because they would have to pay for about 30% of their income towards rent or the house's installment plan, leaving the remaining 70% for other expenses like groceries and food, travel, car payments, and credit card repayment (personal loan).

Table 4.3

Answer of each interviewee on 2nd question: “Do you think that nowadays price of condominium room is increasing from the past? And what condominium room price situation will be in the future?”

Interviewee	Answer
Expert number 1	Yes, it will continue to rise over time for two reasons: first, land prices will continue to rise; second, margin and markup will rise due to inflation, forcing developers to raise prices in order to maintain the same level of profit.
Expert number 2	One asset that is getting more and more expensive is real estate. As the city grows, it is anticipated that the price will keep rising in the future. However, all of this is dependent on the quantity of goods available. It will play a significant role in the price hike as well.

Table 4.3

Answer of each interviewee on 2nd question: “Do you think that nowadays price of condominium room is increasing from the past? And what condominium room price situation will be in the future?” (Conts.)

Interviewee	Answer
Expert number 3	As construction costs rise, condo prices fluctuate. In low- to mid-grade condos, price increases will persist. The cost of luxury condos in desirable areas, however, has skyrocketed.
Expert number 4	Indeed, if wages and materials rise, the price will rise. However, if there are too many condominium units available, the price will either freeze or increase slowly.
Expert number 5	Indeed, as land values rise over time, they will continue to rise. In addition, a condominium's value is location-dependent; if it's in an inner area, the price will skyrocket.

Based on the aforementioned interview records, it can be inferred that the increasing land market value is driving up the price of condominium units in the Bangkok area (Khumpaisal, 2022). Furthermore, the worldwide political unrest and the current economic downturn are significantly raising the cost of labor and building supplies. The results of this interview are consistent with the findings of the research presented in Chapter 2 (Figure 2.3), which shows that the price of condominiums is increasing annually.

Table 4.4

Answer of each interviewee on 3rd question: “Are there any support laws and policies that support residential for middle- income people inside of condominium projects? If have what are those policies, how much it has been applied to the project”

Interviewee	Answer
Expert number 1	A technique that has been employed is the loan-to-value (LTV) ratio, which is a financial expression utilized by lenders to convey the proportion of a loan to the worth of an asset acquired. However, the majority of developers are concentrating only on creating programs for low-income people rather than creating ones that assist middle-class people.
Expert number 2	There's no such policy as of right now, but there was a policy called BOI in the past (now canceled) that encouraged developers to build affordable housing with restrictions on room sizes and costs. in that project and grant tax exemptions to business owners who undertake BOI projects. However, the developers continue to believe that the costs of development are not justified. Because of the lack of interest in creating it, this policy was canceled, and as of right now, no new one has been implemented.

Table 4.4

Answer of each interviewee on 3rd question: “Are there any support laws and policies that support residential for middle- income people inside of condominium projects? If have what are those policies, how much it has been applied to the project” (Conts.)

Interviewee	Answer
Expert number 3	The Board of Investment endorses the Condo boi policy. The following requirements will help buyers purchase a condominium at a lower cost: the unit must not be smaller than 28 square meters and must not be sold for more than 1.2 million baht. Tax advantages are given to entrepreneurs; however, development is challenging due to annual increases in construction costs.
Expert number 4	Perhaps certain policies exist in other countries, but I'm not sure about Thailand. They tend to target low-income individuals and are not often used in large-scale projects.
Expert number 5	Uncertain about policies that provide support for projects targeted at middleclass individuals, but there are policies that provide support for projects targeted at lower-class individuals.

As the interviewee's responses to the third question reveal, Thailand previously implemented a number of regulations and policies aimed at encouraging the private sector to construct condominiums at reasonable costs. Nevertheless, most

of the present assistance laws and programs target low-income people rather than middleclass people, and many laws and policies have since been overturned, which is consistent with the research findings presented in Chapter 2 (**Figure 2.9**), which show that the majority of support policies only provide limited support for middle class individuals and only focus on low-income individuals. Most organizations have acknowledged this issue, but no one has yet to publicly take action or truly investigate this issue.

Table 4.5

Answer of each interviewee on 4th question: “Do you think is it essential or not to build condominium room inside of the project to have a price that middle-income people can access”

Interviewee	Answer
Expert number 1	Depending on the project's segment, if it falls under BEC, accommodations for middle-class individuals ought to be provided.
Expert number 2	Indeed, it is imperative because, when we truly look at the numbers, a significant percentage of Bangkok's middle-class population consists of working individuals who aspire to own a home.
Expert number 3	It is very necessary because middle income earners are a large group of customers in the market who have purchasing power and demand for housing.

Table 4.5

Answer of each interviewee on 4th question: “Do you think is it essential or not to build condominium room inside of the project to have a price that middle-income people can access” (Conts.)

Interviewee	Answer
Expert number 4	Indeed, it is necessary, but it also depends on how much the project's land will cost, as a high land price will also result in a high segment.
Expert number 5	Indeed, it's essential since middle-class individuals make up a sizable portion of the population in society.

Based on the interviewee's record, it is vital to price condominiums reasonably so that middle-class buyers, who make up a sizeable and noteworthy component of the market, may afford them (SCB, 2022). However, the condominium units will more expensive according to the higher price of land. Given the high cost of most land in Bangkok, developers often struggle to establish condominium pricing that are affordable for middle-class buyers.

Table 4.6

Answer of each interviewee on 5th question: “Do you have any guideline to help middle-income people have an access to residential in form of condominium unit inside of Bangkok area”

Interviewee	Answer
Expert number 1	Government assistance programs like collaborating with developers to reduce condominium prices can help pay a portion of the price to make it lower. An alternative approach would involve the government allocating a section of land near public transportation in Bangkok to the development of a middle-class project, to be managed by a government-affiliated corporation and restricted for middle-income people.
Expert number 2	- Assistance policies from banks or the government, such as reducing housing interest rates according to the price level. - Policies from the government that support entrepreneurs in housing project for middle-income people in order to attract more private sector companies to invest in this kind of projects. - Fund providers' policy of depositing funds as reserve money into housing-related banks, such as GH Bank, as more businesses follow this policy, there will

Table 4.6

Answer of each interviewee on 5th question: “Do you have any guideline to help middle-income people have an access to residential in form of condominium unit inside of Bangkok area” (Conts.)

Interviewee	Answer
	be more capital available to lend to the private sector on the condition that it be used for the development of middle-class housing that is accessible to them and has lower interest rates than other banks.
Expert number 3	Perform value engineering and create multi-segment projects to give customer's options. And the government must constantly modify the BOI requirements to account for changes in building costs.
Expert number 4	Government and private sector collaboration is required. For instance, if you construct a project or provide some condominium units to middle-class individuals, you will receive a tax or material price reduction.
Expert number 5	Assistance from the government in the form of lower taxes or lower condominium prices for projects that house units for middle-class people.

In summary, the answers provided by the respondent to the fifth question suggest that almost all of the expert-recommended laws and policies center on reducing taxes and interest rates, two things that need government support to be put into effect. Government support is necessary because it plays a significant role and covers a wide range of topics, including developing infrastructure, offering financial support and incentives, and establishing a favorable legislative and regulatory framework (Flat and Flatmates Solutions, 2023).

Table 4.7

Answer of each interviewee on 6th question: “What is minimum land size that suitable to construct a condominium project”

Interviewee	Answer
Expert number 1	Minimum is 1 Rai (1,600 Sq.m.)
Expert number 2	More than 2 Rai (3,200 Sq.m.)
Expert number 3	Slightly over 1 Rai (1,600 Sq. M.) is the size of a luxury condo. More than 4 Rai (6,400 Sq. M) is required for a low- to mid-range condo in order to generate economies of scale and keep prices reasonable.
Expert number 4	Around 2 Rai (3,200 Sq.m.)
Expert number 5	Around 1-2 Rai is ok (1,600-3,200 Sq.m.)

Based on the interviewees' comments, it can be concluded that 1-2 Rai is the right size for a Bangkok condominium building. Aside from land size, other factors to consider are the location's FAR and OSR since they may have an impact on the overall amount of buildable space in this area (Phornchokchai, N., 2021). This could have an impact on the profit the developer makes from the land.

Table 4.8

Answer of each interviewee on 7th question: “What is your opinion about making a condominium unit have mixed room type for all low-income people, middle-income people and high income people”

Interviewee	Answer
Expert number 1	It's a smart idea from the perspective of the room matrix since it will add variety and aid in marketing, which will speed up project sales and increase profitability.
Expert number 2	Should separate each segment explicitly.
Expert number 3	Mixed design poses a challenge. Every market segment has distinct requirements. Resource control is more challenging. Furthermore, if the project's target audience is not clearly identified through marketing, it could fail.
Expert number 4	I disagree because it can have a negative impact on brand reputation and cause issues between individuals from different social groups.
Expert number 5	Mixing different room types is a good idea in terms of design because it adds variety and makes the project easier to sell, but it can cause issues in terms of society.

In response to the seventh question, the interviewee stated that mixed-use condominiums that accommodate rooms for different customer segments are not popular and should be avoided because they could lead to conflicts between

different customer segments because people from different socioeconomic classes live together. Other challenges and issues could also arise, such as different lifestyle problems because different lifestyles and spending habits could lead to conflicts over things like travel, dressing style, and recreational activities.

Table 4.9

Answer of each interviewee on 8th question: “If dividing a 30sq.m. condominium room into a proportions according to program used, what program should have inside of the room, at which percentage in each program and why?”

Interviewee	Answer
Expert number 1	Livingroom and bedroom 60-75% Kitchen, Bathroom and balcony 25-40%.
Expert number 2	Livingroom 40%, Bedroom 30%, Kitchen 20%, Bathroom 10%.
Expert number 3	Livingroom 25%, Bedroom 30%, Kitchen + Dining 25%, Bathroom 10%, Balcony 10%
Expert number 4	Bedroom and Livingroom 60%, Bathroom 20%, Kitchen room 10%, Balcony 10%
Expert number 5	Livingroom 40%, Bedroom 30%, Kitchen 20%, Bathroom 10%.

The living room and bedroom are the most used parts of the programme, followed by the kitchen, balcony, bathroom, and so on, according to the interviewee's answers to the ninth question. (Ernst, N., 2023)

Table 4.10

Answer of each interviewee on 9th question: “What facility and utility is the most important and the most necessary in condominium development project which have a price between 1,750,000-2,900,000 THB”

Interviewee	Answer
Expert number 1	Parking lot, Swimming pool, Fitness and Laundry room
Expert number 2	Co-working space, Fitness room, Swimming pool, Transportation service.
Expert number 3	Digital door lock, Fitness room, Swimming pool, Co-working space.
Expert number 4	Parking lot, Green space
Expert number 5	Parking lot, Swimming pool, Fitness and Co-working space

According to the interviewees' opinions, the fitness center, swimming pool, and co-working space are the most valuable amenities. However, only one of them brought up security, which is a crucial aspect for condo buyers. Similarly, only one person brought up green space, another important element that could affect the mental health of the locals.

