Adaptive regeneration of urban villages in Shenzhen in the context of rapid urbanization

Key words: Adaptive development,urban village, rapid urbanization, socio-spatial resilience,flexibility,regeneration, uneven development, Shenzhen

Colophon

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Contents

Introduction

Urban regeneration and urbanization are always concomitant topics and phenomena that appear in the history of China and other countries. Until the end of 2021, China's urbanization rate has reached 64.72%. Cities of different sizes and levels have been, are, or will soon be entering the era of inventory planning. Urban villages are the author's primary focus topic of urban regeneration under rapid urbanization. On the one hand, urban villages are the product of rapid urbanization. On the other hand, urban villages are also the key potential areas for urban regeneration. Urban villages have their inevitable "dynamic" and "transitional" nature in the process of urbanization. They are the link between urban and rural areas and the "first stage for living" for different groups.

Figure 1 Satellite map of Buji area , source: google map

.Key words:Adaptive development,urban village, rapid urbanization,socio-spatial resilience ,regeneration,uneven development,Shenzhen

Motivation

Urban village regeneration has been the focus of attention in China's major cities in recent years. Urban villages also reflect the urban problems brought about by China's rapid urbanization development. For example, uneven development, the contradiction between top-down and bottom-up, the shortage of land resources and the limitation of future development. Urban villages are, on the one hand, a reflection of typical urban problems in China and, on the other hand, an opportunity to solve these problems.

The regeneration of urban villages positively relieves the pressure of limited urban land resources and uneven development. However, the current urban village regenerations almost deny the positive significance and social value of original urban villages and carry out complete demolition and reconstruction. This lack of foresight and future consideration will instead exacerbate socio-spatial segregation and the vulnerability of urban space in the face of future changes. It makes the original unique inclusive, and diverse atmosphere of urban villages disappear and poses a challenge to the sustainability of long-term urban development.

The starting point of the authors' adaptive urban village regeneration is exploring a new urban village regeneration model. While retaining the characteristics of the urban village as an "arrival city" and continuing the inclusiveness, tolerance and diversity in the area, new development and environmental improvements can also be made to increase the resilience of the urban village. In this case, it adapts to the pressure of future uneven development and achieves dynamic and sustainable urban development.

Figure 2 Fig1. Satellite map of Buji area which contains urban villages and other urban area, source: google map

CONTEXT

This section mainly introduces the context of the concern for adaptive urban village regeneration. The context of the project is presented in terms of the rapid urbanization in China, uneven development under the rapid urbanization, the formation and development of urban villages, the urban regeneration situation, and the concern for resilience in the city.

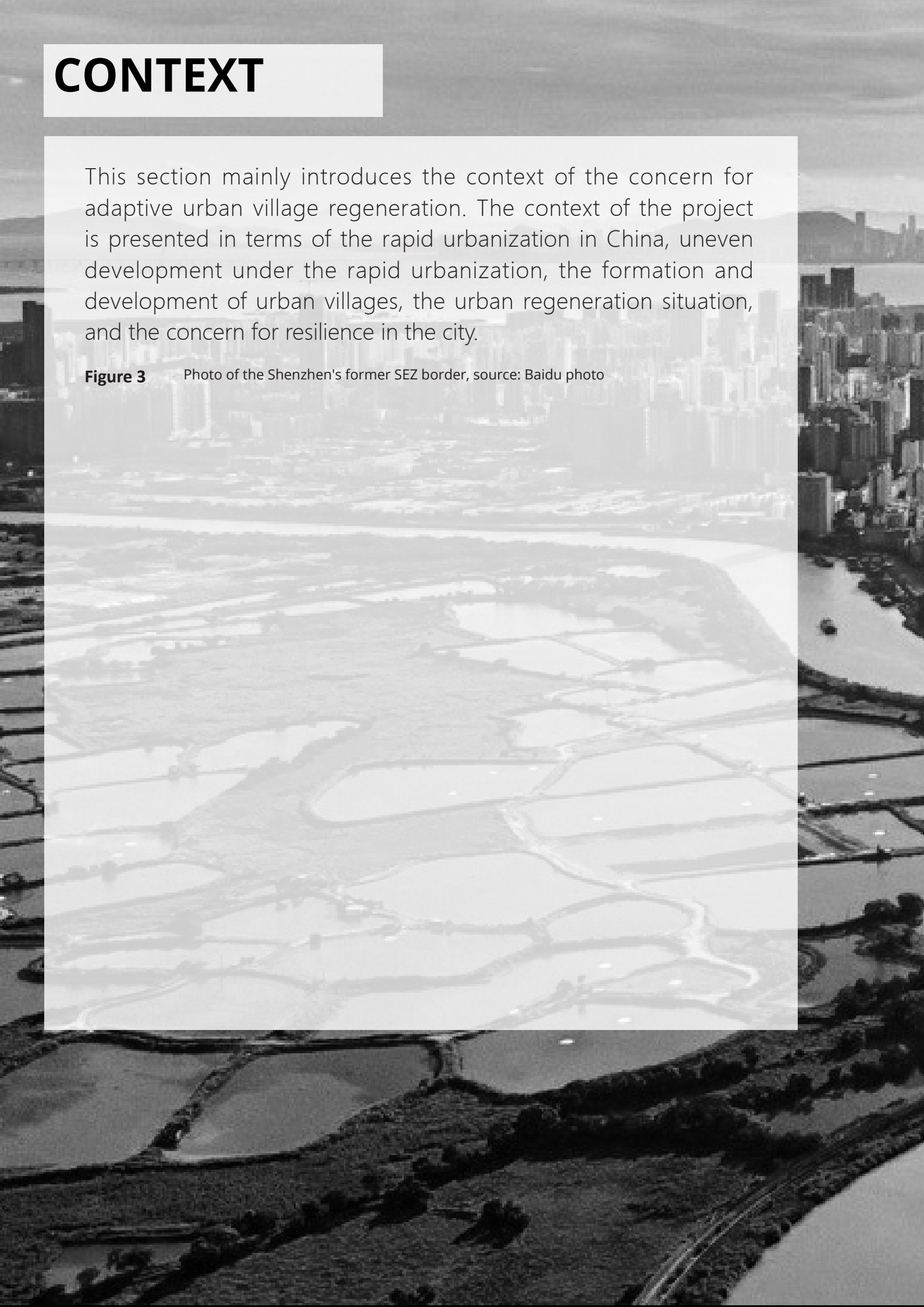


Figure 3 Photo of the Shenzhen's former SEZ border, source: Baidu photo

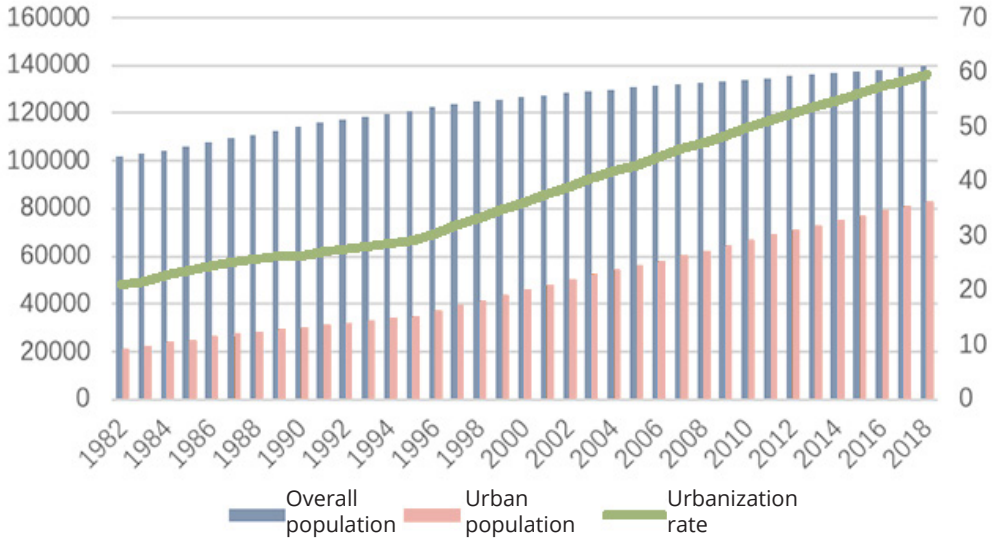
Context
Rapid urbanization

In terms of population proportion, urbanization refers to the increase in the proportion of the urban population in the national population. Rapid urbanization has resulted in the growth of population density, increased economic activity and further expansion of infrastructure in the agglomeration area. The essence is the change of economic/social structure and spatial structure.

In the Chinese context, China's urbanization process has its own characteristics. China's rates of urbanization have been very much influenced and shaped by the national policies that alternated between strict control and relaxation (Song & Timberlake, 1996). The reform and opening up was a significant turning point in urbanization. It realized China's internal reform and external opening, greatly advancing industrial development. Special economic zones were established, and special policies were enacted to promote trade. This series of policies and strategies had an accelerating effect on the urbanization process. After the reform and opening up in 1980, China entered a period of accelerated urbanization(Fig.4) until the end of 2021, when it achieved an urbanization rate of up to 64.72%.

At the same time, the rapid urbanization process has brought many urban problems and challenges to China. China has a large population, a relative shortage of land resources, and a severe poverty of resources. In this context, the urbanization is facing greater urban pressure (Chen, X, 2015). Different urban policies, spontaneous and planned urban development in parallel, make the disparity between different cities and regions prominent. The urban-rural dichotomy and conflict are also intensified in the urbanization process. Urban villages are also formed in this context and fully reflect the contradiction of social duality. The limited land and resources contradict the rapidly growing urban demand and lead to social problems such as housing shortage(Fig.5,6), resource shortage and employment pressure in the city.

Urbanization growth in China



Rate of Urbanization growth in China

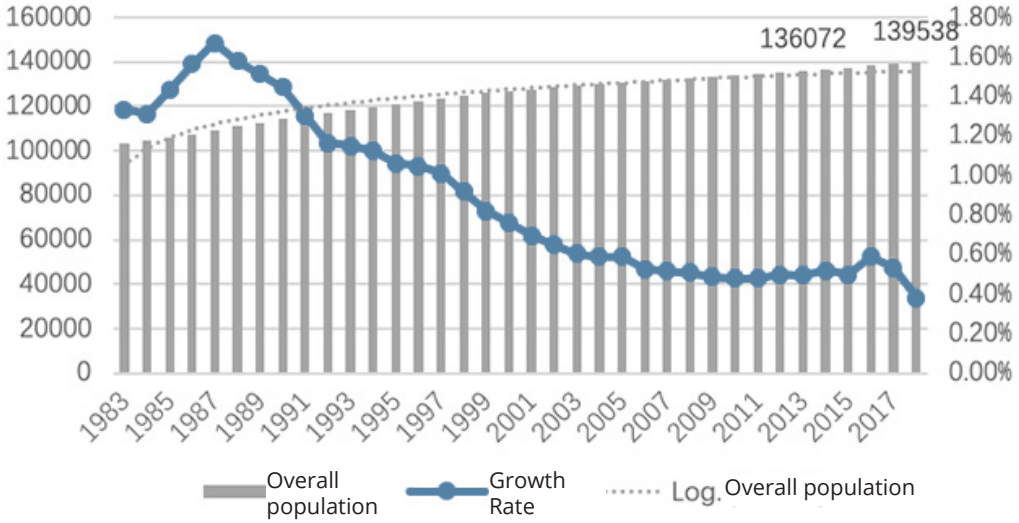


Figure 4 Urbanization in China,Source:China Urban Planning Network Statistics

Figure 5 Villagers are posting rental ads Source:Photos by "ziyiweiyoudatouzheng"

Figure 6 People in Shenzhen waiting for buying house Source:Baidu photo

Context
Uneven development

China's rapid urbanization process has led to uneven development. This unbalanced development is reflected in different scales and aspects. By scale, there are inter-regional/ intra-regional development disparity. By type, there are disparities between urban and rural areas, cities, regions, and areas in one city. The uneven development in China is also related to China's urban policy.

The economic reform and the prioritization of selected provinces and cities have resulted in uneven development with aggravating regional disparities, which became particularly prominent in the 1990s and early 2000s (Dunford & Li, 2010). Moreover, this interregional disparity has gradually widened under urbanization. In the face of such uneven development, governments have gradually enacted policies to support regions lagging in development. For example, "the Western development policy", but the location and resource accumulation differences still lead to the large disparity between regions. Within the region, there are also problems of uneven development between different cities and different areas of the city. These problems are related to intra-regional, intra-urban development and planning policies.

Policies and social structures in rural areas have also changed significantly following economic reforms. The core domestic thrust in relation to urbanization could be the production and exploitation of the country's cheap labor force (Buck, 2007). This was facilitated by the household responsibility system in People's Communes in rural areas, which not only increased the agricultural productivity but also freed farmers from being tied to the collective commune system. This accompanied de-collectivization, which allowed household members to engage in non-farming activities as long as they fulfilled their obligation to the village collectives in terms of meeting the grain quota imposed upon each household (Zou, 2003). This shift led to many farmers migrating to cities for new employment opportunities. At the same time, however, the distinction between agricultural and urban hukou exists in the hukou system, preventing groups of migrant workers from accessing urban services in the city. This situation has also led to segregation problems in the city. The urban village is also a spatial manifestation of this uneven development. With the large number of farmers leaving rural areas for urban work and the different policies between urban and rural areas, the gap between urban and rural areas has

gradually widened, and the problem of uneven urban-rural development has become more and more serious.

This project focuses on the uneven development within the city and the socio-spatial disparities at different scales. Shenzhen is chosen as a case study to examine this uneven development. As an important city in the era of reform and opening up, Shenzhen simultaneously undergoes two processes: the development of a coastal economic zone and the spontaneous growth outside the former special economic zone. Additionally, there used to be a physical control line demarcating the special economic zone for access control. These physical space limitations, regional disconnections, and inequalities resulting from policy implementations can help the author further analyze and understand uneven urban development.

Inside special economic zone

Outside special economic zone

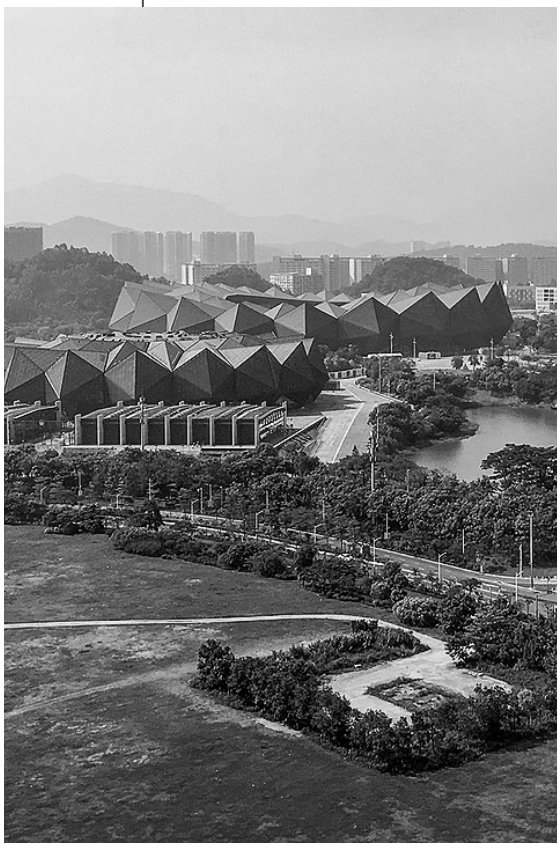


Figure 7 Fig5.Situation inside and outside special economic zone, source: Baidu photo

Urban village

From the perspective of economic structural changes, urbanization is a process of gradual transformation of agricultural activities to non-agricultural activities and upgrading of industrial structure. The urban village possesses a dual attribute of "city" and "village." Due to urban expansion and rural urbanization, the industrial structure of original rural villages has undergone changes. Farmland has been requisitioned by the city, and the remaining land is surrounded by the city, thus becoming urban villages (Chen, X,2015).

The urban village exhibits a unique urban-rural duality, maintaining its original rural characteristics while being incorporated into urban land. Within the neighborhoods of urban villages, one can find a combination of small businesses, joint-stock companies, ancestral houses, limited public services, and residential housing. As cities expand and agricultural land is seized, villagers lose their original agricultural livelihoods and resort to renting and constructing additional homes for sustenance(Fig.8). Urban villages offer affordable housing options for migrant populations, fostering an inclusive environment and a network of social connections.

To some extent, urban villages have alleviated the housing shortage problem. However, Since the 1990s, villagers have been gradually constructing their own residences.At this time, the government has already strengthened control over urban villages and increased the difficulty of obtaining approvals. However, the original residents often choose not to apply for permits and instead directly engage in unauthorized construction of buildings(Wu, K.,2013, October 16). After a period of spontaneous development, urban villages have witnessed a deterioration in the urban environment, inadequate facilities, and safety hazards. However, concurrently, they continue to exert a strong pull on domestic migrants due to their inclusive atmosphere and affordable rents.