Table 4.11

Answer of each interviewee on 10th question: “How much profit development companies need to get from a condominium project to call it a worth?”

Interviewee	Answer
Expert number 1	If it ROI should not lower than 35% if it IRR is around 20%
Expert number 2	Development companies need to get net profit around 17%-20%

Table 4.11

Answer of each interviewee on 10th question: “How much profit development companies need to get from a condominium project to call it a worth?” (Conts.)

Interviewee	Answer
Expert number 3	Development companies need to get net profit around 15%
Expert number 4	Development companies need to get ROI around 40%
Expert number 5	ROI should not lower than 30%

Based on the respondent's answers, a condominium construction project needs to make a profit of 15–20 percent of net profit, or 30–50 percent, to justify the investment.

4.3 Data analysis on most suitable district and land plot

4.3.1 Analysis on most suitable district

The researcher performed an analysis based on two criteria to identify which district would be the most effective: 1. Price 2. Accessibility

(1) Affordability analysis

The researcher considered the loan amount rate (**Table4.12**) and a set of data in land price of each zoning in Bangkok (**Table1.2**), and compared its together to give score respectively and determine which district would be the most effective.

Table 4.12

Loan amount that people can loan according to their wage

	Wage	Monthly loan payment	Maximum loan amount
8 Points	15,000 Baht	6,000 Baht	1,000,000 Baht
	20,000 Baht	8,000 Baht	1,300,000 Baht
	25,000 Baht	10,000 Baht	1,600,000 Baht
	30,000 Baht	12,000 Baht	2,000,000 Baht
	35,000 Baht	14,000 Baht	2,300,000 Baht
6 Points	40,000 Baht	16,000 Baht	2,600,000 Baht
	45,000 Baht	18,000 Baht	3,000,000 Baht
	50,000 Baht	20,000 Baht	3,300,000 Baht
	55,000 Baht	22,000 Baht	3,600,000 Baht
	60,000 Baht	24,000 Baht	4,000,000 Baht
4 Points	65,000 Baht	26,000 Baht	4,300,000 Baht
	70,000 Baht	28,000 Baht	4,600,000 Baht
	75,000 Baht	30,000 Baht	5,000,000 Baht
	80,000 Baht	32,000 Baht	5,300,000 Baht
	85,000 Baht	34,000 Baht	5,600,000 Baht
2 Points	90,000 Baht	36,000 Baht	6,000,000 Baht
	95,000 Baht	38,000 Baht	6,300,000 Baht
	100,000 Baht	40,000 Baht	6,600,000 Baht
	150,000 Baht	60,000 Baht	10,000,000 Baht

The findings of an investigation indicate that four areas in the Bangkok region are appropriate for the construction of condominium developments intended for middle-class inhabitants. These districts are as follows: 1) Chatuchak and Bangsue district (Zone 2); 2) Ratchathewi, Phaya-Thai, Din-Daeng, and Huai Khwang district (Zone 3); 3) Wang Thonglang and Bang Kapi district (Zone 6); and 4) Lat Phrao district (Zone 7).

With a minimum land price of 35,000 baht/Sq.m., a medium land price of 73,750 baht/Sq.m., and a maximum land price of 112,500 baht/Sq.m., Chatuchak and Bangsue district (Zone 2) has the second-highest land price among the four appropriate locations. If you bring this set and compare it with the loan amount that people can loan, you will find that the minimum income rate needed to receive a loan in the amount that corresponds to the Zone 2 region is 40,000 baht per month, which is within the range of the earnings of those with middle-class incomes (Table 4.12). (4 Points)

With a minimum land price of 55,000 baht/Sq.m., a medium land price of 90,000 baht/Sq.m., and a maximum land price of 125,000 baht/Sq.m., the districts of Ratchathewi, Phaya-Thai, Din-Daeng, and Huai Khwang (Zone 3) have the highest land prices among the four appropriate areas. The minimum income needed to acquire a loan in the Zone 3 area is 65,000 baht per month, which is a substantial amount for middle-class folks relative to their pay when compared to the highest loan amount available (Table 4.12). (6 Points)

Within Wang Thonglang and Bang Kapi district (Zone 6), land prices range from 12,500 baht per square metre at the minimum to 31,200 baht per square metre at the medium and 50,000 baht per square metre at the maximum. These amounts correspond to a medium land price in four suitable regions. The least income needed to get a loan in the amount that corresponds to the Zone 6 area is 15,000 baht per month, which is a fairly realistic number for middle-class earnings if one were to take this set and compare it to the highest loan amount available in Table 4.12. (8 Points)

The Lat Phrao district (Zone 7) has three different land prices: minimum (12,500 baht/sq.m.), medium (27,500 baht/sq.m.), and maximum (42,500 baht/sq.m.). Taking this set and contrasting it with the highest loan amount shown in (Table 4.12) A loan in the Zone 7 area requires a minimum monthly income of 15,000 baht to be approved. This puts this area in second place out of the five areas with the lowest land prices, and it's a fair amount for middle-class people. (8 Points)

(2) Accessibility analysis

To identify the best location for condominium development for a middle-class project, the researcher has done an accessibility analysis in two aspect included of 1. Transportation accessibility 2. Facilities accessibility.

- Transportation accessibility analysis

To find the best location for a condominium development for a middle-class project, the researcher compared the accessibility length of mass transportation nodes (500 meters around transportation nodes), which includes the Thai train, MRT red, MRT yellow, MRT brown, MRT blue, MRT purple, MRT orange, and

BTS sky train. These nodes were chosen from four different zones and give score respectively. In this manner, the writer can decide which of the four districts is best.

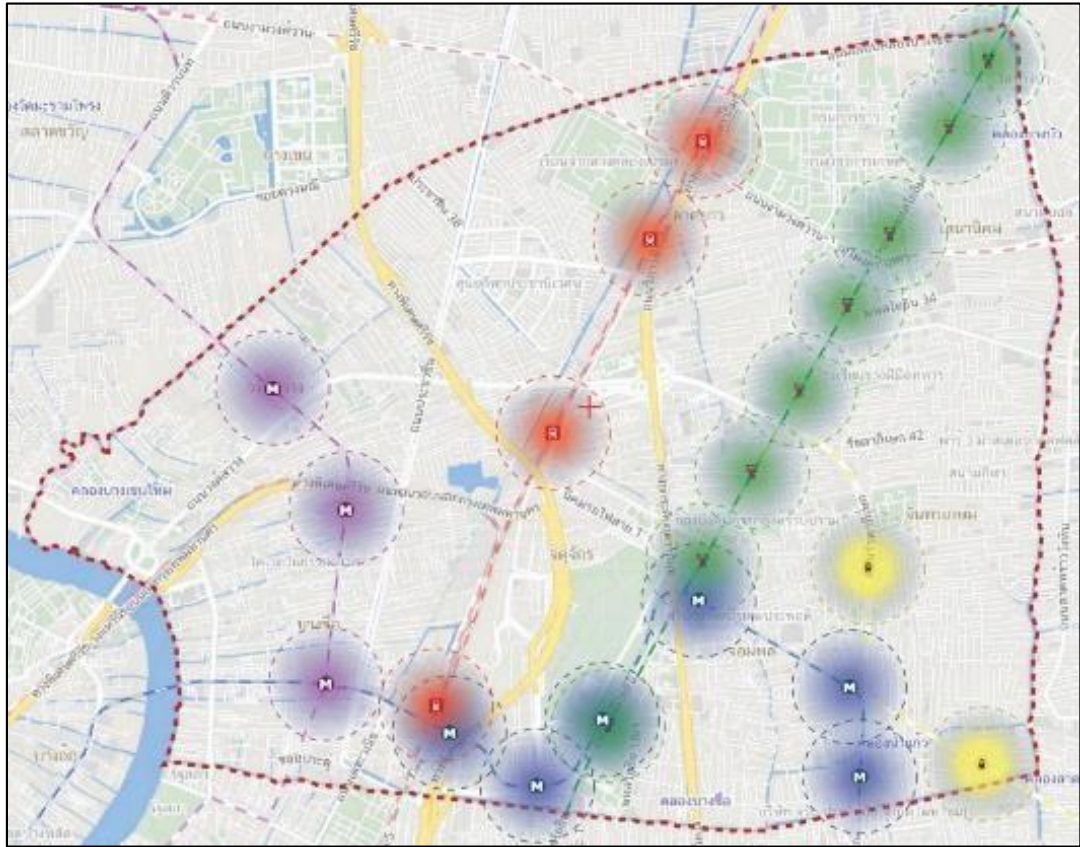


Figure 4.1 Transportation accessibility analysis of Chatuchak and Bangsue district

There are six different kinds of transport nodes in Chatuchak and Bangsue district (Zone 2): MRT red, yellow, blue, purple and Thai trains; in total, there are 23 transport nodes. These nodes are dispersed throughout the region, linking it to the CBD, various regions of Bangkok, and the provincial and suburban districts. This guarantees that the region has good transport accessibility and is well-connected. To sum up, this zone offers excellent transit links to other locations, but some places are still too far away to be accessible on foot from a mass transit hub. There are six different kinds of transport nodes in Chatuchak and Bangsue district (Zone 2): MRT red, yellow, blue, purple and Thai trains; in total, there are 23 transport nodes. These nodes are dispersed throughout the region, linking it to the CBD, various regions of Bangkok, and the provincial and suburban districts. This guarantees that the region has good

transport accessibility and is well-connected. To sum up, this zone offers excellent transit links to other locations, but some places are still too far away to be pedestrian accessible from a mass transit hub.

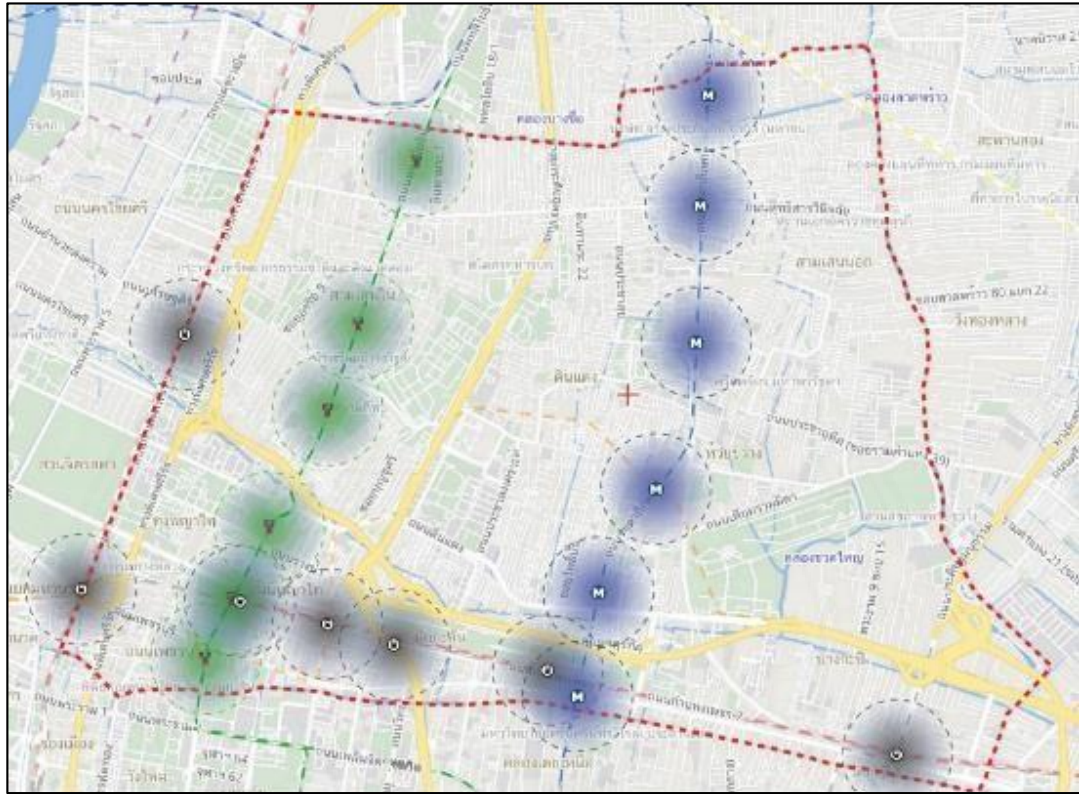


Figure 4.2 Transportation accessibility analysis of of Ratchathewi, Phaya-Thai, Din-Daeng and Huai Khwang district

There are three different kinds of transport nodes in the districts of Ratchathewi, PhayaThai, Din-Daeng, and Huai Khwang: the MRT blue line, the BTS sky train, and the Thai train (18 in total). These nodes dispersed throughout the region, linking it to sub-urban areas, central business districts, and other regions of Bangkok and other provinces. As a result, the area's transport system links and accessibility are good. In conclusion, transportation is generally well-served in this area, while some parts are still difficult to get to on foot from a mass transit hub.

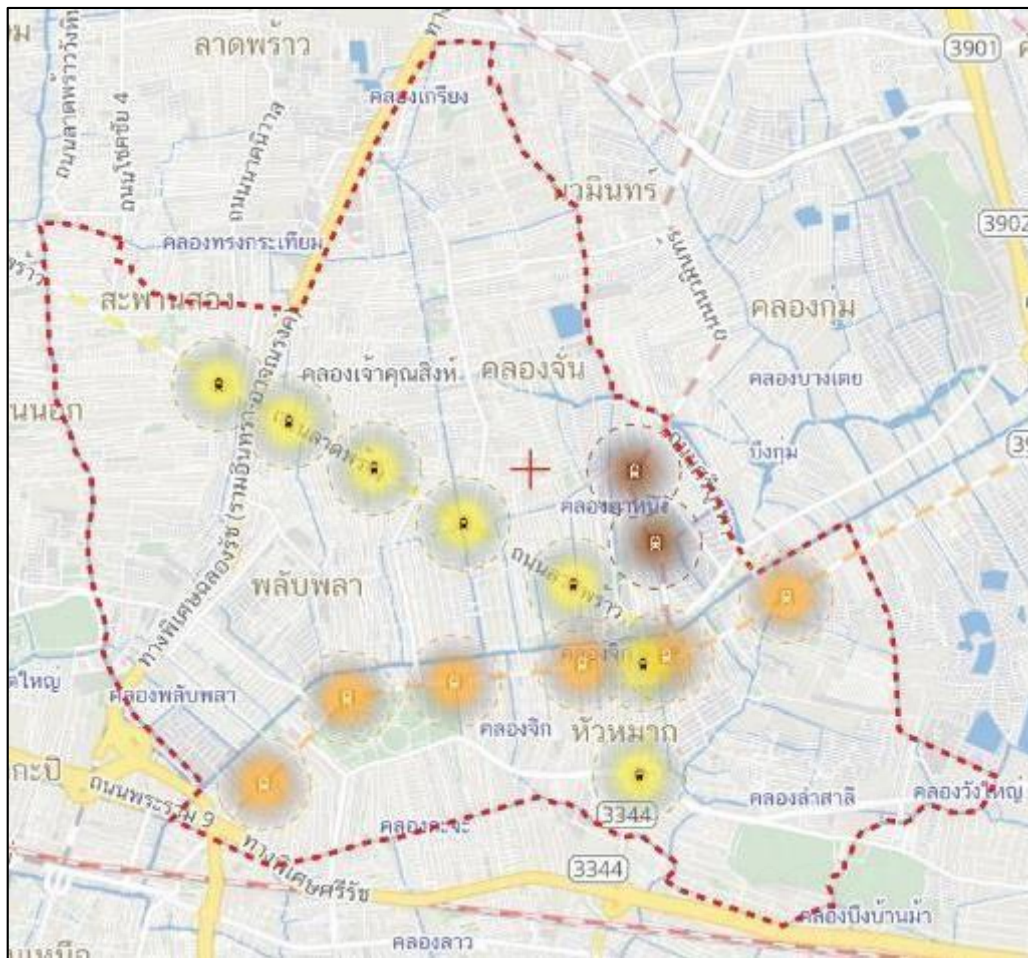


Figure 4.3 Transportation accessibility analysis of Wang Thonglang and Bang Kapi district

There are three different kinds of transport nodes in the Wang Thonglang and Bang Kapi district (Zone 6): MRT orange, MRT brown and MRT yellow. There were fifteen of these nodes in all, dispersed all over the place and linking it to different areas of Bangkok. This zone's transit node are all current projects with further construction planned. In summary, there are still some places that are too far apart to walk, but this zone has a good transport system that will be developed in the future, which will affect the price of land in the area.

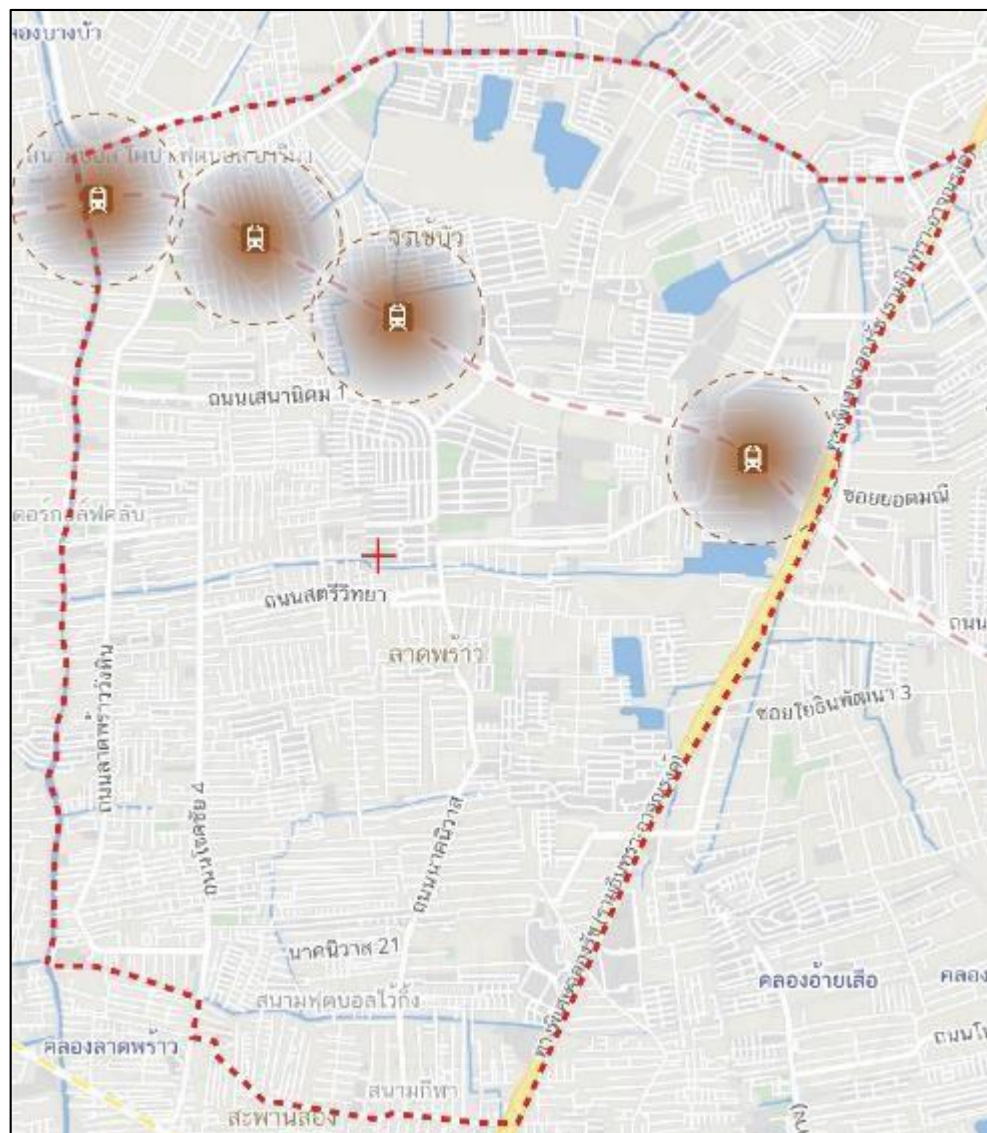


Figure 4.4 Transportation accessibility analysis of Lat Phrao district

Situated on the northern edge of Zone 7, the MRT brown line is the only transit node in the Lat Phrao area. It has four stops in total. Future transit-oriented development will connect this area to other areas of Bangkok. In conclusion, there is still no transportation connection between this zone and other locations, and a significant portion of the zone is inaccessible from a hub for mass transit.

In conclusion Zone 2, which has numerous mass transit nodes connecting it to different areas both inside and outside of Bangkok, has the best accessibility, according to a review of the accessibility elements of the four zones. Zone 6, on the other hand, contains much of the region that will be covered by future mass transit

expansions. Third position goes to Zone 3, which contains a range of transport hubs but certain locations that are still not entirely accessible by mass transit. Conversely, Zone 7 is limited to its northern boundaries and has just one mode of transit.

- Facilities accessibility analysis

By comparing each district's accessibility to the distance (1 km) from a hospital and a sizable educational facility in each of the four districts that were selected in order to determine which of the four districts was the most appropriate, the author not only analyzed each district's only in transportation accessibility but also in facilities accessibility and give score respectively.