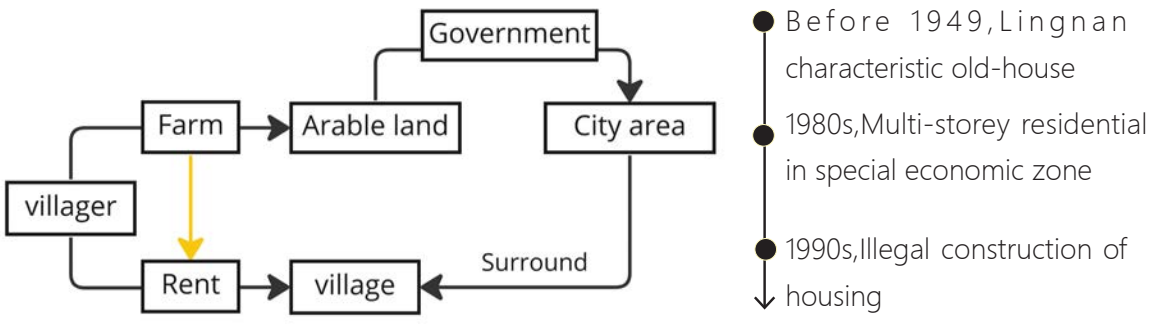
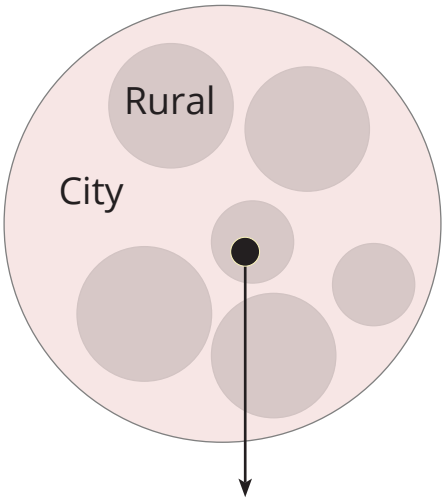
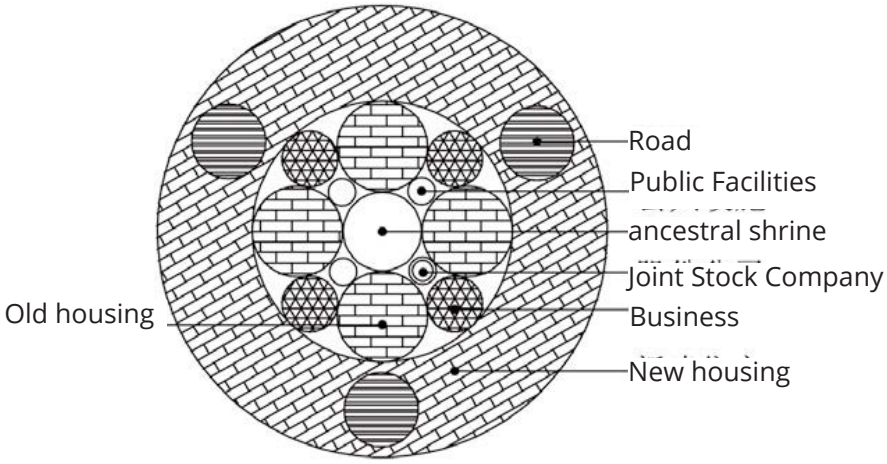


Figure 8 Basic history of urban village development,Source:Self-drawing



Urban village



Urban village composition pattern diagram

Figure 9 Urban village mode

Figure 10 Current urban villageSource:Self-drawing,Base photo is from baidu photo

Context

Urban village-development history

Developement history of urban village in Shenzhen

Having lost land for traditional livelihoods, villagers turned to "growing houses, not crops"

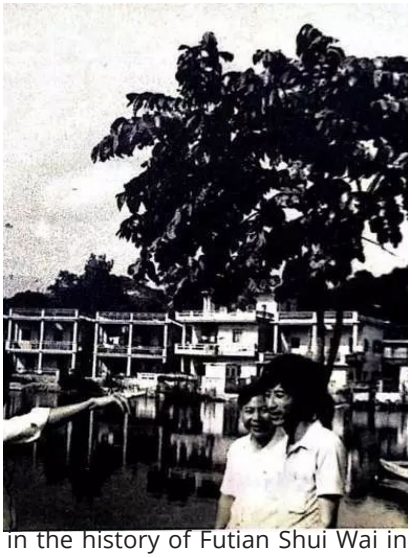


Figure 11 Source:Changes in the history of Futian Shui Wai in Shenzhen

Facing with scarcity of developable land and housing shortage.Joint stock companies owned by villagers sell land use right to the government for urban regeneration

Figure 13 source:Photos by "ziyiweiyoudatouzheng

1980 1990 2004 Current

Shenzhen Municipality acquired expansive rural lands for urban development beginning in the 1980s and consolidated villages on designated rural land surrounded by land newly designated as urban

Figure 12 Source:Vision China

After years of expansion, certain villages have undergone internal land readjustment, leading to the redevelopment of specific sections that now serve rental, commercial, and infrastructure purposes.

Context
Industrial upgrading

Industrial upgrading in Shenzhen is a trend occurring during rapid urban urbanization and uneven development. Before that, Shenzhen mainly concentrated on developing the light industry and electronic manufacturing, such as electronic components and equipment manufacturing. Moreover, Shenzhen used to have different leading industries inside and outside the former Special Economic Zone (SEZ), mostly material and electronic industries outside the zone, while inside the zone were intelligent industries, financial and commercial services, higher-end manufacturing and robotics industries. With the trend of industrial upgrading, Shenzhen gradually developed high-tech and intelligent industries, which also led to a change in the original industrial and spatial structures.

However, in the process of industrial upgrading, developing more innovative and high-end industries requires more high-end talents and advanced technologies, which will exclude domestic migrants and low-income groups who originally live in urban villages. In addition, as the focus of urban development shifts from traditional industrial areas to high-tech centres/industrial parks, many industrial areas within urban villages that initially belonged to village collectives will also be changed and upgraded. This, on the one hand, drives the development of urban village industries and promotes the regeneration of urban villages, bringing new development opportunities and a better living environment. However, on the other hand, the new industrial development will also segregate the original workers, forcing some of the original urban village residents to relocate and lose their housing, exacerbating the disparity between the unregenerated and newly developed areas.

Therefore, the trend of industrial upgrading in Shenzhen is also a situation that the urban villages need to face and adapt to in the context of urbanization and uneven development.

Context
Urban regeneration

Urban regeneration goes hand in hand with urbanization and is necessary when urbanization reaches a certain level. China reached an urbanization rate of 64.72% in 2021 under rapid urbanization. The shortage of land resources and the continuously increasing demand for urban development have led cities of different scales to enter the inventory planning stage. Urban regeneration is an important component in this phase. Urban regeneration in the Chinese context is also experiencing a shift from large-scale demolition and construction to sustainable urban regeneration. With the increasing concern for the future sustainable development of cities, the goals of urban regeneration are becoming increasingly diverse and more focused on environmental/social/economic aspects.

The main focus of existing urban regeneration is the transformation of the "Three Olds" (i.e., Old Towns, Old Villages, and Old Factories) in the Pearl River Delta (based on Shenzhen as the main study city). In recent years, the term "urban regeneration" has been used to replace "three old renovations". The aim is to make the process of regeneration more sustainable and diversiÞed. In recent years, the frequency of salient terms in the urban regeneration strategies promulgated in the Pearl River Delta shows that urban regeneration, the focus on the three old directions and the urban regeneration in Shenzhen are very high(Fig.15), which indicates that urban renewal in Shenzhen is an important part of development in the whole PRD.

Although urban regeneration nowadays hopes to develop towards sustainable regeneration, There is a critical gap between the policymakers' and urban practitioners' focus on "problems of the 'chaotic and unmoden' physical environment" of urban villages and the researchers' preference to credit and emphasize these neighbourhoods' "socio-cultural values" (Pan & Du, 2021). Many urban regeneration initiatives need to be more open to theoretical research and require a stronger focus on practical implementation. Existing urban regeneration faces challenges related to coordinating the interests of different stakeholder groups, changes in land use rights, and maintaining the regeneration process. In the upcoming section, the author will briefly introduce existing urban regeneration models and explore the importance of coordinating the interests of various stakeholders.

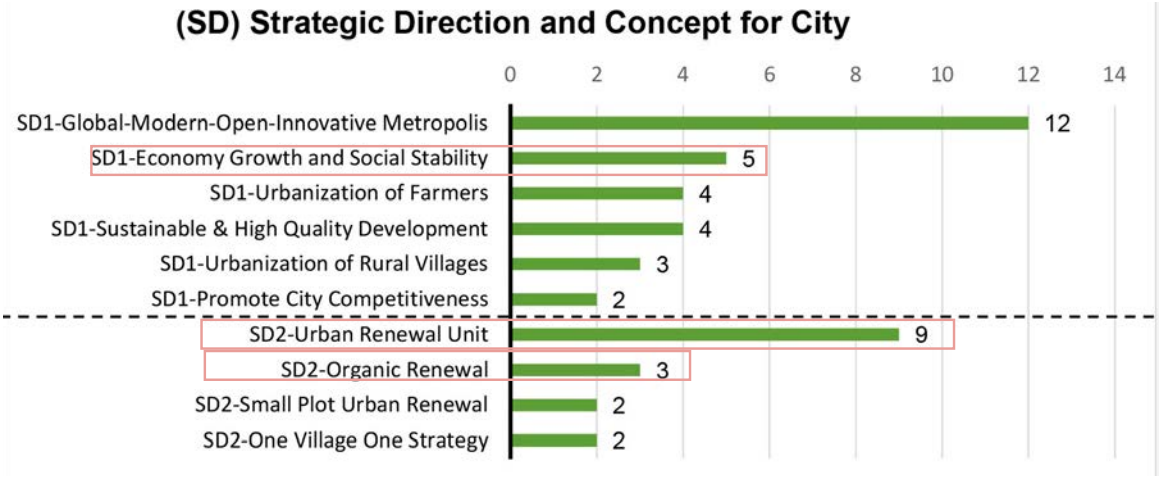


Figure 14 The most critical and highly mentioned key phrases of "Three Contents" in the 47 analysed policies in Shenzhen. Adapted from Wenjian Pan, Juan Du

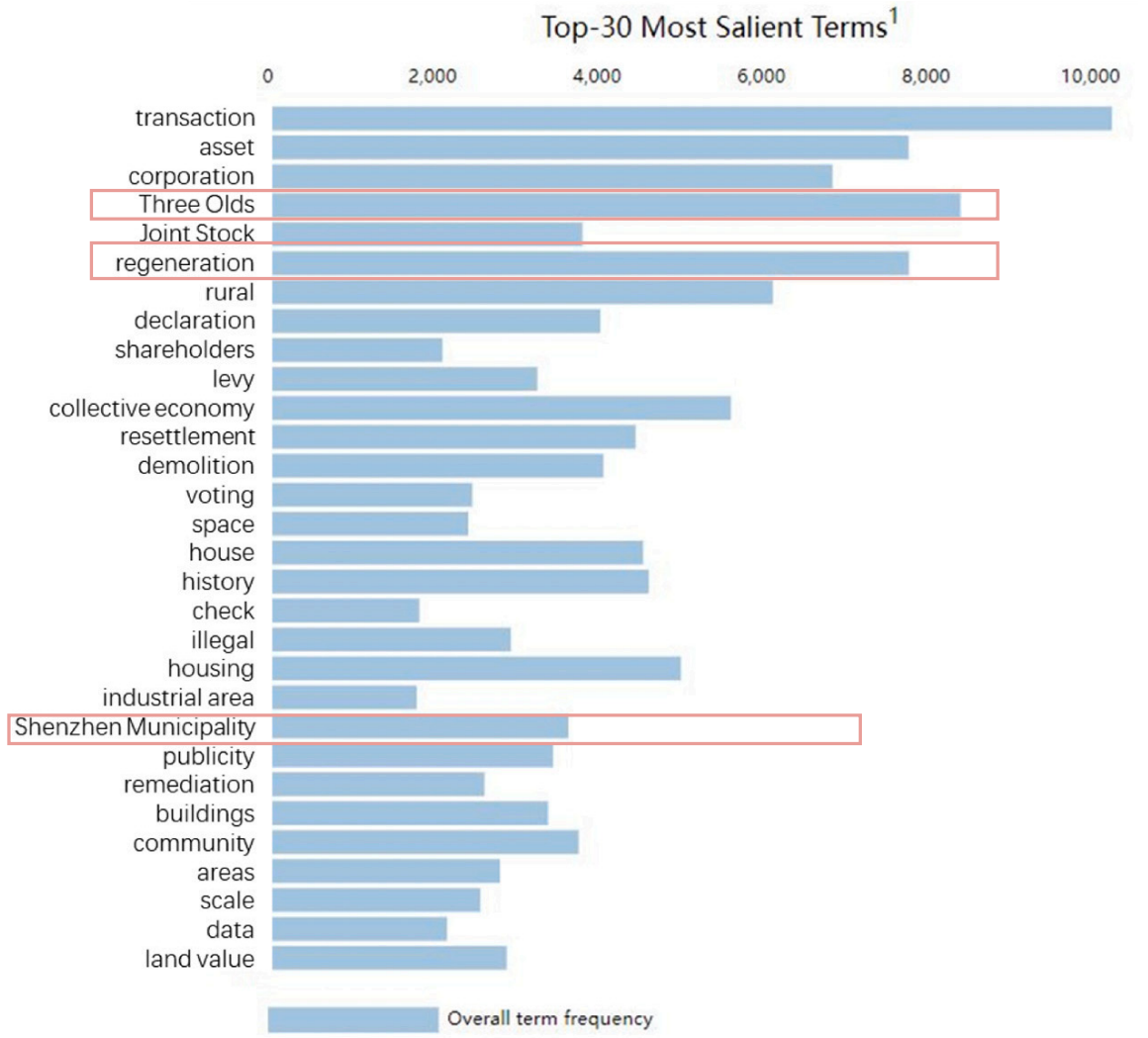


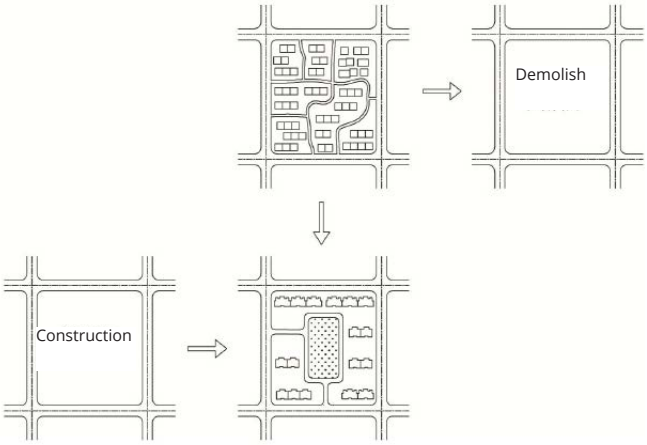
Figure 15 Top 30 most salient terms identified from urban regeneration Policies in PRD (source: Python pyLDAvis;□□adapted from Xueying Chen, Jie Duan

Urban regeneration

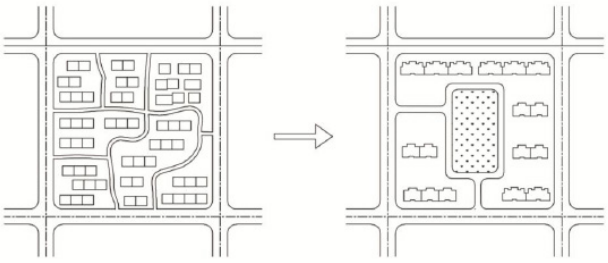
Regeneration mode

Existing modes of urban village regeneration can be categorized into two approaches: overall demolition and redevelopment and partial demolition and renovation. In the case of overall demolition and redevelopment, it can further be divided into on-site redevelopment and relocation to a new site. However, these approaches often result in the complete transformation of the village's original appearance, architecture, and spatial structure, consequently erasing the existing social network. On the other hand, partial demolition and renovation focus on enhancing infrastructure and environmental quality while primarily being led by the village collective, serving as a model for village renewal.

Overall demolition and construction



Overall demolition and construction



Demolish and construct

Partial demolition

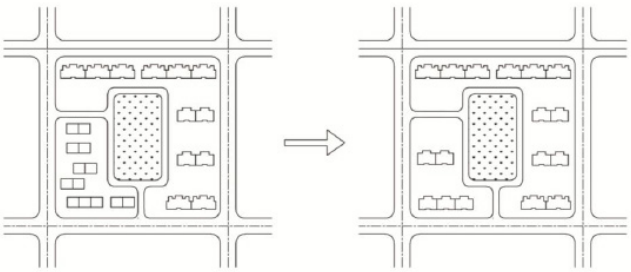


Figure 16 Source:From Xin,Chen,"Reflection and research on Shenzhen urban village planning and construction""

Stakeholder leading

In urban village regeneration, there are three main stakeholder-led models. They are developer-led, government-led, and village-collective-led. In the developer-led process, the developer acts as an intermediate part to coordinate the government and the village collective. Developer-led regeneration models generally have more secure funding. However, it is inevitable that developers often pursue maximized proÞts(Chen, X,2015).In the government-led process, the primary decision is in the hands of the government. This process is more top-down and needs to consider the urban villagers' views. However, The government's economic capacity is relatively limited, and the entire project incurs significant costs. Ensuring adequate funding is crucial to ensure the smooth progress of urban village regeneration(Chen, X,2015). In the village collective-led model, the main stakeholders involved are the government and the village collective. The process of this dominant model is generally on a smaller scale. The village collectives lack knowledge and awareness of urban development, so the goals of regeneration are more focused on immediate benefits and lack consideration for the future.