Figure 4.5 Facilities accessibility analysis of Chatuchak and Bangsue district

The Chatuchak and Bangsue district is location to five hospitals and eight large educational facilities, yet certain places are still inaccessible even though they are adjacent to these services. In conclusion, this zone is very inclusively accessible, yet some sections are still devoid of this attribute.



Figure 4.6 Facilities accessibility analysis of Ratchathewi, Phaya-Thai, Din-Daeng and Huai Khwang district

Eleven hospitals and twelve sizable educational facilities are spread out among the Ratchathewi, Phaya-Thai, Din-Daeng, and Huai Khwang districts, which together account for nearly all of the zone's accessibility. In conclusion, the area's positive inclusion aspect is enhanced by the fact that people will benefit from excellent hospital and educational accessibility.

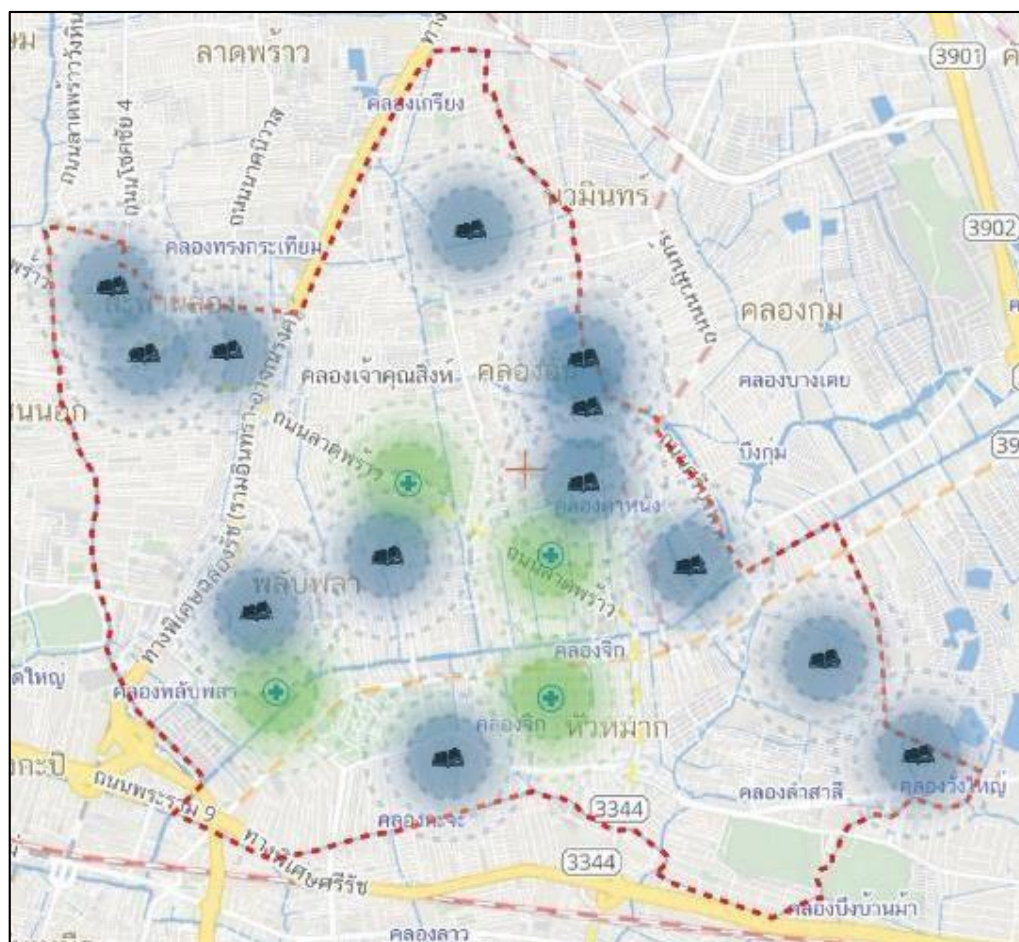


Figure 4.7 Facilities accessibility analysis of Wang Thonglang and Bang Kapi district

There are thirteen sizable educational institutions and four hospitals in the Wang Thonglang and Bang Kapi district. The hospitals are still closed to the public, given that the educational facilities in this area are easily accessible. In conclusion, public transport provides adequate educational opportunities in this location, but a health care facility is still lacking.

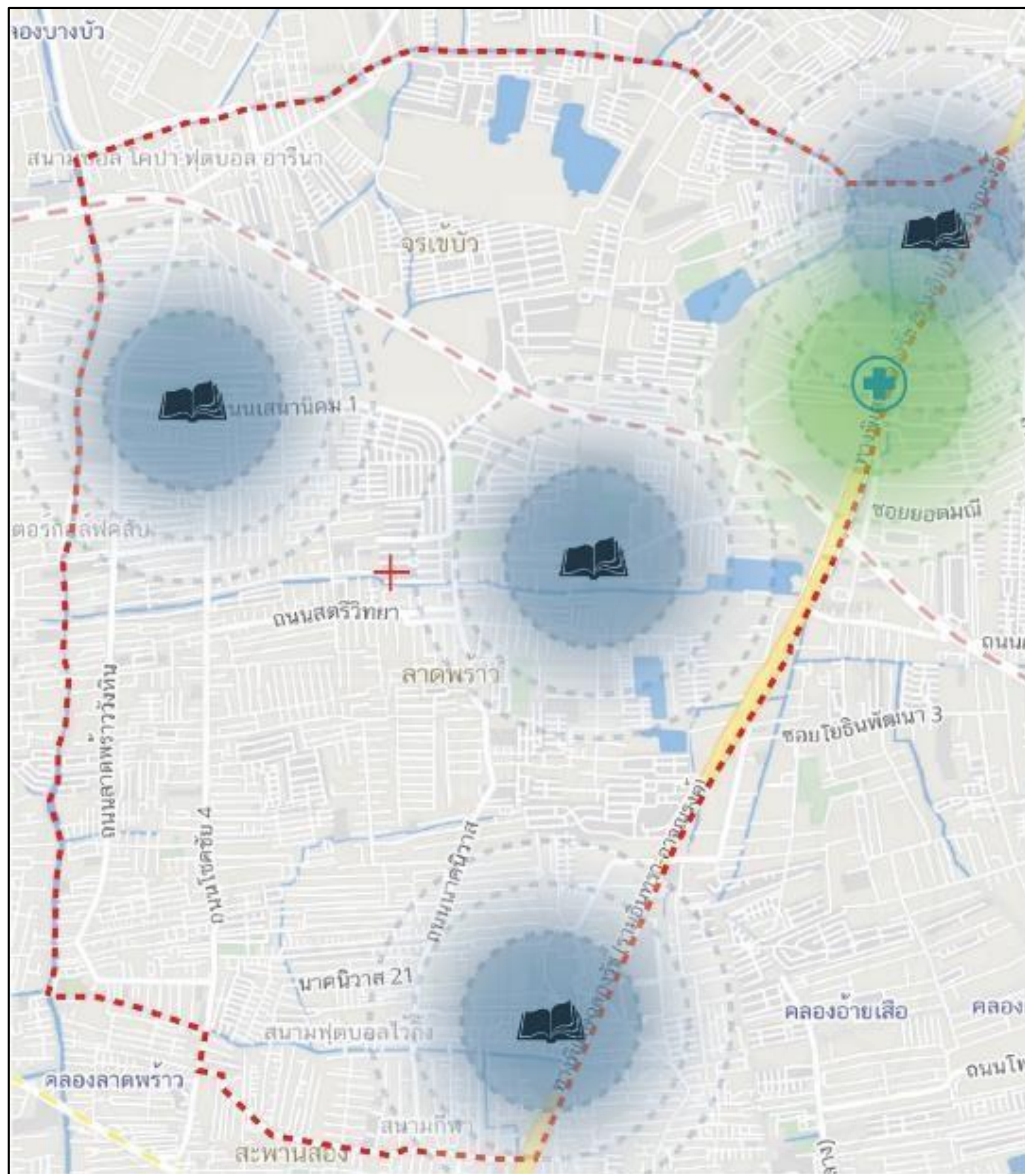


Figure 4.8 Facilities accessibility analysis of Lat Phrao district

A specific Lat Phrao district's limits contain one hospital and four sizable educational facilities. In conclusion, locals in this area still lack of accessibility in facilities and accessibility.

Table 4.13

Score of each zone in site selection progress

Zone number and area	Score			Total Score
	Affordability	Accessibility	Facilities	
Zone2: Chatuchak and Bangsue	6 Points	3 Points	3 Points	12 Points
Zone 3: Ratchathewi, Phaya-Thai, Din-Daeng and Huai Khwang district	4 Points	2 Points	4 Points	10 Points
Zone 6: Wang Thonglang and Bang Kapi district	8 Points	4 Points	2 Points	14 Points
Zone 7: Lat Phrao and ditrict	8 Points	1 Points	1 Points	10 Points

The author concluded that Zone 6 Wang Thonglang and Bang Kapi district is the best area for middle-class residents to live in after analysing four zones: Zone 2, Zone 3, Zone 6, and Zone 7. This is because the area offers a wealth of educational opportunities, has reasonable housing costs, and is close to a mass transit development project that will connect the zone to other parts of Bangkok and raise its future land value. Additionally, Wang Thonglang and Bang Kapi district's land color was changed from yellow to orange in the city's next comprehensive plan, giving it a lot of potential for future development.

4.3.2 Analysis on most suitable land site

The author conducted a study case in Wang Thonglang and Bang Kapi district to illustrate appropriate condominiums designed for middle-class individuals. The study involved analyzing a land plot within the appropriate district, taking into account factors such as land price, land size, and profit margin to be earned by the developer upon selling all units within the condominium development project.

- Land price & Land size analysis

The author used selected criteria to determine which land plot inside Wang Thonglang and Bang Kapi district would be best for developing a project including of 1. Having a land size between 1-2 Rai 2. Is able to turn a profit again 3. Be easily accessible.

Based on analysis, the author has selected five land plots within a potential development area for condominiums and will evaluate each one to determine which is most effective.

To come up with the most suitable land plot, the researcher has set up a specific cost of elements that will be used in calculation from these methods:

- FAR and OSR: FAR and OSR in this regard were assumed based on Bangkok Comprehensive Plan B.E.2556 (**BMA, 2013**), for the particular area.

- Efficiency Rate is calculated by the percentage of sellable area against gross building area, in the design of the middle income residential project, 60% is the most suitable efficiency rate (**Joseph, C. & Martin, Z., 1994**)

- The construction cost per Sqm., referred to Thailand Valuation Association (**TVA, 2022**), but this cost only covered on the hard cost of 20500 Baht/Sqm. Then the researcher added the soft cost of 3000 Baht/sqm. In order to make the construction cost more reasonable.