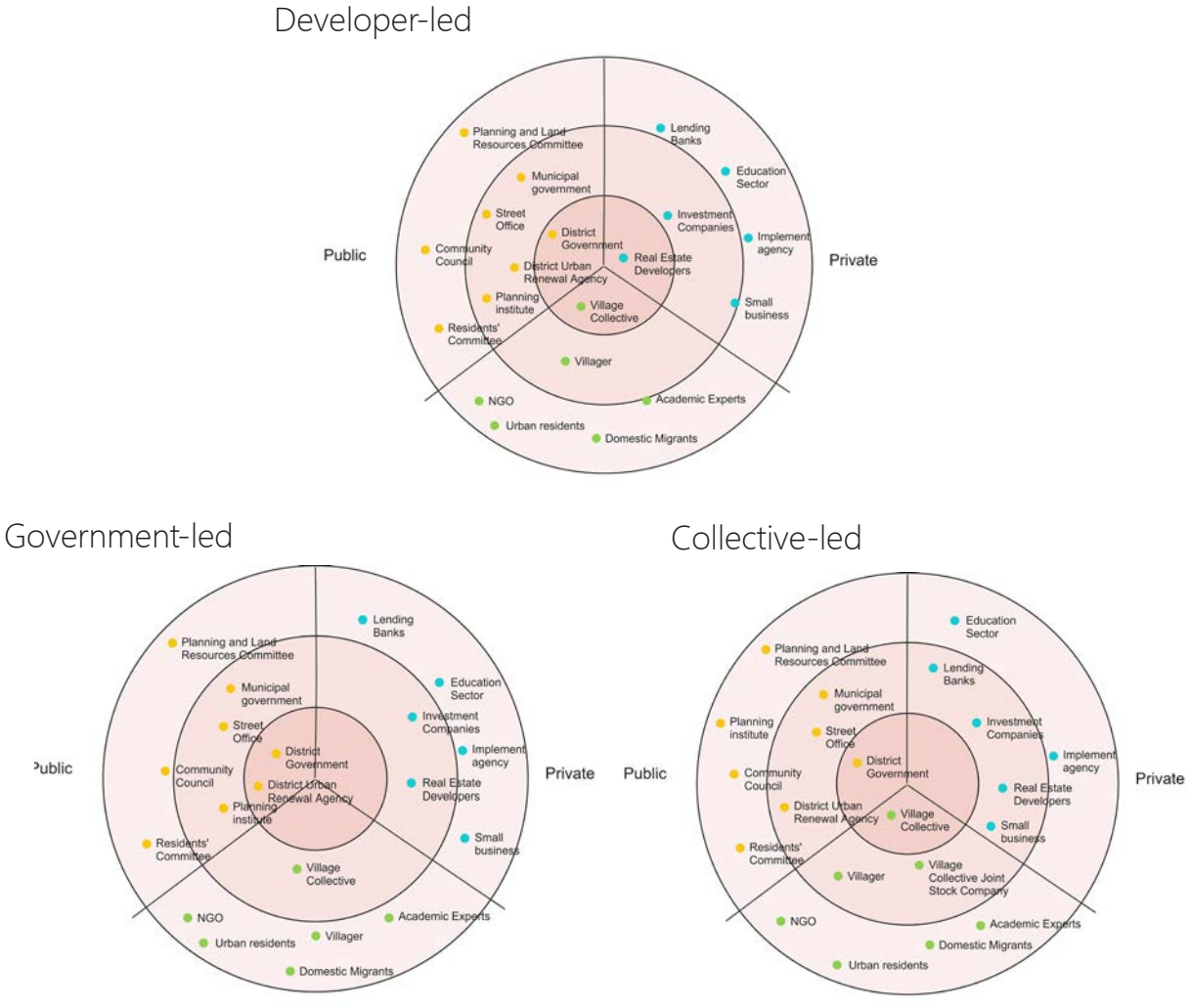


Figure 17 Stakeholder analysis and engagement in urban village regeneration,by author

Context
Resilience

The term resilience first appeared in connection with "engineering resilience", which stands for the ability of a device to maintain its optimal stable state when perturbed, and to bounce back to that same stable state once the disturbance was over (Ombretta et al.). In 1973, Holling's paper pointed out that resilience could be applied not only to mechanical devices but also to ecosystems. Ecological resilience represents the ability of the system to maintain its primary function, to resist external shocks. At this stage, resilience has become associated with urban systems. After this, theories about urban systems and urban resilience have evolved. In the 1990s, to enter the field of resilience research formally. Scholars began to focus on the development of cities in response to climate change and disaster risk. After this, the idea of resilience continued to merge. Resilience emerged in ecological aspects and cities' economic and social aspects related to spatial, policy, and urban form elements. The concept of resilience at this stage is evolutionary resilience, which emphasizes the dynamic process of transformation in urban systems and their continuous adaptation to external influences.

The focus on resilience reflects the importance that urban design attaches to cities' long-term and sustainable development. This is not only in the face of sudden disasters and climate risks but also in how cities respond and adapt to long-lasting social/spatial pressures. Current resilience concepts in the urban field include diversity, flexibility, and self-organization. These resilience-related concepts are considered in developing urban strategies and designs to coordinate and adjust related strategies and policies.

In the context of rapid urbanization, Chinese cities are also considering their cities' long-term and sustainable development and their adaptability to future changes. However, the current development and thinking about urban resilience in China mainly cope with climate change/environmental ecology. There needs to be more thinking about the socio-spatial dimension. Moreover, the content about urban resilience development mostly stays in the theoretical stage, needing more practical improvement and a complete framework and system.

Take Shenzhen as an example. The keywords related to resilience are mentioned many times in the policies related to urban renewal in Shenzhen, but there still needs to be concrete practices and complete methods. So there is still a long way to go in exploring the development of resilience in China's cities.

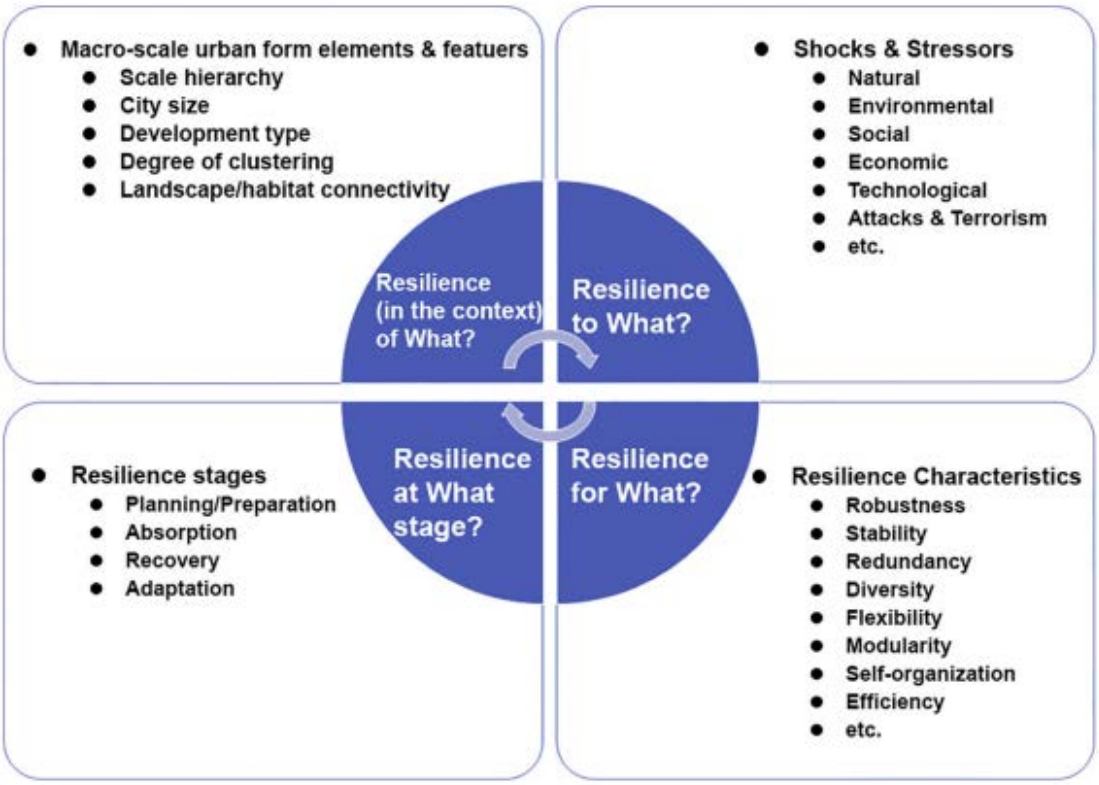


Figure 18 The conceptual framework for analyzing potential linkages between macro-scale urban form and resilience (Adapted, with changes and additions, from Sharififi(2019)).

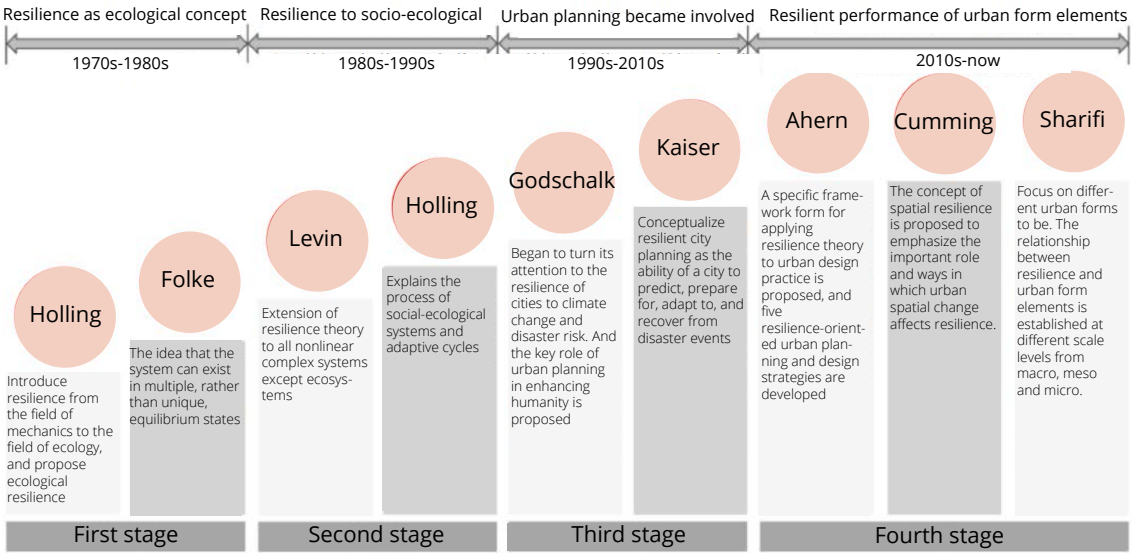


Figure 19 Resilience concept development and integration process in the urban sphere(Adapted from Wenlong Xie,2021).

PROBLEM

This section provides an overview of the uneven development in Shenzhen within the broader context of urbanization in China. It also highlights the socio-spatial challenges encountered during the adaptive regeneration of urban villages in Shenzhen, considering the future pressures arising from this uneven development. The purpose is to establish a foundation for the future research objectives and questions.

Figure 20 Photo of the urban villages in Shenzhen, by Li Zhenxing/The Nature Conservancy

Problem field
Shenzhen

As a city with a long-established special economic zone since the reform and opening up, Shenzhen has undergone rapid urbanization and encountered various urban challenges. Since 1980, the urban built-up area in Shenzhen has expanded from 30,000 square kilometres to 9.27 million k ㎡ . In terms of land development intensity, Shenzhen's land development intensity is among the highest in China, surpassing that of Shanghai and Beijing. This further indicates that Shenzhen has minimal land and resources available for development. The problems of rapid urbanization in China, such as uneven development, residential pressure, and lack of facilities, are particularly evident in Shenzhen. For Shenzhen, inventory planning is an inevitable trend and is now the focus of Shenzhen's urban planning.

After the reform and opening up, the rural land in Shenzhen was expropriated in 1992 and 2004, respectively. The phenomenon of urban villages in the context of urbanization is particularly evident in Shenzhen(Fig.21). After losing their original agricultural land, the former villagers in Shenzhen started to develop a housing rental business. In 2022, there are nearly 1,600 urban villages in Shenzhen. In terms of housing quantity, the amount of self-built housing rented in urban villages in Shenzhen reaches 62% of the entire urban area (Lai & Zhang,2016). Currently, a very urgent land crisis looms over the future of Shenzhen. Accordingly, those urban villages have become the main target for urban redevelopment (Lai & Zhang,2016). Shenzhen is also among China's Þrst group of cities that launched urban renewal programs, promulgated urban renewal legislation and implemented integrated urban redevelopment plans (Yiet al., 2018). The exploration of adaptive regeneration models for urban villages in Shenzhen will allow Shenzhen to achieve dynamic and sustainable development in the future.

Figure 23 Fig, developmetn intensity of cities in global,Source: Shenzhen Metropolitan Area Integration 2021

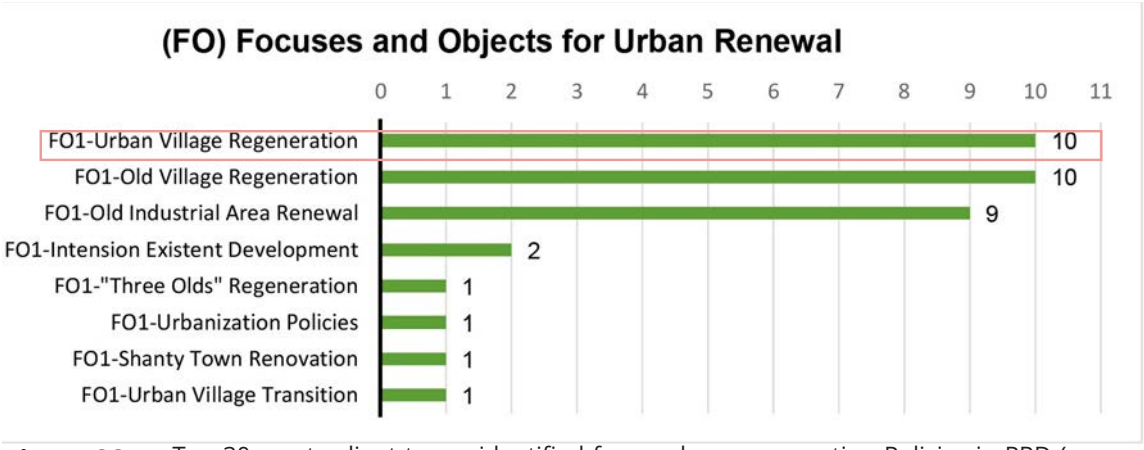


Figure 22 Top 30 most salient terms identified from urban regeneration Policies in PRD (source: Python pyLDAvis; terms translated by Wenjian Pan, Juan Du).

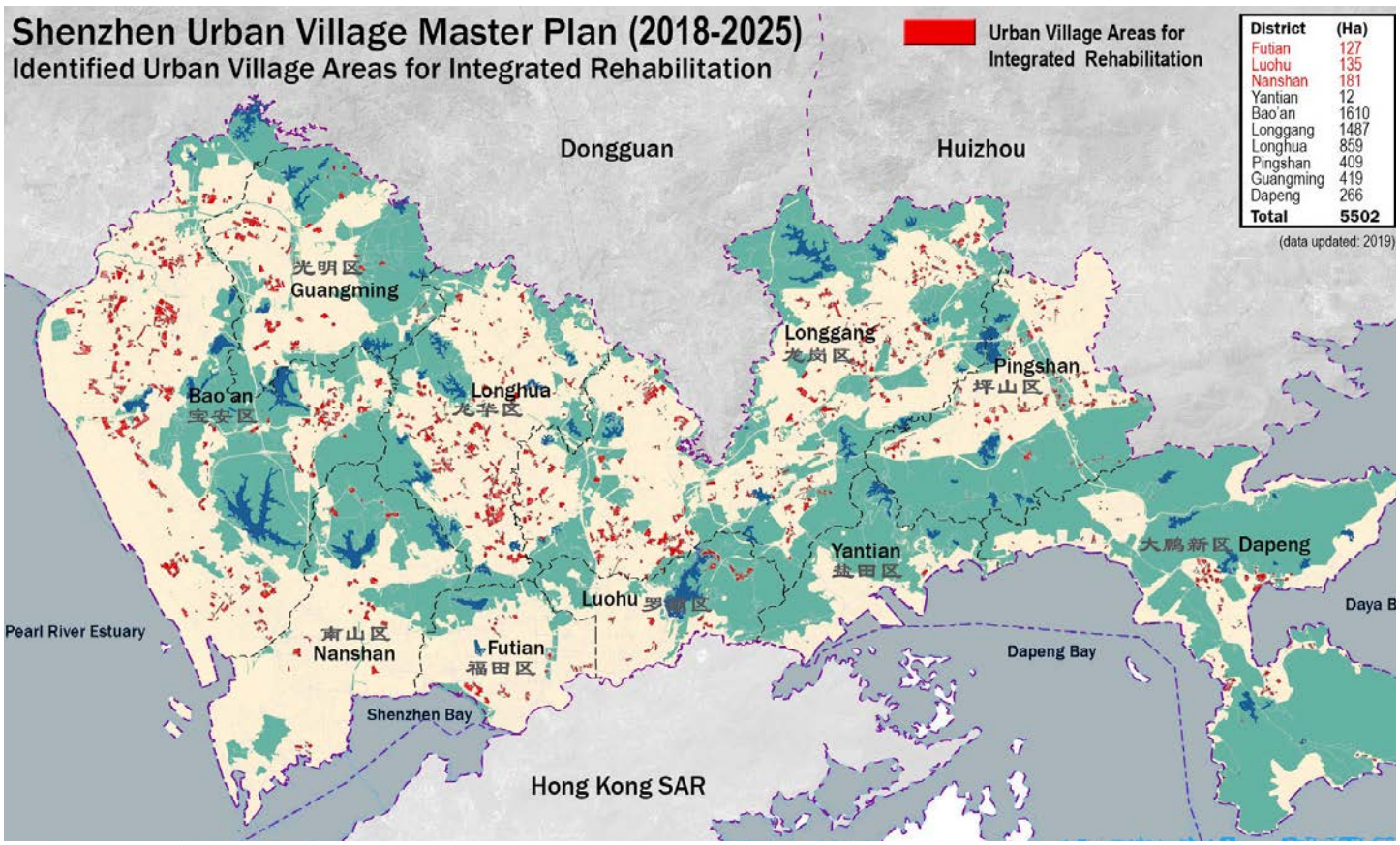


Figure 21 Distribution of urban village in Shenzhen,Source: SBPNR, 2018, text translation by authors.