- The researcher employed the cost approach to price the condominium unit's price. Given that the construction cost per sellable area is 64,655 Baht/Sqm., the developer was assumed to gain 18% benefit, thus the price of unit became 78,000 Baht/sqm.

$$\begin{aligned}
 \text{Price (per Sqm.)} &= \text{Cost per Sellable Area} \times "K" \\
 &= 64,655 \times 1 / (1 - 0.18) \\
 &= 64,655 \times 1.22 \\
 &= 78,369, \text{ but it round- down to } 78,000
 \end{aligned}$$

Gross Benefit = Price of the project - Overall Project Cost

*(The researcher did not included Tax, Depreciation and Amortisation in the ROI Calculation) *

4.3.2.1 Land price analysis on land plot 1



Figure 4.9 Location of land plot 1

Plot 1 is a suitable-sized land plot measuring 3,120 square meters and is situated in the Wang Thonglang district. possess a total land value of 124,800,000 THB. This land is well accessible, being situated a short walk from the MRT yellow line station.

Following an inspection of the land's condition, the author conducted a land price analysis to determine whether or not the land can be profitable by calculating the building cost, FAR, OSR, and efficiency rate.

Table 4.14

Land price analysis on land plot 1

Land size	780	Sq.wa
Price per Sq.wa	160,000	THB/Sq.wa
Land price	124,800,000	THB
FAR	5	
Building area	15,600	Sq.m.
OSR	0.06	
Open space area	2,932.80	Sq.m.
Efficiency rate	0.60	
Sales area	7,600.32	Sq.m.
Total sales units	253	Units
Construction cost per Sq.m.	23,500	THB/Sq.m.
Total construction cost	366,600,000	THB
Total project develop cost	491,400,000	THB
Selling price per Sq.m.	78,000	THB
Selling price per units	2,350,000	THB
Total project selling price	592,824,960	THB
Profit	101,424,960	THB
Return on investment	21%	

When all factors are taken into account, the land plot can yield a profit of 21% return on investment, which is significantly less than the minimum profit required for the developer to launch a project. However, because it is located close to a mass transit hub, this area gains significance.

4.3.2.2 Land price analysis on Land plot 2

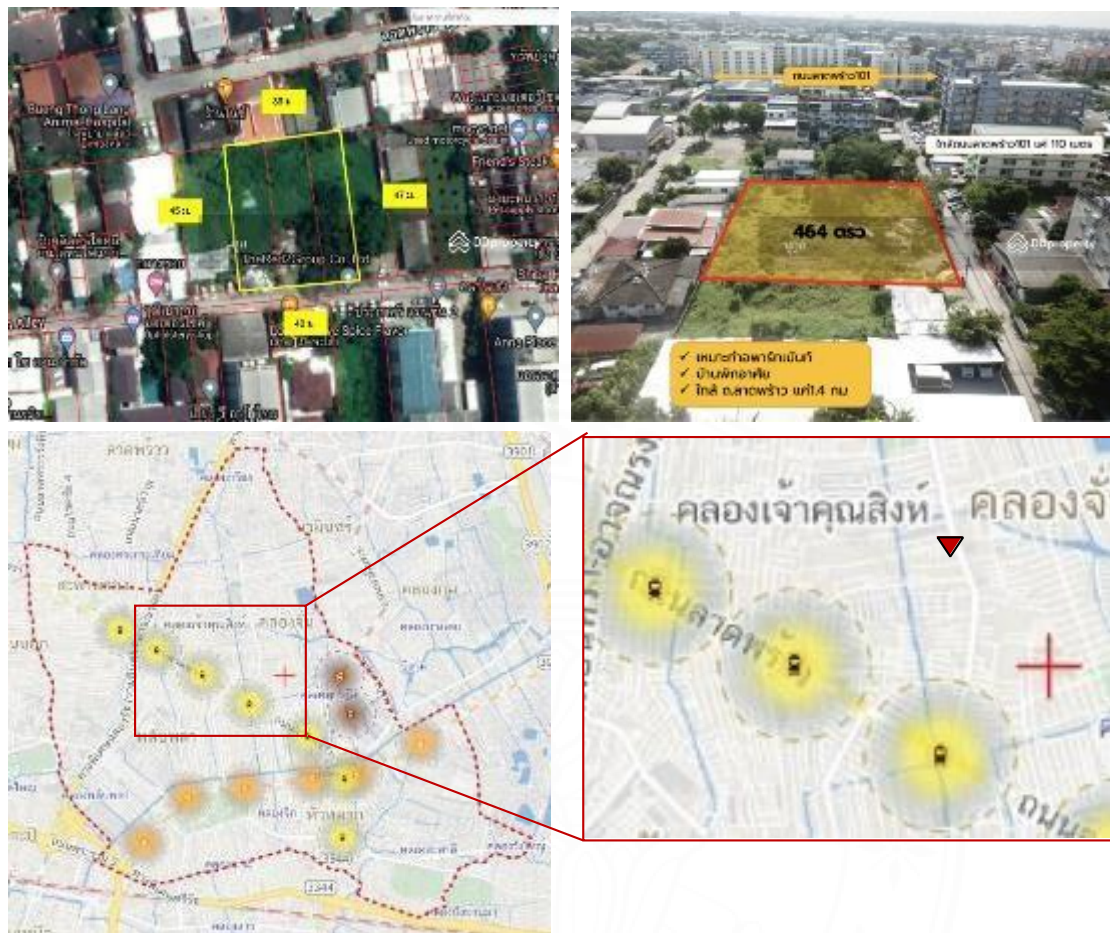


Figure 4.10 Location of land plot 2

Plot 2 is a suitable-sized plot of land measuring 1,852 square meters and is situated in the Wang Thonglang district possess a total land cost of 39,355,000 THB. This land is situated close to an MRT yellow line station, but it is not walkable, indicating that it has a medium level of accessibility.

Following an inspection of the land's condition, the author conducted a land price analysis to determine whether or not the land can be profitable by calculating the building cost, FAR, OSR, and efficiency rate.

Table 4.15

Land price analysis on land plot 2

Land size	463	Sq.wa
Price per Sq.wa	85,000	THB/Sq.wa
Land price	39,355,000	THB
FAR	5	
Building area	9,260	Sq.m.
OSR	0.06	
Open space area	1740.88	Sq.m.
Efficiency rate	0.60	
Sales area	4,511.47	Sq.m.
Total sales units	150	Units
Construction cost per Sq.m.	23,500	THB/Sq.m.
Total construction cost	217,610,000	THB
Total project development cost	256,965,000	THB
Selling price per Sq.m.	78,000	THB
Selling price per unit	2,350,000	THB
Total project selling price	351,894,816	THB
Profit	94,929,816	THB
Return on investment	37%	

When all factors are taken into account, this land plot can yield a profit of 37% return on investment, which is within the acceptable profit margin required by the developer to launch a project. However, the land is situated further away from a mass transit hub than it is close to one, making it a noteworthy area despite not being walkable.

4.3.2.3 Land price analysis on Land plot 3



Figure 4.11 Location of land plot 3

Plot 3 is situated in the Wang Thonglang district and has a suitable land size of 1,980 square meters. possess a total land value of 34,650,000 THB. Its location away from the MRT yellow line station makes it difficult to access.

Following an inspection of the land's condition, the author conducted a land price analysis to determine whether or not the land can be profitable by calculating the building cost, FAR, OSR, and efficiency rate.

Table 4.16

Land price analysis on land plot 3

Land size	495	Sq.wa
Price per Sq.wa	70,000	THB/Sq.wa
Land price	34,650,000	THB
FAR	5	
Building area	9,900	Sq.m.
OSR	0.06	
Open space area	1,861.20	Sq.m.
Efficiency rate	0.60	
Sales area	4,823.28	Sq.m.
Total sales units	160	Units
Construction cost per Sq.m.	23,500	THB/Sq.m.
Total construction cost	232,650,000	THB
Total project development cost	267,300,000	THB
Selling price per Sq.m.	78,000	THB
Selling price per unit	2,350,000	THB
Total project selling price	376,215,840	THB
Profit	108,915,840	THB
Return on investment	41%	

This land plot can generate a profit at 41% of return on investment after all factors are taken into account, which puts it within the acceptable profit range required by the developer to launch a project. However, because it is farther from a mass transit hub, the area is not suitable for development.

4.3.2.4 Land price analysis on Land plot 4

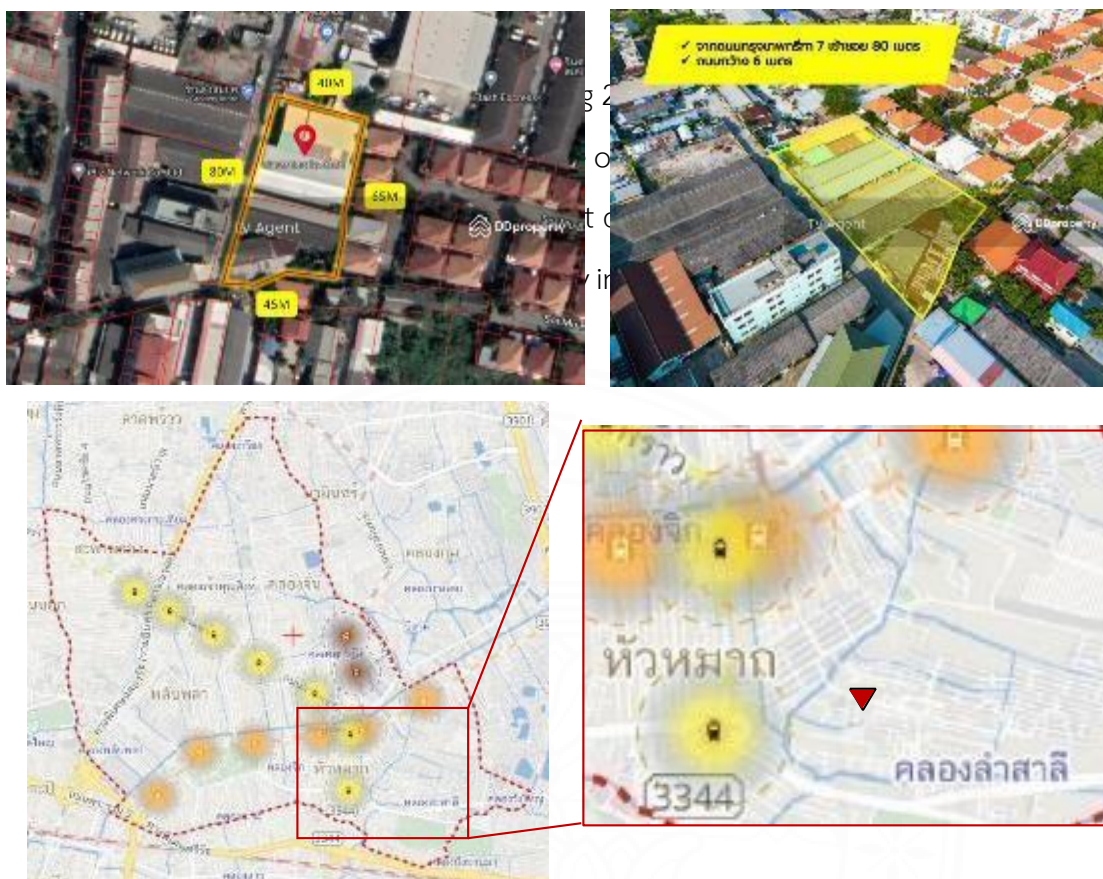


Figure 4.12 Location of land plot 4

Following an inspection of the land's condition, the author conducted a land price analysis to determine whether or not the land can be profitable by calculating the building cost, FAR, OSR, and efficiency rate.