Problem field

Development inside and outside special economic zone

The local government implemented a management line along the SEZ border after establishing the Shenzhen Special Economic Zone (SEZ) in 1980. Individuals outside the SEZ were required to obtain a "Special Zone Permit" to enter. This management line was referred to as the "Second line". The SEZ and its surrounding areas experienced different development patterns due to disparities in economic and urban policies and the physical constraints imposed by the management line. The SEZ's interior, benefiting from favourable economic policies and top-down planning, transformed into a modern city with towering skyscrapers. In contrast, areas outside the SEZ underwent spontaneous development since the advent of reform and opening up, primarily consisting of industrial zones, urban villages, and underdeveloped areas. The disparity between the interior and exterior of the SEZ continued to widen.

It was not until 2010 that Shenzhen initiated a policy to integrate the SEZ with its surrounding areas. As urbanization progressed rapidly, the SEZ faced increasing resource and spatial constraints. In 2015, the second line was ofÞcially abolished, marking a shift in Shenzhen's focus from the interior of the SEZ to its outskirts. The aim was to achieve coordinated and sustainable integrated development to narrow the gap between the interior and exterior regions.

Figure 24 District in Shenzhen and second line, Selfdrawing

The development process inside and outside Shenzhen Special economic zone

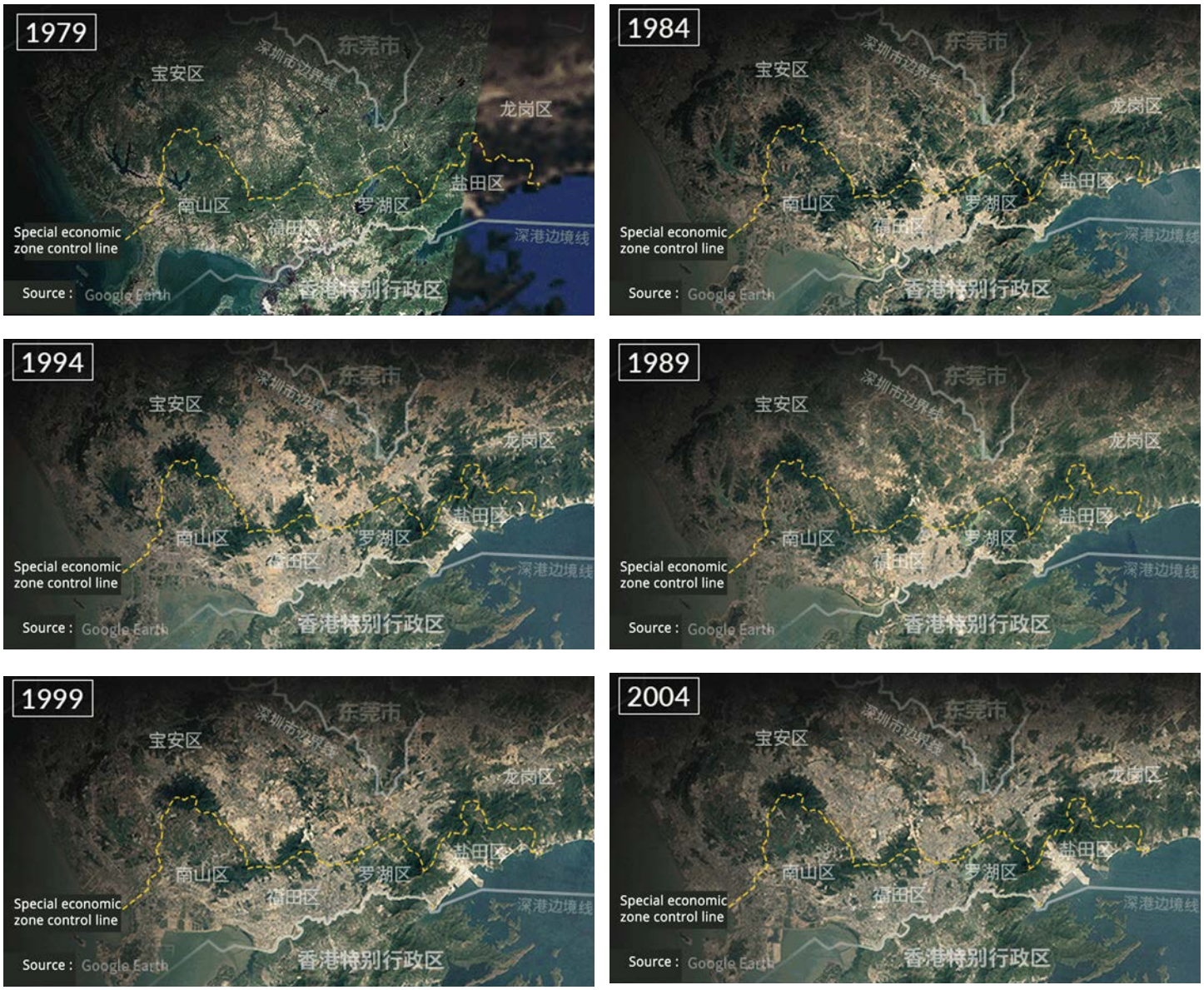


Figure 25 Development of Shenzhen, source:Google Historical Satellite Map

Figure 26 Once the border protection net of special economic zone, source: Baidu photo

Problem field
Urban village in Shenzhen

As a migrant city, the growth of the ßoating population of Shenzhen outweighs its permanent population(Pu, H.2009, October 16). Shenzhen has urban villages as an important part of living. Inventory planning and integration inside and outside the special zone have recently been the focus of Shenzhen's urban planning. Areas outside the Shenzhen Special Economic Zone are also increasingly being paid attention to by urban regeneration. On the one hand, this area, as a transitional area between the inside and outside of SEZ, will play an important role in the future development of the connection and integration between the areas inside and outside the SEZ. On the other hand, the urban villages in this area of the city have many development possibilities, which can help relieve the urban pressure brought by the rapid urbanization of Shenzhen.

Urban villages are an important part of the living space in Shenzhen. There are more than 1,000 urban villages in Shenzhen, including 200 in the SEZ, and a total of 300,000 urban village buildings in Shenzhen. Urban villages face numerous opportunities and challenges for transformation. Housing in urban village is based on self-help approach and tends to take place in an unauthorized style(Zhang et al.,2003). The existing urban villages in Shenzhen present numerous challenges. Due to unclear land use rights and insufficient management, illegal constructions are widespread, resulting in poor living conditions and high building density within these areas. The dense population and diverse groups residing in urban villages are not adequately supported by infrastructure and management resources. However, urban villages also hold significant value. They serve as initial settlements for migrant populations in Shenzhen, offering an inclusive environment and a welcoming atmosphere. Additionally, urban villages partially alleviate the housing shortage in the city. Moreover, urban villages possess the potential for future urban regeneration initiatives in Shenzhen.

Multicultural and historical

Spatial isolation

Cheap living and working spaces

low land use efÞciency

Good location

low industrial technology

Illegal construction

High crime rate

Bad environment

Lack of facilities

Figure 27 Current situation in urban village in Shenzhen

Problem statement

Uneven development in socio-spatial aspect

Existing policies and urban development in the context of rapid urbanization have essential socio-economic, politial, and environmental implications for cities. In the problem statement of the project, the author focused on the preservation of the "arrival city" character of urban villages, while still achieving future adaptive development and increasing resilience. From this perspective, the study of socio-spatial resilience and the analysis of the impact of uneven development on socio-spatial aspects will be more useful as a starting point for the project to explore the model of adaptive development in urban villages.

In urban villages, long-term migrants need the same rights as others to enable them to settle in the city and access the social and economic rights they are entitled to. Urban inequality, segregation have also become focused research topics. However, such policy changes and recent research emphases have not changed the overall direction of planning policy, which still inclines toward the elimination and redevelopment of urban villages, especially in districts with high land values (Ya Ping Wang, 2021), segregation and disparity is an important part of urban villages' dilemma in the face of socio-spatial pressures brought about by uneven development. This will be described in detail in the following section.

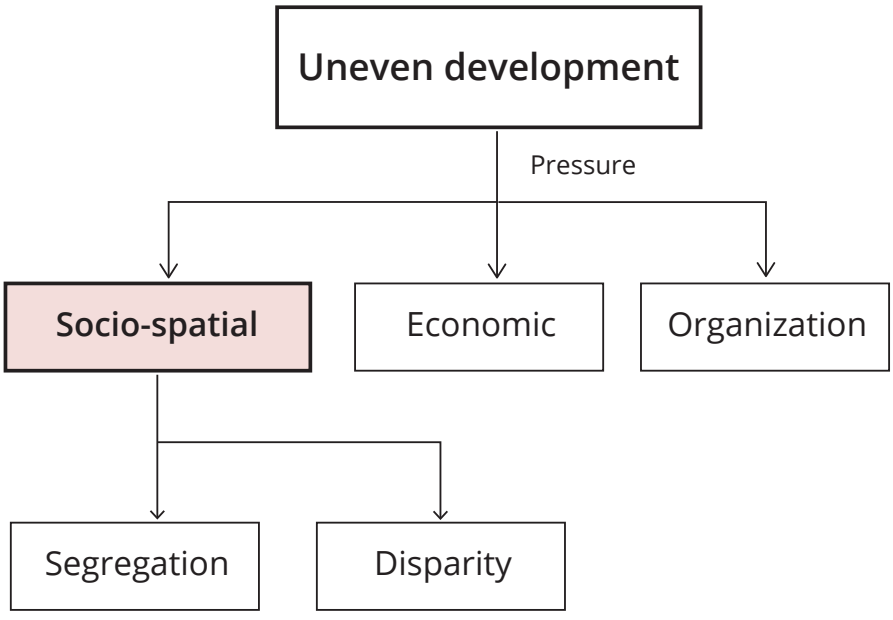


Figure 28 Concept of uneven development in socio-spatial aspect

Problem statement
Disparity

The disparities in Shenzhen exist at various scales. At the macroscopic scale, the establishment of the Shenzhen Special Economic Zone (SEZ) and differential development policies have resulted in significant disparities between areas inside and outside the second line. These disparities manifest in housing pressure, employment opportunities, accessibility, urban environment, distribution of urban facilities, education, and healthcare resources. Migrant labourers remain confined mainly to labour-intensive sectors. In terms of leading industries, the SEZ primarily houses high-tech information technology, finance, and office sectors.In contrast, industries outside the SEZ mainly comprise trade services, manufacturing, material industries, and garment industries, which require ample space and impact environmental quality. Moreover, there is a substantial GDP difference between the interior and exterior of the SEZ. The overall development rate within the SEZ outpaces outside, and the internal land and resource utilization has reached saturation. The future urbanization process and the increasing demand for residential and innovation spaces will create signiÞcant development pressure within the SEZ that will extend to areas outside. Consequently, the regions beyond the second line will face the pressures associated with uneven development, encompassing both the SEZ burden-sharing and the city's overall pressure.

At the neighbourhood scale, focusing on urban village areas, disparities also arise between urban villages and the surrounding urban areas. This is evident in the internal environment of urban villages, architectural quality, public space, facility distribution, safety hazards, and population distribution. The spontaneous development of urban villages has led to disorderly and chaotic environments characterized by numerous buildings and unplanned areas. At a more microscopic scale, fragmentation within urban village areas further exempliÞes the uneven development across different regions. Looking ahead, urban villages will confront worsening environmental and facility quality, social disarray, and challenges integrating with the surrounding spaces. This issue of segregation will increase the vulnerability of urban villages, rendering long-term and sustainable development unattainable.

Problem statement
Segregation

Segregation is a manifestation of socio-spatial inequality. It means that different social groups have unequal access to resources and opportunities, and this inequality affects the interaction between different social groups and the establishment of social relationships. In the Chinese context, the role of institutional factors has been highlighted as one of the major drivers in shaping socio-spatial segregation. Scholars agree that segregation results from the joint efforts of market forces and institutions (Li & Wu, 2008; He, 2010). Segregation is related to China's hukou system, which in urban areas determines whether a person has the right to purchase housing/access resources such as education, employment, and health care. When groups with rural hukou or foreign urban hukou live in a city, they cannot enjoy some of the social rights and benefits that come with local hukou. This unequal access to resources and opportunities reßects the socio-spatial segregation in the Chinese context, and segregation is closely related to the villagers and migrant groups in the city.

In Shenzhen's urban villages, the low rental prices and the social networks of the original urban village groups attract many domestic migrants and low-income groups to live there for a short or long time. Through social networks, migrants can more easily access information and find employment and housing options. Due to the unplanned and overcrowded development, crime and poor safety records, and serious health, environmental and sanitary problems in the urban villages, it is not attractive to other social groups. Although the income of the villagers is mostly generated by the tenants, many facilities and services provided by urban villages are only available to the indigenous villagers(Hao et al., 2011). Many urban groups perceive urban villages as unattractive and poor-quality spaces in the city.

Urban villages have two sides of influence on domestic migrants, with both positive and negative meanings. On the level of positive meaning, an urban village provides an inclusive social environment and cheap rental housing. Moreover, as the first stage for domestic migrants to settle in the city, urban villages give them new opportunities to live and work and a more inclusive network of relationships. However, in the long run, if this segregation is not changed, migrant groups do not have a right to social and public services such as health, education, employment, and social security and most rural and urban migrants are always engaged in low-paid and insecure jobs, they will remain in the same stage, unable to adapt to new changes and needs.

Problem statement

Urban villages under development pressure

Urban villages situated in strategic locations within Shenzhen will experience increasingly intense development and regeneration pressures, along with exacerbated disparity and segregation issues. As the city's main development structure continues to unfold, the existing segregation and disparity between urban villages and their surrounding areas will further deepen. Consequently, there is an urgent need for inclusive and adaptable regeneration strategies in urban villages located at strategic positions for urban development.

Figure 29 Satellite picture of an urban village in Shenzhen to show the spatial segregation

Problem statement

Current gap

Although China has identified "urbanization of people" as the core of new urbanization since 2010, some studies on sustainable/adaptive regeneration, such as social integration of urban village residents (Tao Haiyan et al., 2014) / inclusive urban village transformation in megacities (Ye Yumin, 2015), have also been conducted. However, the majority of current Research on urban village regeneration remains primarily theoretical in nature, needing more exploration of practical implementation that can effectively adapt to future changes. The prevailing approach to urban village regeneration still revolves around large-scale demolition and redevelopment. Meanwhile, examples of micro-renewal or partial regeneration have yet to establish comprehensive and replicable development models that can serve as valuable references. Furthermore, More Research on enhancing social-spatial resilience in urban villages is needed. Therefore, there is a pressing need to address the research gap in the adaptive regeneration of urban villages within China's urban renewal model transformation. This will contribute to enhancing their adaptability and resilience for future development.

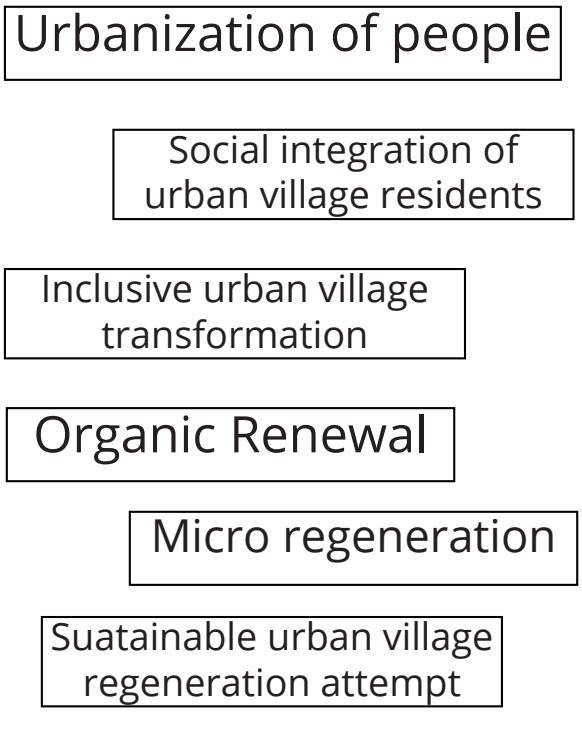


Figure 30 Key words of current urban village regeneration

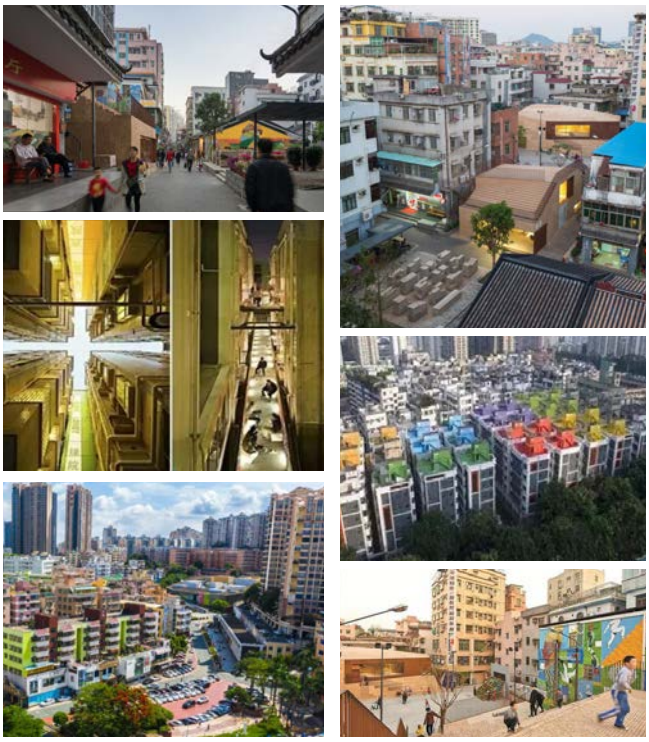


Figure 31 Current regeneration attempts

Problem statement
Summary

In China's rapid urbanization process, some major cities in China have produced a typical urban phenomenon: the urban village. It is a product of urban land expansion under rapid urbanization and an opportunity for cities to need more land resources. Taking Shenzhen as the research city, Shenzhen's urban villages face serious pressure from uneven development. From the socio-spatial level, this pressure can be divided into disparity and segregation. The uneven development between the Shenzhen former SEZ and its surrounding areas will result in increased pressure in future development. The segregation of urban villages is mainly reflected in social exclusion and spatial fragmentation. All this pressure brings obstacles to urban villages' future development and regeneration. Moreover, the existing urban village regeneration mode lack of resilience for socio-spatial changes. It cannot continue the characteristics of the urban village as an "arrival area" and simultaneously realize its long-term development. Thus, the top-down planning and bottom-up changes at different scales cannot be better coordinated and interacted with each other. Therefore, the exploration of adaptive regeneration of urban villages to increase socio-spatial resilience is a need for future development.