Table 4.17

Land price analysis on land plot 4

Land size	704	Sq.wa
Price per Sq.wa	75,284	THB/Sq.wa
Land price	53,000,000	THB
FAR	5	
Building area	14,080	Sq.m.
OSR	0.06	

Table 4.17

Land price analysis on land plot 4 (Conts.)

Open space area	2,647.04	Sq.m.
Efficiency rate	0.60	
Sales area	6,859.78	Sq.m.
Total sales units	228	Units
Construction cost per Sq.m.	23,500	THB/Sq.m.
Total construction cost	330,880,000	THB
Total project development cost	383,879,936	THB
Selling price per Sq.m.	78,000	THB
Selling price per unit	2,350,000	THB
Total project selling price	535,062,528	THB
Profit	151,182,592	THB
Return on investment	39%	

When all factors are taken into account, this land plot can yield a profit of 39% return on investment, which is within the acceptable profit margin required by the developer to launch a project. However, because it is farther from a mass transit hub, the area is not suitable for development.

4.3.2.5 Land price analysis on Land plot 5



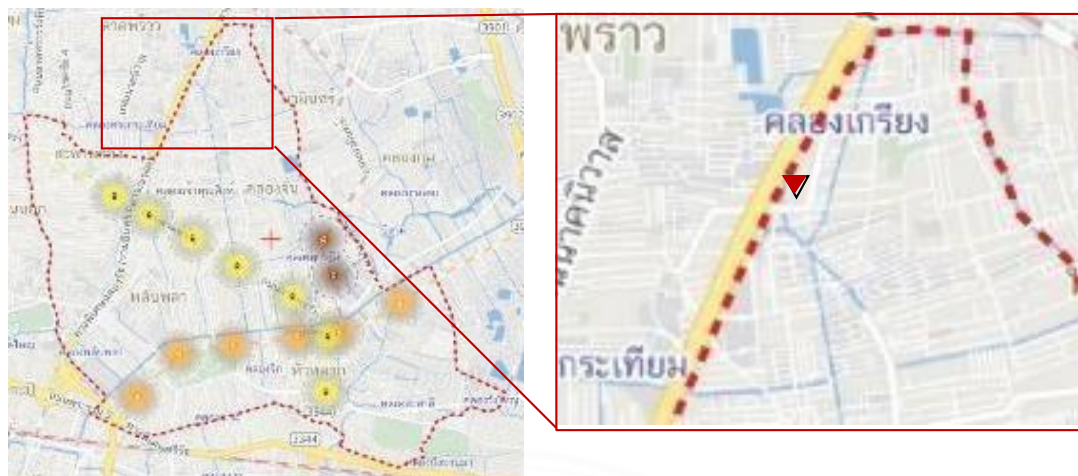


Figure 4.13 Location of land plot 5

Plot 5, situated in the Bang Kapi district, offers a suitable land size of 3,120 square meters. with a total land price of 113,100,000 THB. This land has poor accessibility because it is situated far from an MRT yellow line station, making it difficult for people to access transportation.

Following an inspection of the land's condition, the author conducted a land price analysis to determine whether or not the land can be profitable by calculating the building cost, FAR, OSR, and efficiency rate.

Table 4.18

Land price analysis on land plot 5

Land size	780	Sq.wa
Price per Sq.wa	145,000	THB/Sq.wa
Land price	113,100,000	THB
FAR	5	
Building area	15,600	Sq.m.
OSR	0.06	
Open space area	2,932.80	Sq.m.
Efficiency rate	0.60	
Sales area	7,600.32	Sq.m.
Total sales units	253	Units

Table 4.18

Land price analysis on land plot 5 (Conts.)

Construction cost per Sq.m.	23,500	THB/Sq.m.
Total construction cost	366,600,000	THB
Total project development cost	479,700,000	THB
Selling price per Sq.m.	78,000	THB
Selling price per unit	253	Units
Total project selling price	592,824,960	THB
Profit	113,124,960	THB
Return on investment	24%	

When all factors are taken into account, this land plot can yield a profit at a rate of 30% return on investment, which puts it above the minimum profit required by the developer to launch a project. However, because it is situated far from a mass transit hub, the area is not suitable for development.

Following an analysis of five selected land plots, the author concluded that land plots 2, 3, and land plot 4 had generated return profits at an acceptable rate (30–50% ROI). However, they all shared the drawback of being located farther away from a mass transit hub and having poor accessibility, in contrast to land plot No. 1, which generated less profit but was located within walking distance of a mass transit hub.

This situation has led to the assumption that land in a desirable location will fetch a high price, which will reduce the profit margin of the development project. In summary, the author has determined that land plot number one is the best option for developing a condominium project for middle-class residents. While this land plot produces lower profits than other land and does not have an acceptable profit rate (21% from 30%), it is also conveniently located near a mass transit hub, which is a crucial convenience for middle-class residents and gives this land plot more development potential than other land plot areas.

4.4 The most appropriate condominium design for middle-income people.

In this topic the author has separate a topic of condominium design into two part included of 1. Necessary facilities and utilities design for middle-income condominium (1,700,000-2,500,000 THB/Unit) and 2. Most appropriate unit design.

4.4.1 Necessary facilities and utilities design for middle-income condominium (1,700,000-2,500,000 THB/Unit)

To find the most necessary facilities and utilities design the author has used a data from a respond of experts in interview question number 9th as a guideline of a facility and utility design.

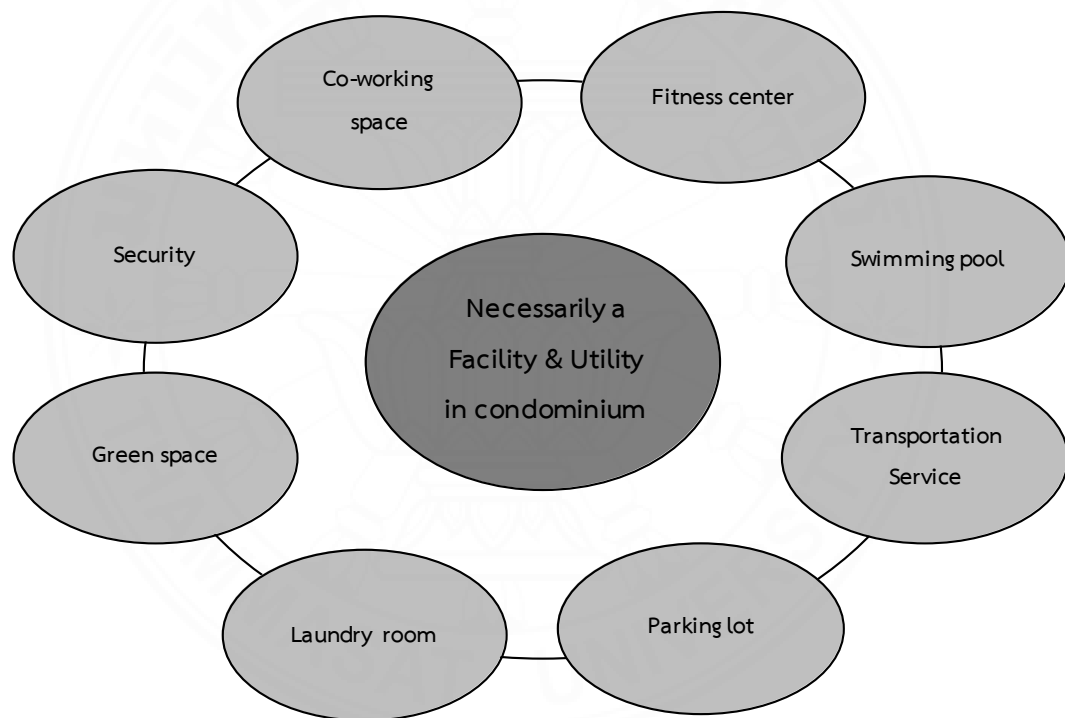


Figure 4.14 Necessarily facility and utility in condominium

According to interviewee this 8 amenities are necessary facility and utility that have to located inside of condominium project but in low-rise condominium project with limited site area it is challenge to contain all of this facilities. To narrate this problem and find the most suitable way to apply facilities and utility inside of low-rise with limited site area, the author has stimulated a situation

that might happen by doing a study case in selected site area (Land plot No.1). To stimulate out the situation that might happen in the case study the author has separate 8 necessary facilities and utilities into 2 group included of 1. Indoor facilities and utilities 2. Outdoor facilities and utilities.

4.4.1.1) Indoor facilities and utilities

An indoor facilities and utilities that has been considering in this thesis will including of Co-working space, fitness center, security and laundry room. To stimulate out a possible design way of indoor facilities and utilities and the issue that might happen, the author has doing an in depth analysis on each facilities and utilities program.

- Co-working space

In the wake of the COVID-19 pandemic, co-working spaces have become increasingly popular as condominium amenities. They are now regarded as crucial components of modern condominium architecture. There is no minimum area requirement for co-working spaces; instead, it depends on the number of users. Since this thesis is focused on affordable condominium projects in small land plot sizes, co-working spaces cannot have a large amount of space because doing so would reduce the developer's already meager profit from the project. Therefore, the best layout for a co-working space in an affordable condominium project is to put it on the ground floor, as this will allow for the use of the building's basic structure and save money over the construction of a separate co-working space building. To accommodate customers who may rearrange the furniture in their co-working space area to suit their needs and make up for any space constraints, the furniture must be movable.

- Fitness Center

One of the key features that almost every condominium building has is a fitness center. Since the COVID-19 pandemic, people have become more interested in maintaining their health, which has increased demand for the fitness center's services. A fitness center's minimum area is 93 square meters, and its average fitness studio is 355 square meters. Like co-working spaces, fitness centers must have a limited area to preserve developer profits. The ideal layout is also that

of co-working spaces, which are located on the ground floor, utilize the building's basic structure, and save money by not having to build a new co-working space building.

- Security

One of the most fundamental and crucial components of any condominium project is security, which can be broken down into many different categories, including CCTV, digital door locks, security guards, keycards, and fire alarms. These facilities can be found inside affordable condominiums because they don't require a lot of building space.

- Laundry room

The laundry room is an addition facility, but it is not as necessary or as large as the others three facilities. It is best to locate it on the ground floor in a location that is easily accessible to all residents, well-ventilated, and well-lit.