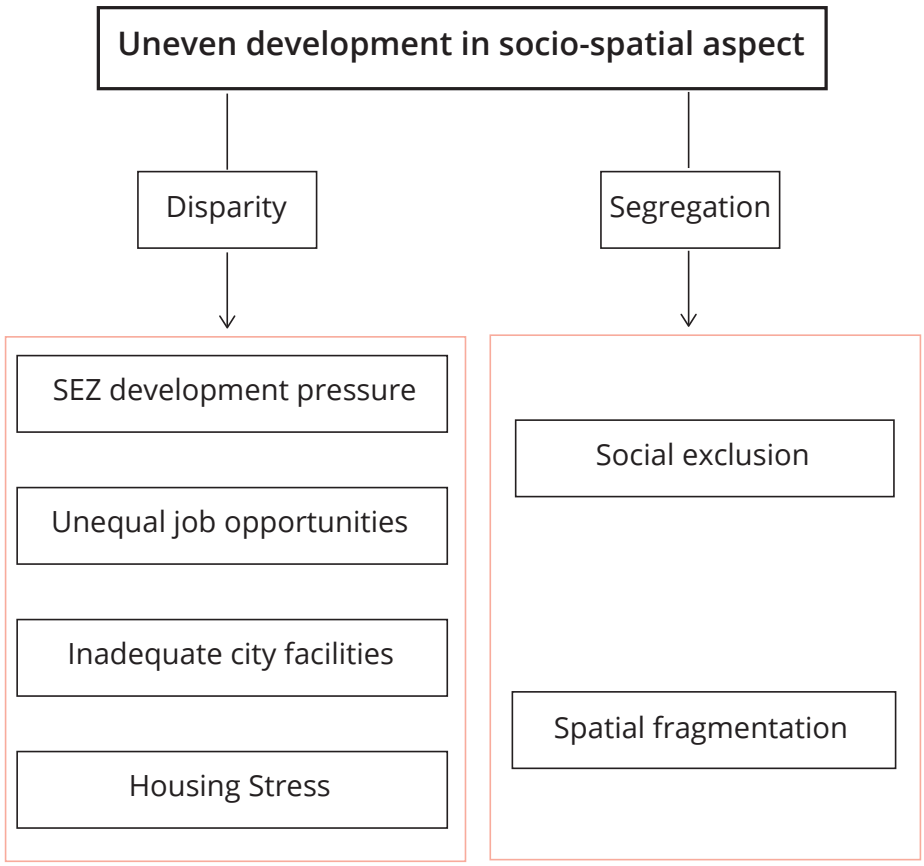


Figure 32 Problem statement summary

CONCEPT

In this chapter, the research aim and main research question are derived based on the analysis of the previous questions. Theoretical studies are conducted based on the central question to understand the main implications of the adaptive cycle and the relation to time and scale. On this basis, the theoretical and conceptual framework is developed to clarify the direction of the author's main project. Based on this, detailed sub-questions are developed, and the linkage to the method is considered.

Figure 33 Photo of the urban villages in Shenzhen, by Niall Patrick Walsh

Concept

Logic of section

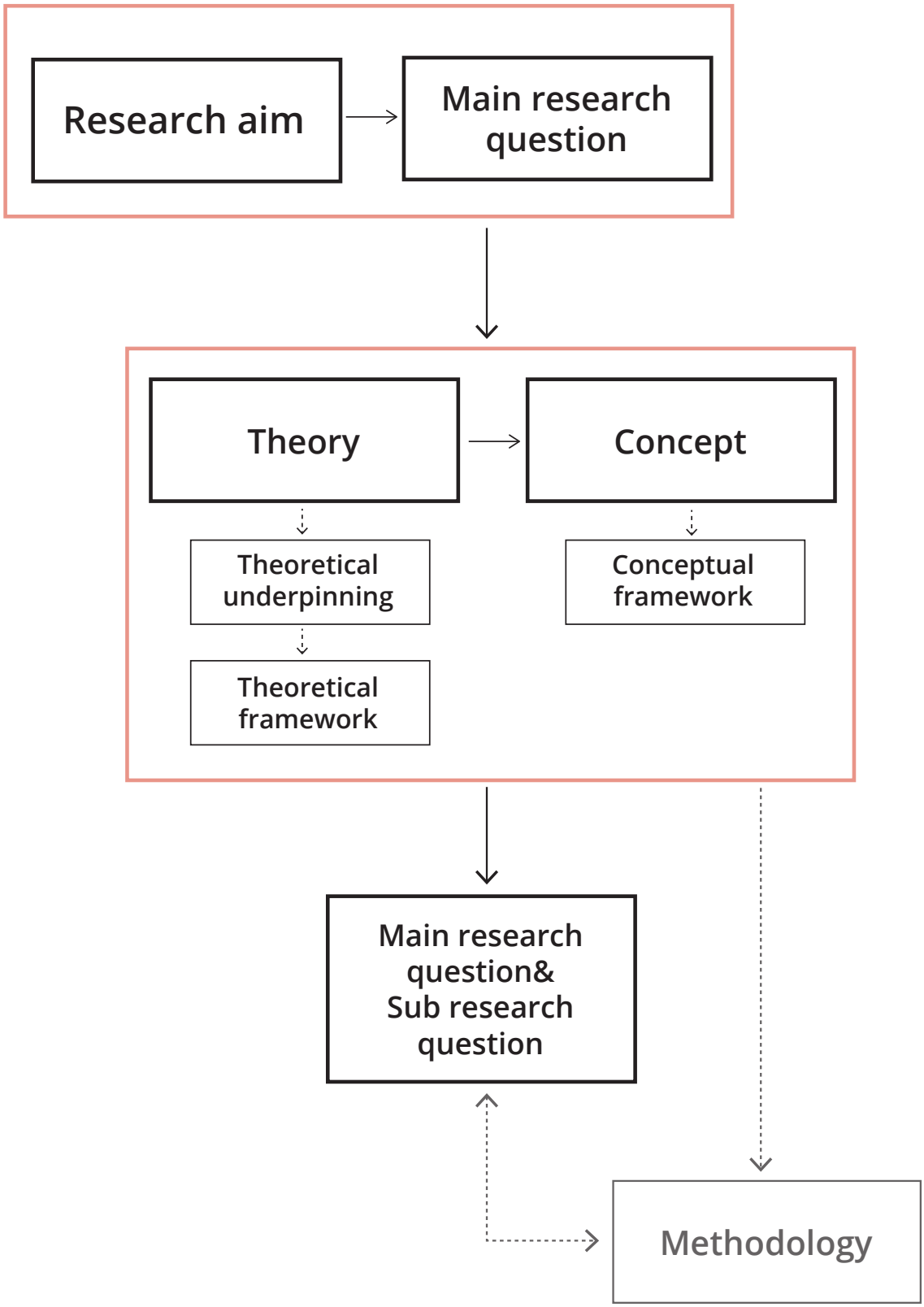


Figure 34 Logic thinking of the concept chapter, from Aim to Question to framework

Concept

Research Aim and Main research question

Research aim:

Taking Shenzhen as an example, conduct an exploration on the **adaptive regeneration model** of **urban village** areas

In the context of the rapid urbanization in China and the problem statement of the main dilemmas urban villages face, it has been concluded that the existing urban village regeneration lacks the adaptability to future changes. Based on this problem statement, the main aim of this project is to explore adaptive urban village regeneration. It is hoped that the project on adaptive development can be conducted in terms of urban village regeneration strategies and processes, regeneration design and outcomes. Shenzhen is used as the main study area to present the whole analysis process of the project. The author hopes to provide a new possibility for the future development of urban village regeneration in Shenzhen through the study of this project.

Main Research question:

How to establish an adaptive **urban village regeneration model** so as to increase **resilience** to **socio-spatial** challenges in the context of **uneven development** ?

In order to achieve the goal of adaptive urban village regeneration, two points need to be clarified first in the main research questions. First, which aspect of future uncertainty does the regeneration need to adapt to? Second, which direction of resilience to achieve? Based on the background research and the analysis of the main issues, this project mainly proceeds to cope with the uncertainty and future pressure brought by the uneven development in Shenzhen. Moreover, the main focus is to improve soco-spatial resilience.

Concept

Theoretical underpinning-Adaptation in time and scale

The adaptive cycle is a model for the adaptation process of adaptive systems in response to external changes and was Þrst described in ecology by Holling. It is divided into fthe main phases, Exploitation, Conservation, Release and Reorganization. This process shows a complex ecosystem from the stage of gradual growth to the stage of accumulation of resources, to the stage of external disturbance and system collapse, and finally to the stage of reorganization.

When the adaptive cycle is studied in the context of more complex urban systems, a single scale is insufficient for comprehensive thinking. All systems exist and function at multiple scales of space, time and social organization, and the interactions across scale are fundamentally important in determining the dynamics of the system. This interacting set of hierarchically structured scales has been termed a "panarchy"(Gunderson and Holling, 2003). At different scales, adaptive cycles experience different times and speeds of transformation. Large scales will have slower and longer adaptive cycles, while small scales will have faster and more frequent dynamic changes. The adaptive cycles between scales will interact with each other. Urban elements at larger scales will generally reduce the uncertainty of adaptive cycles at larger scales, thus exerting a constraining and memorizing effect on adaptive cycles at smaller scales. As mentioned earlier, urban planning and design can be used to contribute to the shaping of the route, and under this concept, planning and design can regulate the adaptive cycle at a single scale and between different scales. This is the core theory of this project.

In order to further understand the specific aspects in which planning and design can intervene, urban morphology needs to be combined with adaptive cycles. Based on a combined reading of the adaptive cycle by Holling and Gunderson (2001) and the territorial development cycle by Caniggia and Maffei (1979), Ombretta Romice and others combined panarchy with urban form. The adaptive cycle at different scales is related to different urban components and structures, and this change in urban form can be influenced by design and strategy. This section will be read and applied in more detail in the methodology section.

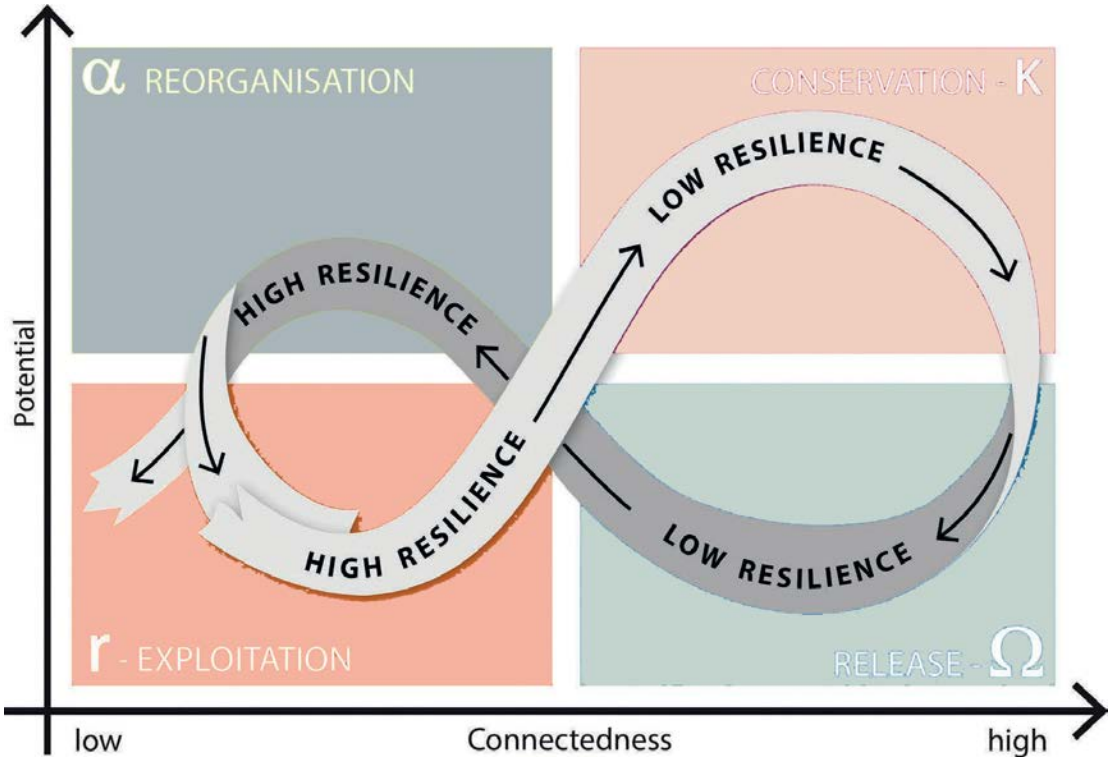


Figure 36 The daptive cycle and its fthe phases, adapted from Gunderson and Holling (2002)

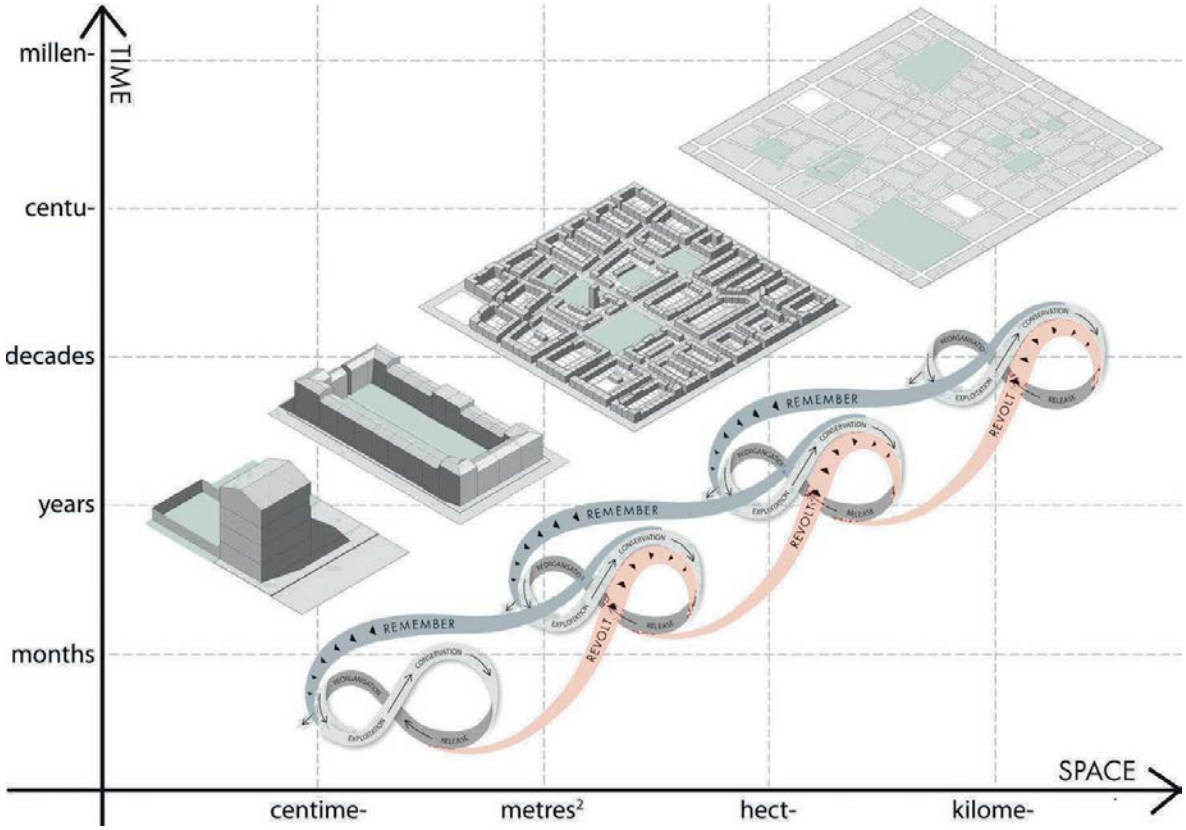


Figure 35 The panarchy in urban form: a fourtiered hierarchy with relevant morphological structures appearing at different scales of space and time,adapted from Berke and Vernez-Moudon

Theoretical underpinning-Dynamic adaptation process

Based on existing thinking and research, the perception and understanding of resilience have changed from engineering resilience to ecological resilience to evolutionary resilience. Evolutionary resilience emphasizes the city's ability as a complex system to continuously and adaptively reconfigure its internal structure in response to external changes and disturbances. This process of urban adaptation to change is a dynamic and continuous one. This resilience can be associated with adaptive cycles and panarchy (which will be addressed later). Based on the project's focus on socio-spatial resilience, revolutionary resilience can better explain the consideration of socio-spatial resilience.

The initial understanding of urban adaptive change is based on the ecological system. When cities encounter sudden external disturbances and environmental disasters, city performance will Þrst experience a sudden drop and destruction and then slowly recover to its original state. This process is an adaptive process for the urban ecosystem in the face of natural disasters and unexpected sudden impacts. However, from the perspective of socio-spatial, external disturbances and impacts are often not massive or sudden but can accumulate until they significantly impact the whole urban system.

DEFINITIONS OF RESILIENCE IN DIFFERENT FIELDS OF KNOWLEDGE		
Definition	**Discipline**	**Approach**
The quality of being able to store strain energy and deflect elastically under a load without breaking or being deformed.	Physics	Engineering resilience
'The amount of disturbance that an ecosystem could withstand without changing self-organised processes and structures (defined as alternative stable states).	System ecology	Ecological resilience
The ability of complex socio-ecological systems to change, adapt, and, crucially, transform in response to stresses and strains. 'Evolutionary resilience broadens the description of resilience...to incorporate the dynamic interplay between persistence, adaptability and transformability across multiple scales and timeframes.	Social and environmental science	Evolutionary resilience

Figure 37 Defination of resilience in different field, Adapted from Berke and Vernez-Moudon. The pink part is relavent to the defination of adaptation in this project

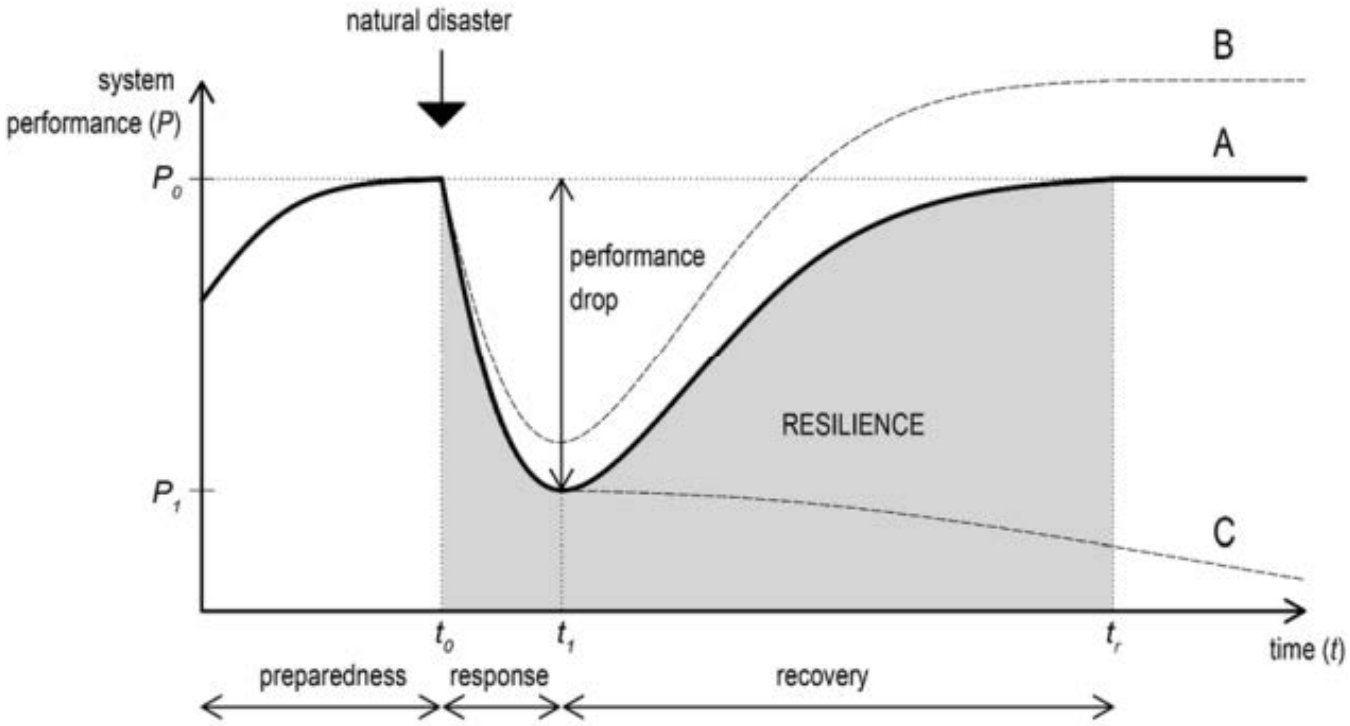


Figure 3: Resilience function

$$R = \int_{t0}^{tr} P(x)dt$$

where:

R – urban system resilience,
$P(x)$ – performance at time x,
t_0 – time of the natural disaster,
t_r – measurement time after the natural disaster.

Figure 38 Resilience function of urban system,byDavid Koren, Vojko Kilar, Katarina Rus

Concept

Theoretical underpinning-Diversity

Resilient attribute

For a resilient city, there are five main fundamental attributes that can be focused on: diversity, redundancy, modularity, connectivity, and efficiency (Romice et al., 2020). These five attributes influence the dynamic adaptation process of urban systems to future changes in the city. They are essential aspects of urban planning when considering the dynamic adaptation of cities to future changes. In the theoretical underpinning, based on the consideration of dynamic change and the problems of segregation and disparity, the main focus is on "diversity".

Diversity, in a certain sense, shows that urban form is composed of different types of components. Diversity can attract households of different composition and income with varying needs and requirements, thus promoting social diversity (Romice et al., 2020). Thus, in a complex, dynamically changing, and future-adapted urban system, diversity could provide multi-functions and possibilities for more signiÞcant interaction between different forms at different scales while providing the basic conditions for adapting to different future development directions.

Concept

Theoretical underpinning-Flexible planning

Flexible planning

In flexible planning, each individual development is explicitly part of continual process of development (Bergevoet & Van Tuijl, 2016). This corresponds to the dynamic adaptation process of cities. In order to increase the resilience of urban form and make it flexible for change, planning and design can evolve and adapt the city in the desired direction by constantly adjusting its trajectory at different scales and in different temporal phases. This flexible planning is achieved by, on the other hand, enables specific local conditions for redevelopment. Taking these conditions as the point of departure rather than eliminating them brings major beneÞts such as lower investment costs, shorter procedural and construction phases, broader support among stakeholders and more local quality(Tom et al.; V. T., 2016). On the other hand, this process-based planning requires the participation of multiple stakeholders, and in the process of decision making, different stakeholders can provide inputs. Flexible planning is about taking steps in a continual process of gradual change(Tom et al.; V. T., 2016). At each stage of planning implementation, different groups can coordinate and communicate to produce a decision to adjust the next developing direction of urban form. Through the realization of these two aspects, the impact of flexible planning on the realization of adaptive development of the city can proceed.

Concept
Theoretical framework

The core of the entire theoretical framework is the definition of Adaptive regeneration. Adaptive regeneration here is studied based on the consideration of interactions between different scales. The whole theoretical framework is divided into two parts: the interpretation of the socio-spatial pressure in Shenzhen and the understanding of adaptive regeneration in the face of such pressure.

In the context of rapid urbanization in China, cities face uneven development and related challenges. Shenzhen, in particular, stands out with its own issues of uneven development. This project specifically examines the socio-spatial problems arising from this uneven development. Moreover, it explores how to increase the socio-spatial resilience of urban villages through the adaptive regeneration of urban villages. The socio-spatial issues are divided into two aspects: segregation and disparity.

Based on theoretical underpinning, in the face of pressure from the socio-spatial aspect, the project mainly explores the model of adaptive regeneration in urban villages through the study of adaptive regeneration at different scales and interactions. The project aims to achieve integration, equality, diversity and flexibility through adaptive regeneration to address the problems of segregation and disparity, thus increasing socio-spatial resilience. The key to the whole project is the dynamic process of adaptation and how this adaptive model can increase the resilience of urban villages.

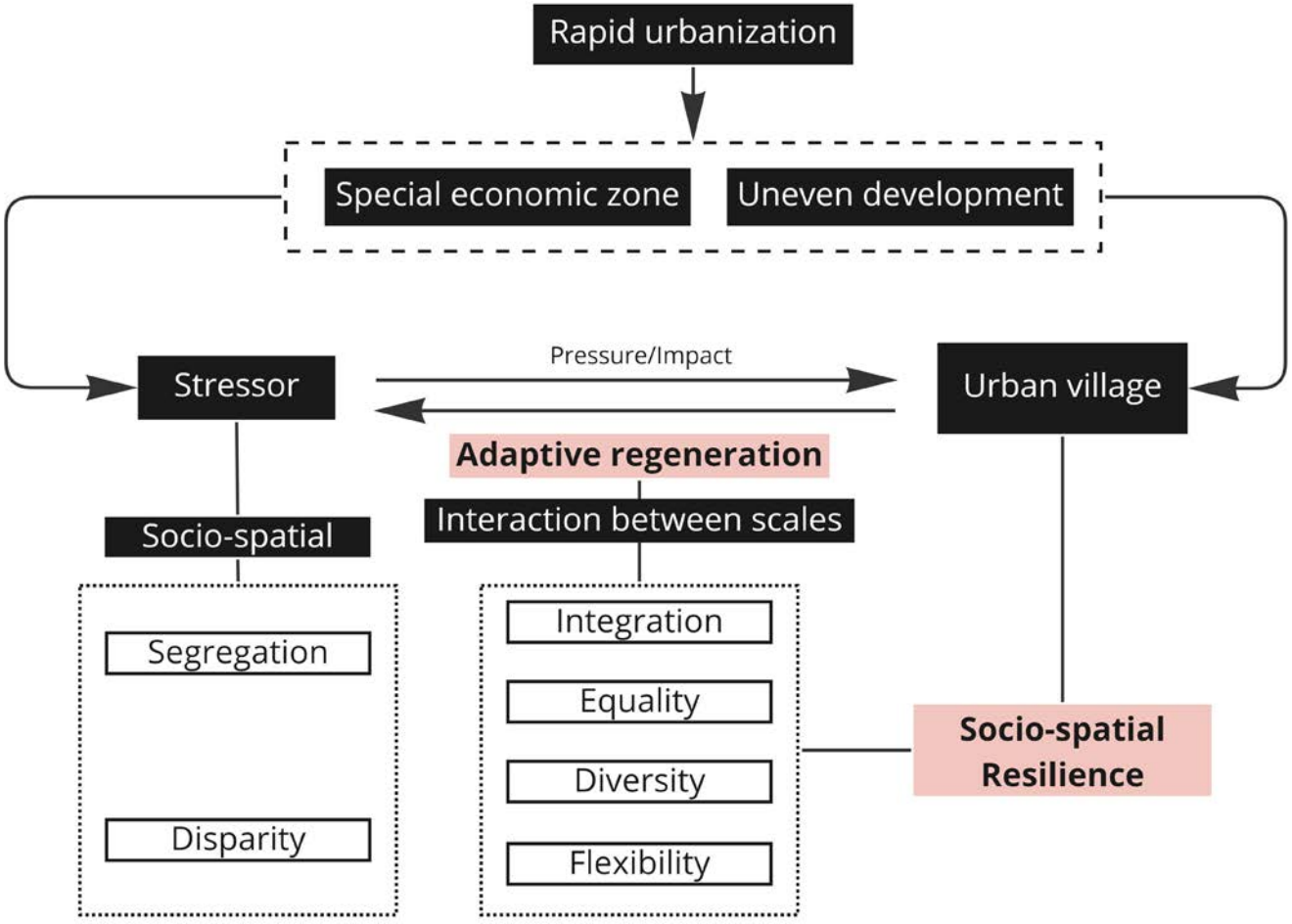


Figure 39 Theoritical framework by author

Concept
Conceptual underpinning

The entire conceptual underpinning is based on Desouza and Flanery's research on the role and framework of design and planning in resilient cities. In this study, the main reference is how to define the components of the urban system and the interactions between them and how planning and design influence these interactions to achieve the ultimate goal of resilience. In previous theoretical studies, the role of planning and design was defined as influencing the trajectory of the adaptive cycle. However, a conceptual definition of the impact through how it affects the form at different scales of the city is lacking. So the conceptual section is mainly to fill this gap.

At the highest-level, components of a city can be segmented into the physical and social spheres (Pickettet, 2001). The physical component includes the physical resource and process, the social component represents the human-related elements within the city, and these components generate interactions. Stressor represents the part of the city that needs to be resilient. At the socio-spatial level, the stressor is from uneven development and has a persistent effect on the city. From the perspective of planning and design, Desouza and Flanery argue that interventions can be made in three areas: planning, designing, and management. In the planning stage, it is possible to install new components for the city, or to strengthen the interactions between different components, thus increasing more capacity for resilience. Management is the strategy to influence the interactions between urban components present and in the future.

The author's conceptual framework learn from Desouza and Flanery's thinking on the framework of resilient cities and translate it according to the main issues and characteristics of urban village regeneration.

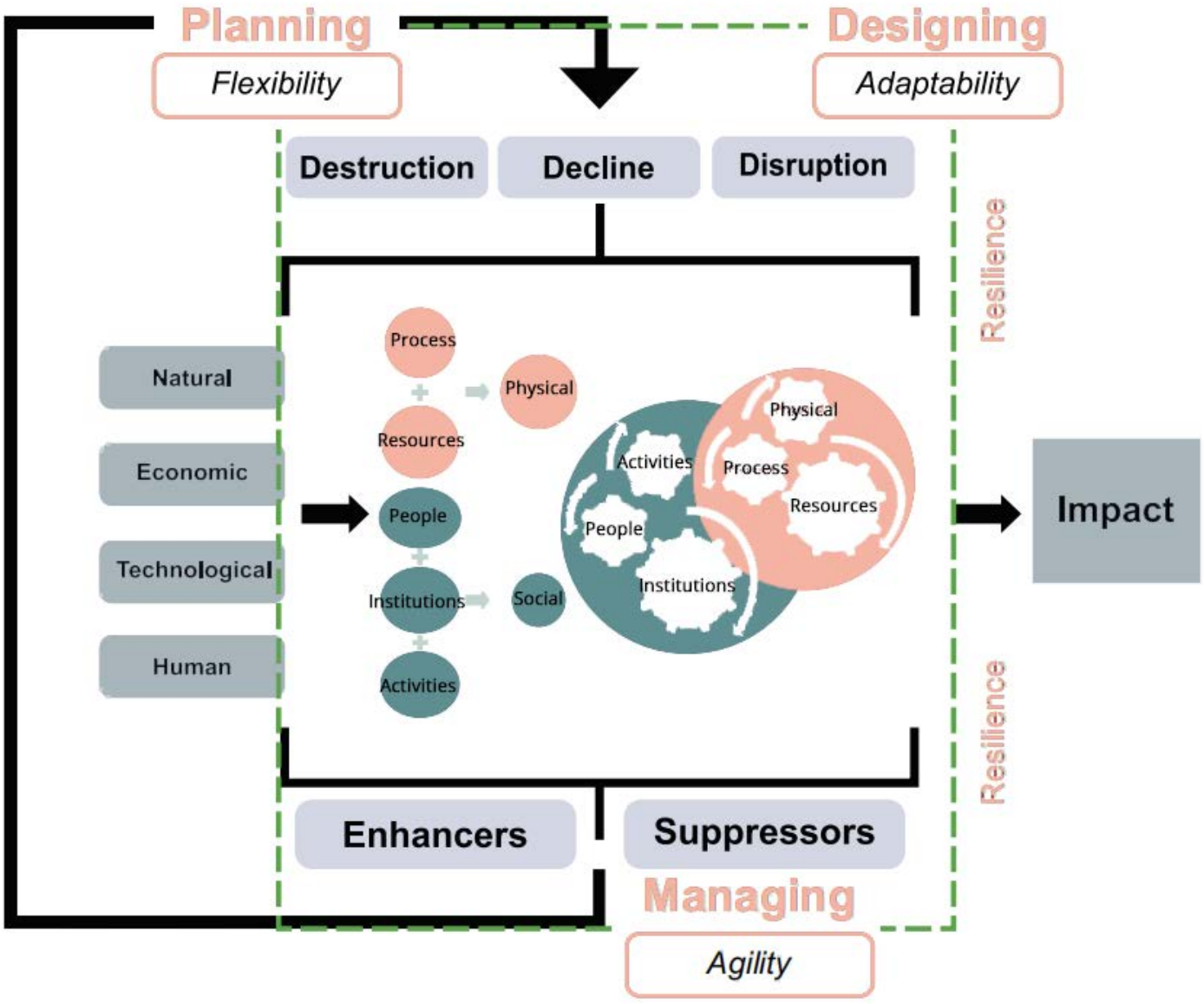


Figure 40 Resilient city, adapted from Kevin C. Desouza , Trevor H. Flanery (2013)

Concept
Conceptual framework

Based on previous theoretical research, the main focus is to clarify the understanding of adaptive regeneration in urban villages in this project and the concept of adaptive cycle interactions at different scales. Conceptual underpinning clarifies the components of the urban system and where adaptive regeneration increases the resilience of urban villages. On this basis, the entire conceptual framework is formed.