4.4.1.2) Outdoor facilities and utilities

An outdoor facilities and utilities that has been considering in this thesis will including of parking lot, swimming pool, green space and transportation service. To stimulate out a possible design way of indoor facilities and utilities and the issue that might happen, the author has doing an in depth analysis on each facilities and utilities program.

- Parking lot

A parking lot is an essential feature of any condominium building; by law, parking spaces for condominiums must be provided, and the amount of parking space cannot be less than 40% of the total number of condominium units. The ideal parking lot layout is an angled one since it will give more room for the transportation route. A standard parking lot measures 5 meters long by 2.30 meters wide. For instance, the thesis case study project, which consists of 253 units, must include at least 101 parking spaces (40% of the condominium units). These spaces must be 1,161 square meters (the size of the parking lot time by the total parking lot), leaving 1,771.8 square meters of open space in the project.

- Swimming pool

A swimming pool is a basic condominium amenity that brings numerous benefits to the building, including a feeling of warmth, a place for socializing, and a place for adults and kids to relax. The typical length of a swimming pool is 25 meters, however, condominium pools can have shorter lengths of between 10 and 20 meters. A swimming pool can take up a lot of open space inside affordable condominium projects with small land plot sizes, leaving other facilities cramped. Therefore, an alternative method of installing a swimming pool inside a condominium is to place it on the roof. This design will help the project save open space areas for other programs, but it will also cost more and yield fewer benefits.

- Green space

Green space is a crucial component that every condominium building should have since it can improve residents' mental health and provide shade and coolness. The law requires condominium projects to include 3 square meters of green space for each unit smaller than 35 square meters. Therefore, the study case must include 759 square meters of green space (253 units' x 3 sq. m.). The best design layout for green space varies depending on the project area.

- Transportation service

Transport service is an extra facility that is used to move residents from the condominium to a nearby transportation hub. If the condominium site is located close to a transportation hub and can be walked to, this facility won't be necessary; however, if the site is farther away from the hub, this facility will be crucial. To minimize long wait times for residents, this facility would be best suited with at least two transportation vehicles. This facility will result in an open space area inside the project that will be used as a parking lot for transportation vehicles; therefore, the necessity of this facility will depend on where the site is located. For instance, the location of this thesis case study site area is walkable from a mass transit hub, negating the need for a transportation service within the project.

4.4.2 Most appropriate unit design

The author conducted an interview with a real estate company expert to describe the ideal layout for a thirty-square-meter condominium room. In a 30-squaremeter unit, this is the recommended program ratio.

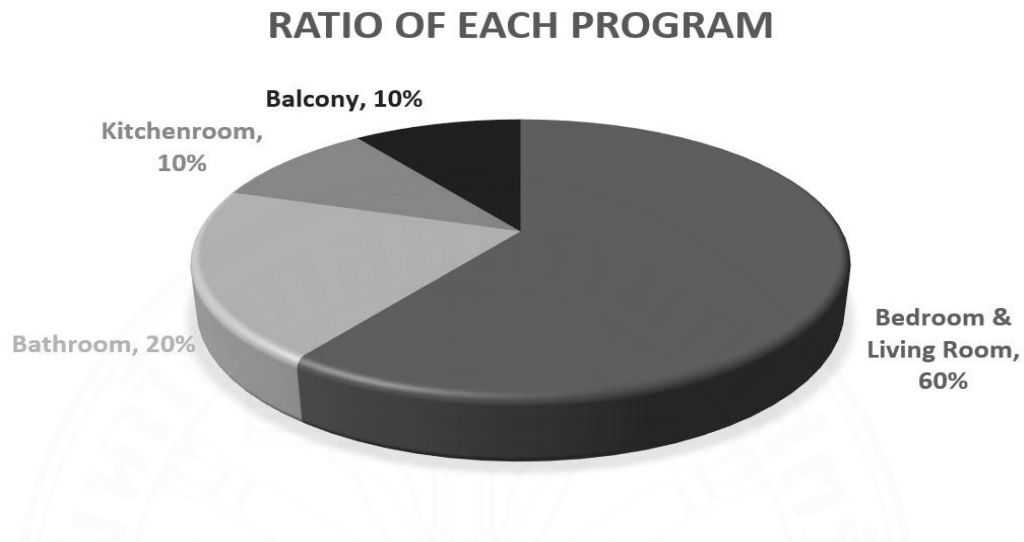


Figure 4.15 Recommendation program ratio in 30 Sq.m. unit

The author used Neufert's Design Guideline sixth edition (Ernst, N., 2023) as a standard space requirement that must be met in order to analyze whether this design room ratio is suitable for living.

- Bed room & living room

Neufert's Design Guidelines state that a bedroom's standard size is 10.5 square meters, while a living room's is 6 square meters. which, according to experts' appropriate design, offers a living room and bedroom area of 18 square meters, which is more than the standard Neufert's Design guideline space requirement.

- Bath room

Neufert's Design Guideline states that a bathroom should have a standard size of 4.125 square meters. However, expert design has produced a bathroom space that is 6 square meters, which exceeds the guideline's standard requirement.

- Kitchen room

The standard kitchen space requirement, as stated in Neufert's Design guideline, is 2.88 square meters. However, with appropriate design from experts, a kitchen room space of 3 square meters has been provided, which exceeds the standard requirement.

- Balcony

Neufert's Design Guideline specifies a standard balcony space requirement of 2.5 square meters; however, expertly designed spaces can exceed this requirement by up to 3 square meters.

Following a comparative analysis, the expertly chosen design has met Neufert's Design Guideline's standard space requirements, making it fit for habitation.

4.5) Policy and framework that support both developer and middle-income people to retaliate overgrowth residence price problem inside of inner city area.

The author has stimulated out financial situation that occurs inside of the project in land plot no. 1 to provide an effective set of support policies for both developers and middle-class people. This will focus and scope a topic of research on the relationship between the minimum return profit that developers need to get and the affordable unit price that middle-class people can afford by taking out a loan at a 6% interest rate for 20 years. (Household income must not surpass 75,000 THB per month.)

Table 4.19

Simulated financial situation of case study on land plot no.1

Return of investment rate	Unit price per Sq.m	Room size	Room price	Loan price (6%)	Yearly payment	Monthly payment	Need household income
16%	76,970	30	2,309,113	2,310,000	207,024	17,252	69,008
18%	78,847	30	2,365,433	2,370,000	212,401	17,700	70,800
20%	80,818	30	2,424,568	2,430,000	217,779	18,148	72,593
22%	82,891	30	2,486,737	2,490,000	223,156	18,596	74,385
24%	85,072	30	2,552,177	2,560,000	229,429	19,119	76,476
26%	87,371	30	2,621,155	2,630,000	235,703	19,641	78,567
28%	89,798	30	2,693,965	2,700,000	241,976	20,164	80,658
30%	92,364	30	2,770,935	2,780,000	249,146	20,762	83,048

Following the simulation of the financial situation that will occur within the land plot no. 1 project, it was demonstrated that the range of unit prices that middle-class individuals can afford is rooms that can generate a return on investment profit of less than 22%. This indicates that it is extremely difficult to provide a project that is both affordable for middle-class individuals and generates a profit margin of more than 30% which is linked to the outcome of an interview that it hard for developer to provide affordable price condominium because of it not worth to invest and have low profit. It was demonstrated that developments of reasonably priced condominiums for middle-class individuals could not turn a profit greater than the developer's desired minimum profit.

The author has developed support policies that can be divided into two sets to address this issue: 1. support policies for developers; and 2. support policies for customers.

4.5.1) Support policies for developer

- FAR Bonus policy

The FAR bonus policy is a current practice that allows developers to increase a building's floor area and height in exchange for the development of a specific program inside the building, such as affordable housing, public space, public parking close to a public transportation hub, water seepage area and rainwater storage, green building, and public open space. This policy will assist developers in making more money from condominium projects for middle-class projects. The majority of the programs eligible for the FAR bonus have been eliminated due to the condominium for middle-class projects' limited land area; therefore, the focus of this thesis will be on programs that provide affordable housing. The project will receive an increasing land area from the FAR bonus by providing an area for affordable housing. The increasing area must not exceed four times the area designated for affordable housing within the project, nor can it exceed 20% of the area designated for affordable housing within the project. (Warapong, 2019) The author has modeled what will happen to the project's finances on land plot No. 1 following the application of the FAR bonus policy, and the results that the author obtained are displayed below.

Table 4.20

Real-estate status after applied FAR bonus policy

Land size	780	Sq.wa
Price per Sq.wa	160,000	THB/Sq.wa
Land price	124,800,000	THB
FAR	5	
Building area	15,600	Sq.m.
OSR	0.06	
Open space area	2,932.80	Sq.m.
Efficiency rate	0.60	
Sales area	7,600.32	Sq.m.
Sales units before FAR bonus	253.344	Units
FAR Bonus area	1,520.064	Sq.m.

Table 4.20

Real-estate status after applied FAR bonus policy (Conts.)

Total sales area after FAR bonus	8512.36	Sq.m.
Total sales units after FAR bonus	383.75	Units
Construction cost per Sq.m.	23,500	THB/Sq.m.
Total construction cost	366,600,000	THB
Total project develop cost	491,400,000	THB
Selling price per Sq.m.	78,000	THB
Selling price per units	2,350,000	THB
Total project selling price	663,963,955	THB
Profit	172,563,955	THB
Return on investment	35%	

The author has used the following formula to determine the increased sales area from the FAR bonus: $(\text{Sales area} + ((\text{Affordable housing area} \times 20\%) \times \text{Efficiency rate}))$ and divine expanded the sales area by thirty to determine an increase in sales units. (Warapong, 2019) Following a stimulus, it was determined that the FAR bonus policy could raise the case study's return on investment from 21% to 35% and put it in a marketable range.

- Tax reduction policy

In order to assist and motivate developers to create condominiums for middle-class individuals The tax reduction policy developed by the thesis's author is one of the most important policies. If at least 30% of the total units are developed as affordable housing for middle-class individuals, the government will offer developers a 10% reduction in property taxes. Moreover, the current government issued the reduction of housing transfer fee, from 2.00 % to 1.00%, (limited house price at not greater than 3 million Baht), Loan to Value (LTV) ceiling 90% shall be loosen to ease the purchasers to buy the affordable condominium units.

- Construction & material cost reduction

To support and motivate developers to create condominium projects aimed at middleclass individuals. The policy for reducing construction and material costs has been developed by the thesis author. According to this policy, developers will receive a 20% government discount on construction and material costs if they build at least 70% of the total number of units as middle-class affordable housing. The author has modeled what will happen to the project's finances on land plot no. 1 following a reduction in the cost of materials and construction. The results the author obtained are displayed below.