The logical framework is divided into three parts. The Þrst part is the unequal development of the socio-spatial aspect, and the main concern is segregation and disparity. These problems can bring pressure and impact on the urban village and interfere with the stability of the urban village system. The urban village is divided into physical and social parts. The components within it will interact at the same scale and between different scales, thus coping with the pressure of segregation and disparity. Adaptive regeneration starts from planning/design and strategies to regulate the impact of uneven development on the urban village on the one hand and increase the interaction between components within the urban village on the other.

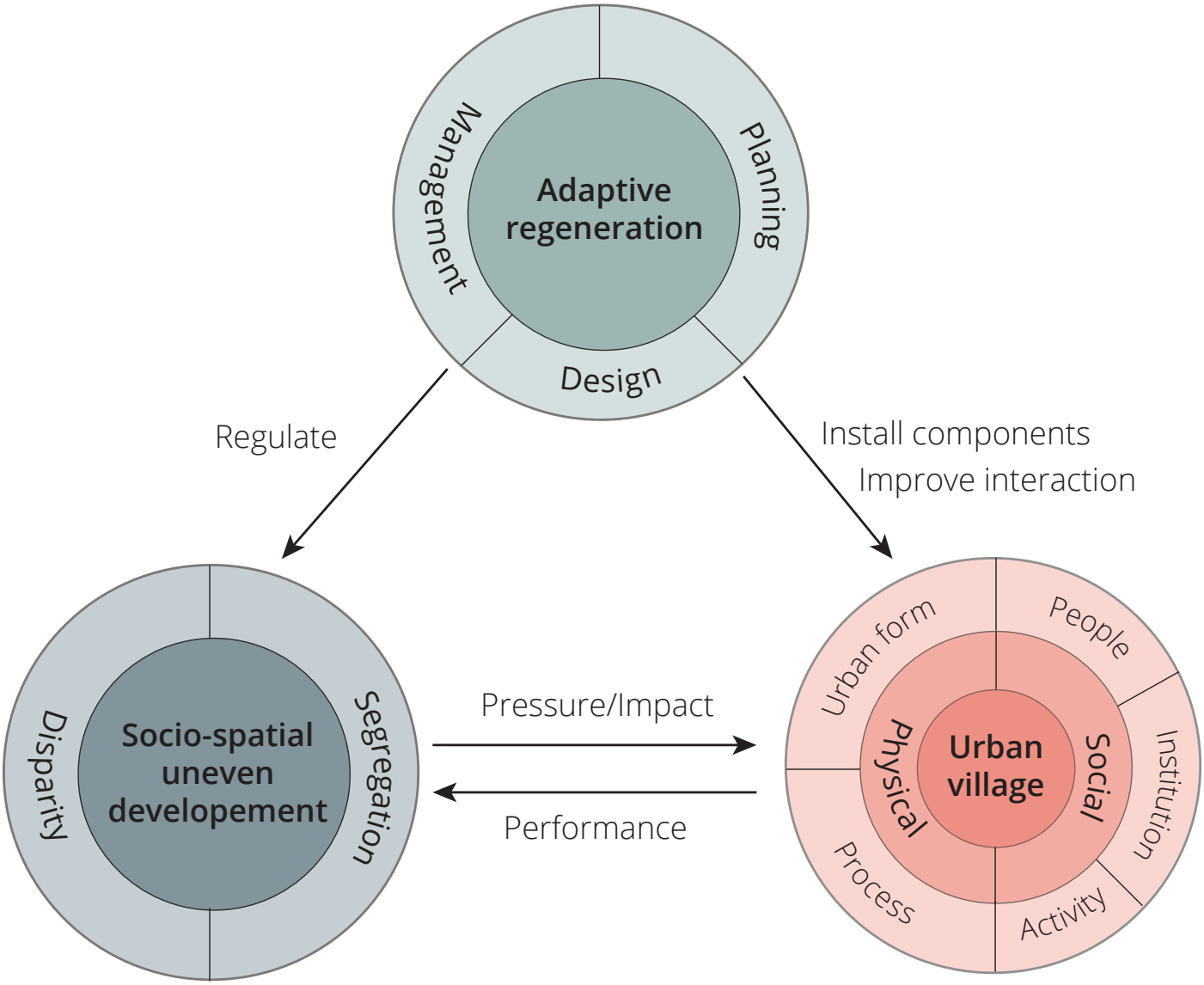


Figure 41 Conceptual framework by author

Concept

Main question and sub question

Main Research question:

How to establish an adaptive **urban village regeneration model** so as to increase **resilience** to **socio-spatial** challenges in the context of **uneven development** ?

Sub Research question:

What kind of socio-spatial challenges does an adaptive urban village regeneration model need to face in the context of uneven development ?

Define the pressure in the future in urban villages that are in developing area

What is the meaning for adaptive regeneration to increase socio-spatial resilience in urban village area?

Define the concept of socio-spatial goals related to urban village

What is the main method for adaptive regeneration of urban villages. What kinds of attributes, structural and strategic urban forms in different scales that need to focus during the analysis and design process?

Define the interaction, form, focused aspect between different scales

What are strategies that guide and help to realize the design process? How can the strtegies and aim be reflected in spatial aspect?

Designing according to the guidance of planning and strategies, stakeholder analysis

What are the socio-spatial outcomes of the adaptive regeneration?What are the conclusions of this adaptation regeneratioon,and what can be learnt for inspiration?

Show the outcome and conclusion by using scenario, reflection and call back

METHOD

This chapter mainly covers the methodological process, detailing the main phases of the project and the expected outcomes. It also describes the transformation from theory and concept to a specific method. This chapter describes the new method of the project, namely the adaptive cycle of different scales based on different time phases. The basic methods used are also briefly described. Finally, in the summary part, the connection between the method, the sub-questions and the expected outcomes is described.

Figure 42 Photo of the people in urban village in Buji, by Sohu website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Method
Methdologlcal process

In order to develop the model of adaptive regeneration of urban villages in Shenzhen, to better integrate planning and strategy, and to improve resilience to the uncertainty of future changes in socio-spatial aspects, the consideration of time and scale is key to the whole methodology. The project phase is divided into two main stages. The first stage is to analyze the current dilemma and to clarify the structure and forms of the different scales and current interactions. The second stage is to guide the strategy and design through the analysis and to consider how an adaptive process and flexibility for change be reflected in the spacial aspect.

In the first phase of the project, the problematization facing urban village in Shenzhen have been concluded through consideration and Research. On this basis, according to the concept of problems, the corresponding Research and analysis are carried out on different scales. In this way, the present situation of the components of different scales and the problems embodied in the spatial and social levels are obtained, and the preliminary analysis conclusion of the current situation is obtained through the analysis and summary. This preliminary analysis conclusion is reflected in the strategic direction of different scales and the spatial structure.

The second phase of the overall project focuses on transforming the analysis into design and strategy, incorporating structure and strategic composition in the design and strategy aspect and using design to show flexibility for change and scenarios. First of all, a case study and literature review are carried out, combined with the research and interview, to obtain the main pressure and problems of the research area during different time stages. Taking the conceptual goal as the starting point, corresponding strategies and designs will be formulated for different periods, and scenarios of neighborhood scale will be established. The key at this stage is to show the dynamic changes of the adaptive process and to derive visualizations based on them.

The steps and outcomes of these two phases will serve as the main consideration and experimentation on the adaptive regeneration model, mainly in terms of dynamic change strategies, guidelines and design, and multi-scale integrated thinking. The following pages will mainly elaborate on the concretization of structure and strategic compositions, scale and time stage thinking in the approach, and the specific methods in these two phases.

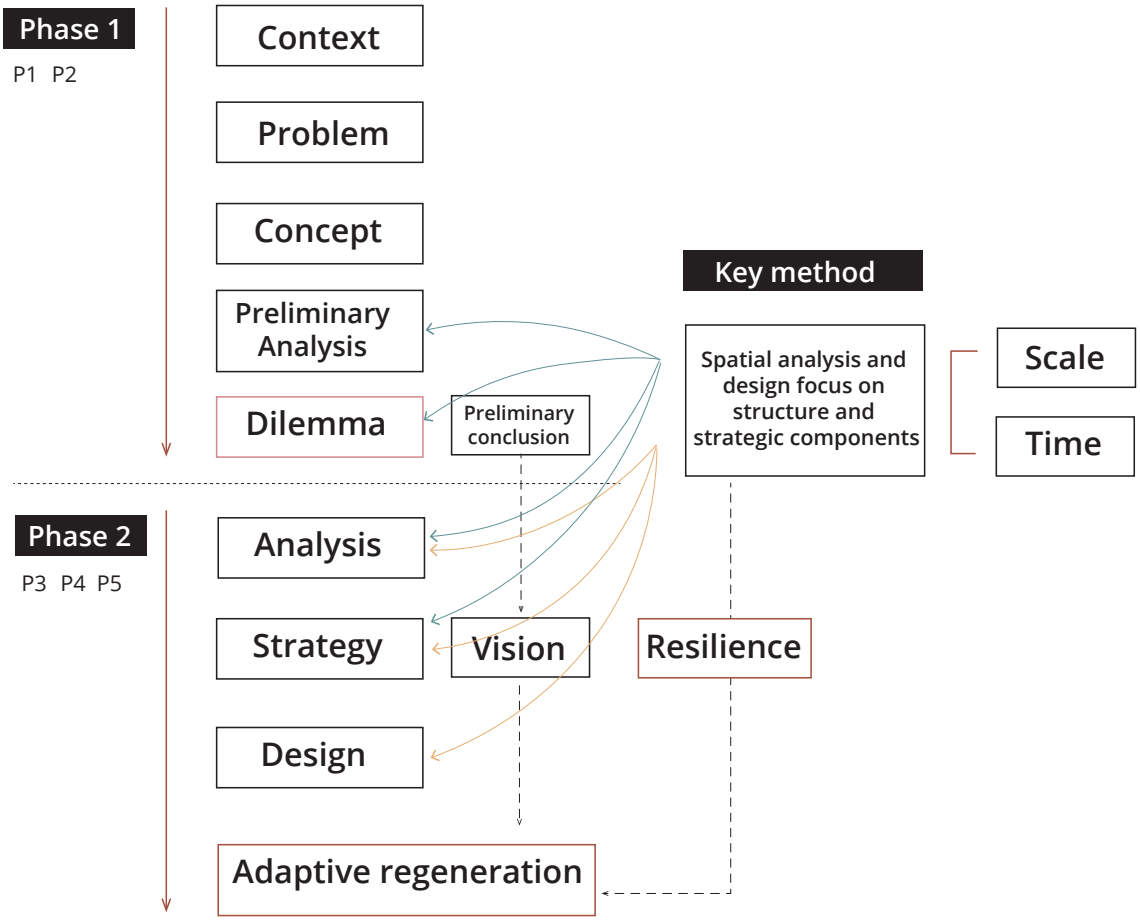


Figure 43 The methodological process

Method-From theory to specificities

Components in different scale

In the previous theory and concept analysis, a description of panarchy in urban form is carried out. Cities experience adaptive cycles of different periods at different scales. These cycles lead to a continuous transformation of the city in urban forms and components, from the regional scale to the street level, then to the building. Before studying the interaction in and between different scales and adaptive process, it is necessary to first identify the scales used for the project and the components of the different scales that are relevant to the urban study to understand where planning and design can intervene. Based on Berke and Vernez-Moudon's research on urban morphology and adaptive cycle and integrating the focus of urban village regeneration, I translate the theoretical approach into a more specific approach that can be applied to projects.

Scale		Variables/ Measures		Instruments of Change/ Intervention	Change Agents	Rates of Change	
Leve/	Elements	Physical Form	Use			Physical Change	Land use Change
1	Room	Size, windows, doors, ceilings,floors, materials	Bedroom, living room, kitchen, bathroom, staircase, elevator, office, store	A.Building codes (physical form, materials, ventilation, access)	Health and safety, architectural design and urban planning, technology	Medium (1-5 years)	NA
2	Building	Number of rooms (if ≥1 go to level 1), garden, size, height	House, apartment house, office building, retail building, institutional building, service building, decorative garden, vegetable garden	A.Building codes B.Zoning and land use codes (physical form, materials, access)	Health and safety, building and architectural design, urban planning, technology	Medium (1-5 years)	NA
3	Lot Parcel	Number of buildings + ancillary unbuilt spaces(if ≥1 go to level 2) Parcel size Open space + related facilities	Any and all of the level 2 above Dominant use (see level 2 above) Park, natural preserve, sports facility	B.Zoning and land use zoning codes (physical form and land use)	Developers, health and safety, building and architectural design, urban planning, technology Parks and recreation	Medium to low (5-20 years)	Low (20 years)
4	Streets Blocks	Block size, street width, sidewalks, bicycle lanes, trails, trees, traffic signalisation, lighting, water, sewers	Motor-vehicles only, mixed motor-vehicles and people transit volumes, speeds	B. Zoning and land use zoning codes C.Street standards and transportation system	Transportation engineering and planning, technology	Very low	Low
5	Neighbourhood District	Aggregation of 1 to 4	Dominant land use (e.g., residential, commercial, institutional, mixed)	D.Overlay zones	Health and safety, urban planning	Very low	Very low
6	City County	Aggregation of 5	NA	D.Overlay zones E.Strategic planning (centre/ nodes and networks)	Urban planning	Very low	Very low
7	Region	Aggregation of 6	NA	D.Overlay zones E.Strategic planning	Urban planning	Very low	Very low

Figure 44 Classes of elements&environmental change by Berke and Vernez-Moudon,The pink part shows the reference scale for this project

Method-From theory to specificities

Structure and Strategic composition

After understanding the different scales of urban form components that can be influenced by planning and design, further refinement and adaptation of these components are needed. The direction of this project is the adaptive regeneration of urban villages, especially those in the development structure area facing greater segregation and disparity. Therefore, it is necessary to clarify what is flexible and changeable throughout the adaptive process and what are the components that act as guides and influence the direction of development at different scales.

Therefore, the components of urban form are divided into two categories. One category is the components of urban that act as guidance and direct the development trajectory of different scales, called "structure". Strategic composition is associated with structure and responds to the guidance of structure. It includes the composition of key elements that can realize the structure. A first characteristic is that strategic planning has to focus on a limited number of strategic key issue areas (Bryson and Roering, 1988; Poister and Streib,1999; Quinn, 1980). Strategic composition not only aligns with the development direction of the structure but also adapts to changes. It also influences urban compositions that are not key elements but are related, enabling flexible and adaptable transformations. Over time the strategic planning process must stay abreast of changes in order to make the best decisions it can at any given point. It must manage, as well as plan, strategically(Albrechts, 2004).

The structure and strategic composition are represented at different scales. Urban planning and design uses structure to guide the direction and interaction of the city at different scales and uses more detailed design to guide strategic composition to achieve the developing aim and keep resilience and flexibility.

Structure and strategic composition reflected in project location

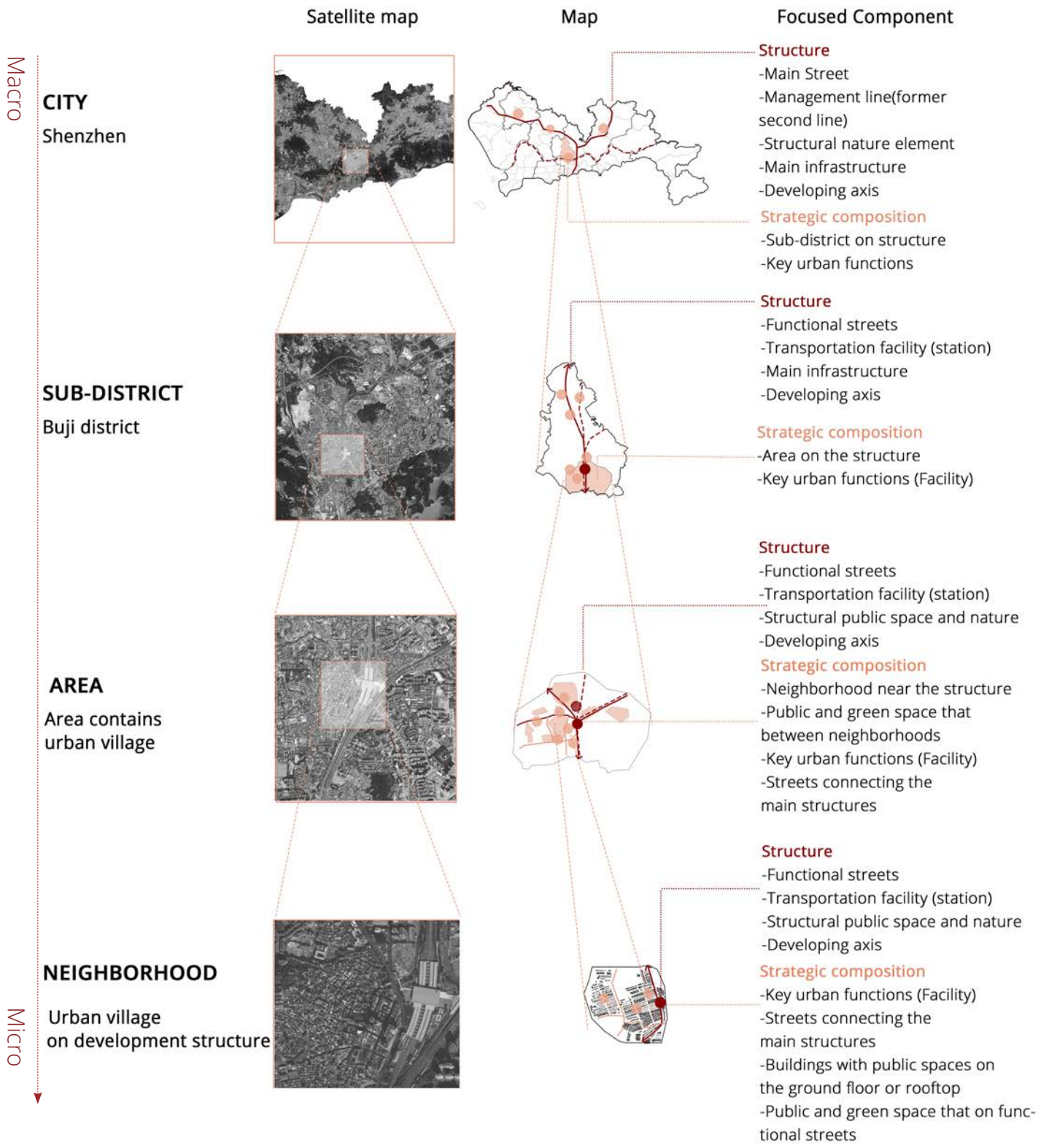


Figure 45 Different scales and focused components reflected in project,selfdrawing

Time and interaction

After identifying the different scales of the project and focused components, further research and transformation based on time changes and interaction in and between different scales are needed. The speed of changes varies at different scales. Current urban morphology suggests that the physical components that constitute the basic form of different scales have different lifespans. Combined with a focus on structure and strategic compositions, the interaction between different scales is mainly reflected in the structure aspect. Because structure can influence development from a larger scale to a smaller scale and is more stable, it needs a longer time for transformation.