Table 4.21

Real-estate status after applied construction & material cost reduction

Land size	780	Sq.wa
Price per Sq.wa	160,000	THB/Sq.wa
Land price	124,800,000	THB
FAR	5	
Building area	15,600	Sq.m.
OSR	0.06	
Open space area	2,932.80	Sq.m.
Efficiency rate	0.60	
Sales area	7,600.32	Sq.m.
Total sales units	253	Units
Construction cost per Sq.m.	18,800	THB/Sq.m.
Total construction cost	293,280,000	THB
Total project develop cost	418,080,000	THB
Selling price per Sq.m.	78,000	THB
Selling price per units	2,350,000	THB
Total project selling price	592,824,960	THB
Profit	174,744,960	THB
Return on investment	42%	

From the results of the stimulate, it can be seen that the support policy will raise the return on investment that the developer receives for the project. In the case study of land plot no. 1, for example, the return on investment rate increased from 21% to 42%, making the project worthwhile to develop.

4.5.2) Support policies for customer

- Housing loan policy for middle-income

To facilitate middle-class individuals' access to more expensive condominium rooms and increase developer profits, the thesis's author has developed a housing loan policy that will be administered through a government-affiliated organization that receives funding from the government. This organization will serve as a guarantor for middleclass individuals who wish to borrow money from other financial institutions, and it will offer loans with low interest rates, starting at 2.5% for 30 years, to anyone whose monthly income is less than 75,000 THB. This is the result that the author obtained after encouraging the interest rate to drop, as shown below.

Table 4.22: Stimulated financial situation of case study on land plot no.1 after decrease interest loan rate.

Return of investment rate	Unit price per Sq.m	Room size	Room price	Loan price (2.5%)	Yearly payment	Monthly payment	Need household income
16%	76,970	30	2,309,113	2,310,000	154,217	12,851	51,405
18%	78,847	30	2,365,433	2,370,000	158,223	13,185	52,740
20%	80,818	30	2,424,568	2,430,000	162,228	13,519	54,076
22%	82,891	30	2,486,737	2,490,000	166,234	13,852	55,411
24%	85,072	30	2,552,177	2,560,000	170,907	14,242	56,969
26%	87,371	30	2,621,155	2,630,000	175,580	14,631	58,526
28%	89,798	30	2,693,965	2,700,000	180,254	15,021	60,084
30%	92,364	30	2,770,935	2,780,000	185,595	15,466	61,864

Following a stimulus, it was determined that a lower interest loan rate would enable customers to purchase condominiums at a higher price, allowing developers to raise prices and still turn a profit at a reasonable rate.

The conclusion reached after conducting a simulation analysis on each support policy was that support policies could potentially address the financial issues in middle-class households in condominium projects, such as low return on investment rates and unaffordable unit prices. For all support policies to be feasible, government agencies like the BMA, the Department of Land, the Treasury Department, and others must participate which is consistent with the respond of an expert from interview section that government need to participate and playing a big role in order to tackle this problem. Thus, encouraging developers to create and finance middle-class condominium projects and facilitating middle-class individuals' access to condominiums depend heavily on the government sector.



CHAPTER 5

CONCLUSIONS & RECOMMENDATION

5.1 Research limitation

Due to the finite amount of time available for research and the unending demand on the residence side. Only the supplier side is the subject of this thesis; all design decisions are made with the supplier side in mind. The research base for this thesis was the land price in 2023 and FAR and OSR in this regard were assumed based on Bangkok Comprehensive Plan (B.E.2556), for the particular area. If the Bangkok Comprehensive Plan is updated, this research thesis on the topic of the most suitable location will not be an effective source of reference or guidance. Furthermore, the design guidelines in this thesis are limited to the design of condominium projects; other types of residential projects may yield different design outcomes.

5.2 Answer of research objective

This thesis has answer all 4 research objectives that the author has set up and the conclusion of those answer have showed below

5.2.1 How Bangkok overgrowth residential price situation can effect middle-income people

In conclusion, Bangkok is currently experiencing an overgrowth of residential prices, a situation that is predicted to continue. Due to this circumstance, land and residential property values will continue to rise in the future, making it impossible for middle-class individuals to own a place to live in the Bangkok region.

5.2.2 Most potential and suitable district to develop condominium for middle-income people in an inner Bangkok

Based on an analysis, Wang Thonglang and Bang Kapi districts in Bangkok are the most effective areas for developing middle-class condominium projects because of their reasonable prices, convenient locations that are close to the city center, and good accessibility thanks to a mass transit hub that connects the area to other parts of Bangkok. Additionally, the district has a large number of schools and hospitals, which contribute to its high level of wellbeing.

5.2.3 The most suitable condominium design that suitable for affordable condominium

For the most ideal program ratio for condominium room units on the supplier side is 30 sq. m, which includes 60% of living and bedroom space, 20% of bathroom space, 10% of kitchen space, and 10% of balcony. In addition, the developer must provide co-working space, a fitness center, a swimming pool, parking, a laundry room, green space, security, and transportation services.

5.2.4 New support policy which focuses on supporting middle-income people to have access to own residence properties in Bangkok

Middle-class condominium projects don't yield large returns on investment, developers and investors are reluctant to work on them and make it difficult for middle-class residents to purchase condominiums. The government sector's support policies are essential to convince and help the developer provide an affordable condominium project. Supporting policies can take the form of the FAR bonus policy, lower property taxes, lower construction and material costs for projects that offer condominiums at a price that is affordable for middle-class individuals, and assistance in gaining access to low-interest loans by financial institutions for middle-class individuals.

5.3 Topics that can be further researched

This is the list of research topics that can be pursued in order to address additional aspects not covered in this thesis.

5.3.1 The best suitable district to develop a high-rise building for middle-income people, why and how

To broaden the scope of the study, an analysis of the best district to build a high-rise building can be conducted; the district may be the same or different from the thesis district.

5.3.2 Design of middle-income condominium from a view of residence

Due to time constraints, this thesis only examines the supplier side of things. However, in order to broaden the scope of the study, an analysis on the

residential side of things can be conducted, which may involve the use of a series of questionnaires designed to determine the best condominium design from the viewpoint of the residents.

5.3.3 In depth analysis on the selected land area

To enhance the consideration of a factor that will be used in the process of choosing the developed land plot, a detailed analysis of the land area can be performed on a particular land plot.

5.3.4 Apply specific framework and index

To expand the scope of research on a particular topic that is of interest, a particular framework and index, such as the walkability index, green building index, or sustainable building index, can be applied.

5.3.5 Apply new technologies and innovation

To broaden the focus of research beyond design and policy areas that may be exploited to increase developer profit from affordable housing projects, such as innovative construction methods that will lower labor costs and improve the efficiency of the condominium building process.

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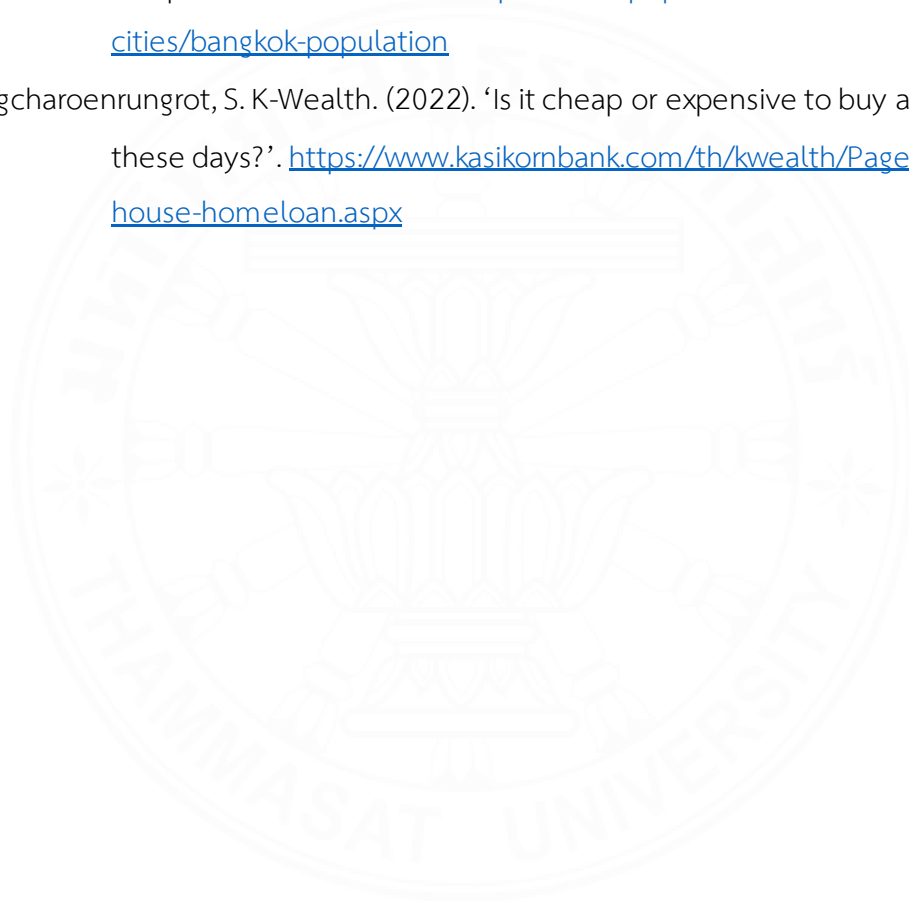
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The seal of Thammasat University is a circular emblem. It features a central five-petaled lotus flower. Above the lotus is a horizontal bar with five lines, and above that is a crown-like structure. The entire emblem is encircled by a border containing the university's name in Thai script at the top and 'THAMMASAT UNIVERSITY' in English at the bottom, separated by small floral motifs.

APPENDICES

APPENDIX A

INTERVIEW QUESTION

Interview question for all interviewees related to the thesis topic – affordable condominium for middle-income people in an inner Bangkok during an overgrowth real-estate and residence price situation.

1. Did you think that people who have an income between 45,000-75,000 THB will face a difficulty to buy a condominium room inside of Bangkok area? And the reason why you think like that?
2. Do you think that nowadays price of condominium room is increasing from the past? And what condominium room price situation will be in the future?
3. Are there any support laws and policies that support residential for middle-income people inside of condominium projects? If have what are those policies, how much it has been applied to the project?
4. Do you think is it essential or not to build condominium room inside of the project to have a price that middle-income people can access?
5. Do you have any guideline to help middle-income people have an access to residential in form of condominium unit inside of Bangkok area?
6. What is minimum land size that suitable to construct a condominium project?
7. What is your opinion about making a condominium unit have mixed room type for all low-income people, middle-income people and high income people?
8. If dividing a 30sq.m. condominium room into a proportions according to program used, what program should have inside of the room, at which percentage in each program and why?
9. What facility and utility is the most important and the most necessary in condominium development project which have a price between 1,750,000-2,900,000 THB

10. How much profit development companies need to get from a condominium project to call it a worth?