Time and scenario are more reflected in neighborhood scale, which shows more detailed design and strategies and how smaller scale adapts to larger scale structure and guidance across scales. This will also show the interaction between scales.

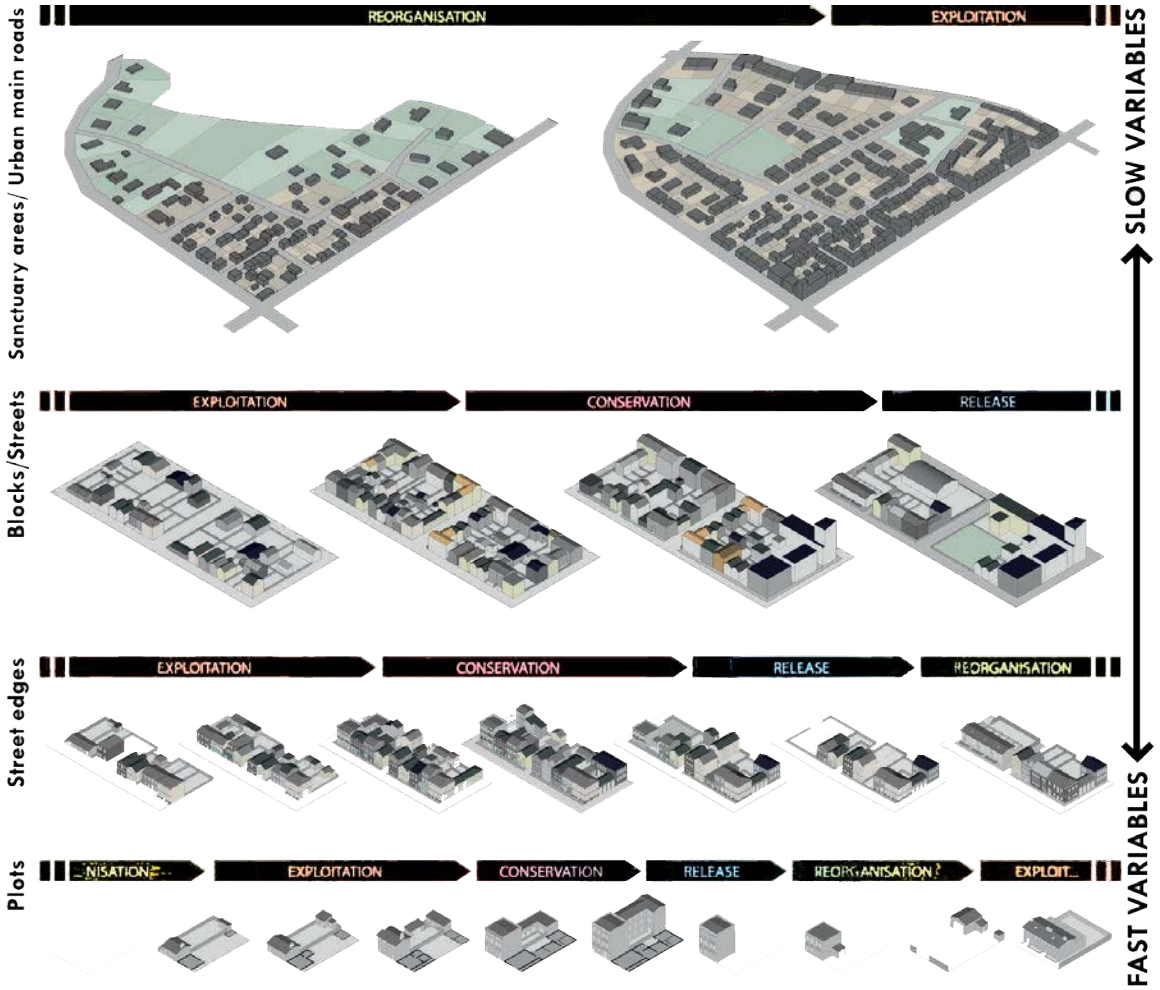


Figure 46 A conceptualisation of overlapping cycles of change at the different morphological scales,from "Master planning for change-designing the resilient city"

Method-From theory to specificities

Flexible for change

The adaptation in this project is reflected in the interactions between the different scales. On the other hand, the flexibility and adaptation to future development at a single scale are reflected in the situation that the process at a single scale is gradual and will be adjusted gradually according to the decisions of different stakeholders and the development status so as to achieve a dynamic trajectory of urban development and adaptation. In addition, the diversity of urban function, job opportunities, industrial types and living spaces are ensured at different scales so as to provide spatial elements adaptable for different future development directions and possibilities. This also facilitates the process of flexibility and adaptation.

Diversity in education can provide more types of knowledge and skills training that different groups can access, enabling the urban village's original tenants to find jobs with the new skills they have learned after industrial upgrading and urban regeneration. The diversity of industries can provide more diverse and abundant employment opportunities for different groups and promote the development of the whole area. The diversity of residential and public spaces ensures inclusiveness for different groups.

In urban villages and the areas surrounding them, there are different development and regeneration models. During the regeneration of urban villages, More is needed to focus on the development of urban villages. It is also necessary to consider the collaboration and influence between the urban village and the surrounding space with different interest-led models. In this way, the urban village will not be developed in a fragmented way but will be integrated with the surrounding area. The future development scenario will also be predicted by different modes of cooperation between leading stakeholders so that the development trajectory can be intervened and guided by planning and design.

Scenario in one scale

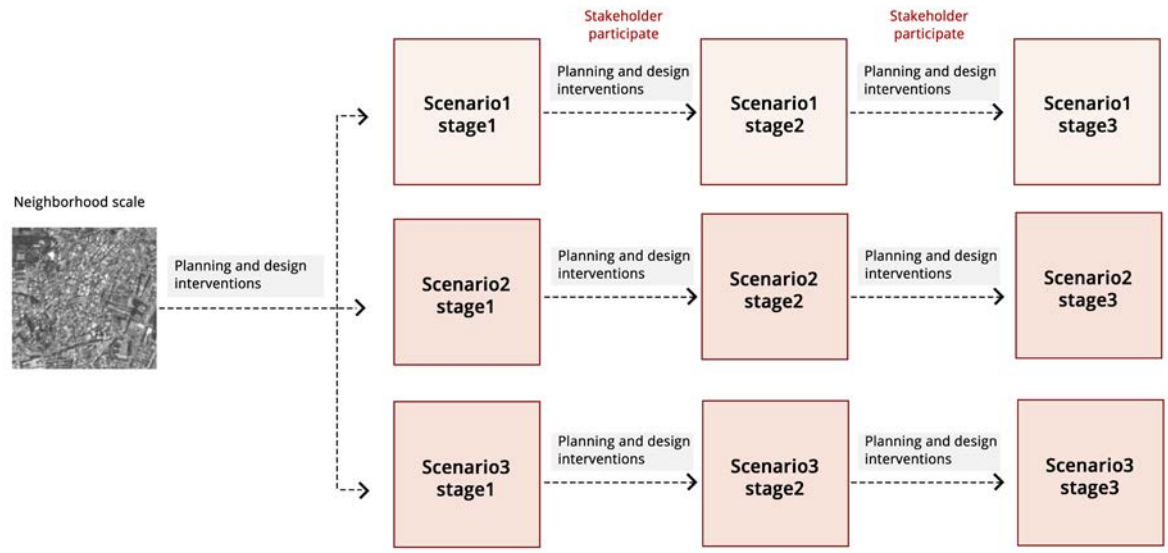


Figure 47 Scenario in one scale and interventaion of urban planning, selfdrawing

Summary of strategy adapted from theory

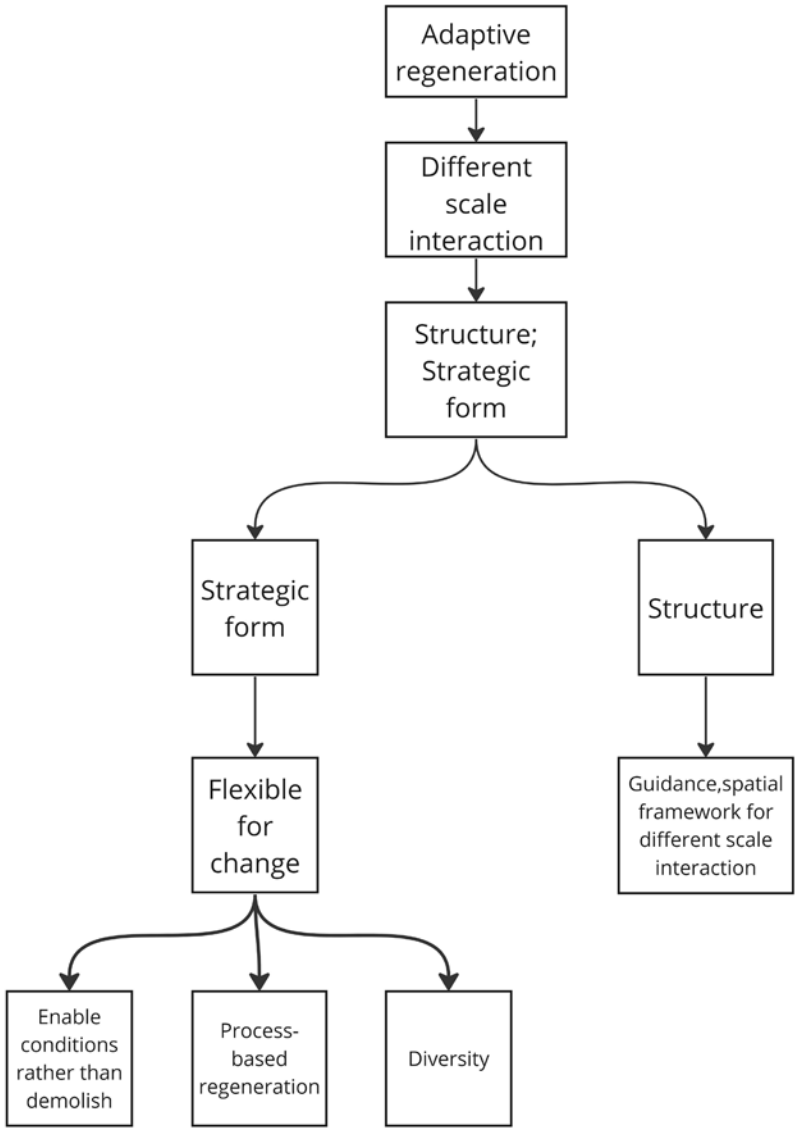


Figure 48 Summary of main strategy adpted from theory underpinning, selfdrawing

Basic method

Mapping

Access and sources:
Most of the maps in this project are drawn by the author. It is mainly based on the scales of Shenzhen city, Buji sub-district, Buji area and different urban village blocks. The main data sources are Baidu open data platform, satellite maps, OpenStreetMap, and government public data.

Main applications and understandings:
In this project, mapping can, on the one hand, more visually reßect the author's thinking about different scales and, on the other hand, can more clearly show the urban functions, spatial structure and distribution of facilities. Moreover, mapping is used in the context, site analysis, and strategy and design chapter. The satellite map provides a clear and visual depiction of the current site conditions, facilitating a better understanding and analysis of the problem. It serves as a valuable guide for further exploration and analysis. QGis is also used for some analysis in the mapping process, such as the distribution of different facilities, trafÞc networks, urban functional zoning, and urban village distribution. Gis analysis can show the results more visually, and the analysis tools in it can also help to evaluate the large-scale structure.

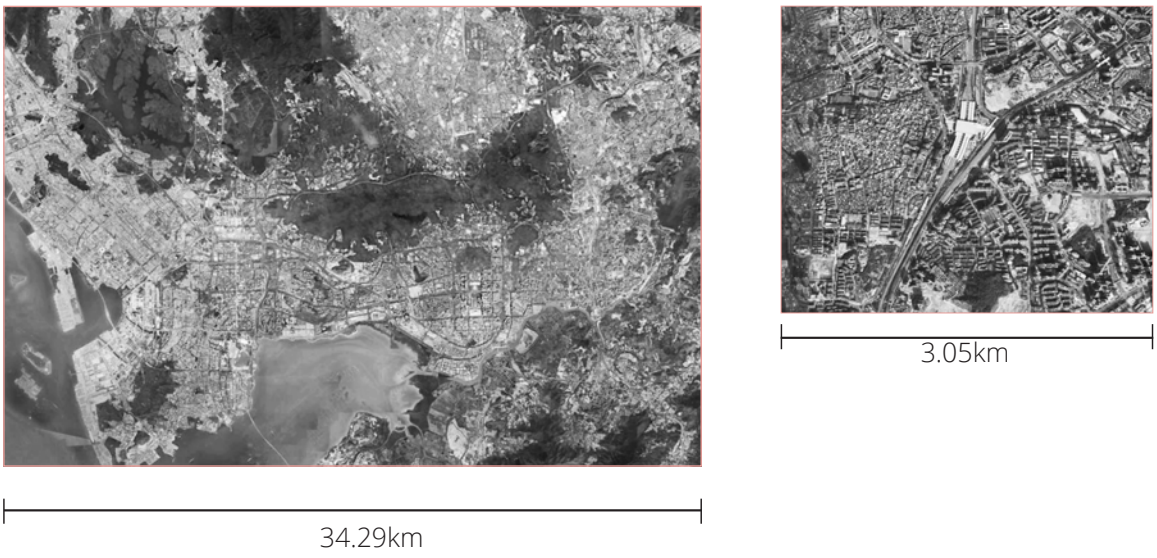


Figure 49 Satellite map showing scale

Basic method

Urban form analysis

Access and sources:
The urban form in this project is mainly based on several scales, such as the Buji sub-district and urban village blocks. The data sources are the Baidu map, Baidu street view, on-site research statistics and the government public data platform.

Main application and understanding:
Urban form is mainly corresponding to the different scales of components as mentioned. On the one hand, it is used to analyze and understand the site's status. Furthermore, through the analysis of urban form, It is clear to find out the problems of the current situation and the spatial dilemmas that need to be improved. On the other hand, it can help the subsequent strategy and design part. The structure can guide the development of the strategic components across scales.

Space evaluation

Access and sources:
The method for spatial evaluation in this project is mainly spatial syntax. The principle is to use the spatial syntax to calculate the road integration degree. The base map for the calculation is the road axis map drawn and modified by the author according to the current road status. The current map is the road base map from OpenStreetMap and is combined with Baidu map data.

Main application and understanding:
Spatial evaluation is mainly used for block and urban village scale. The main purpose is to calculate the accessibility and choice of the road and to help the analysis of the basic spatial conditions. It can also be used to check the design results after the subsequent design and strategies, which can help further modification and improvement.

Basic method

Case study

Access and sources:
The case studies are mainly learned through relevant case collections in China and other European cities and literature reviews. The main scales include macro and micro scales.

Main applications and understandings:
The case studies are divided into several parts. In the contextual part, the case studies play a crucial role in understanding the limitations and challenges of existing urban village regeneration. In the analysis part, the case studies further enhance the comprehension of the present situation and serve as a basis for applying analytical methods and approaches to addressing key issues about segregation and disparity. In the design and strategy part, they help with comprehending the future development pressures in Shenzhen and provide insights into the methods and significance of adaptive regeneration strategies.

Scenario building

Access and sources:
The main sources of future scenarios are case studies, understanding of future policies, and the goals to be achieved in the theory.

Main application and understanding:
In this project, the scenario building is mainly used in the design and strategy part. Scenario building is mainly a method to represent the process and result of the design and strategy in different situation of cooperation of the project. Its main purpose is to showcase the dynamic process of adaptive regeneration through the performance of different scenarios and the guidance of various urban planning approaches.

Basic method

Mental mapping

Access and sources:
The mental map primarily involves the author creating a basic base map and then enlisting the help of individuals to conduct on-site surveys in the design area.

Main application and understanding:
In this project, the focus on social and spatial aspects is the key part. Spatial understanding can be obtained through mapping, spatial analysis and streetscape. A deeper understanding and communication with the site's community is needed in the social part. The author asked different groups residing in the area to choose the areas they prefer, thereby strengthening the consideration of segregation from a group perspective in the region. The mental map serves as a further validation and enrichment of spatial segregation, helping to alleviate any overly subjective issues during the project process.

Summary

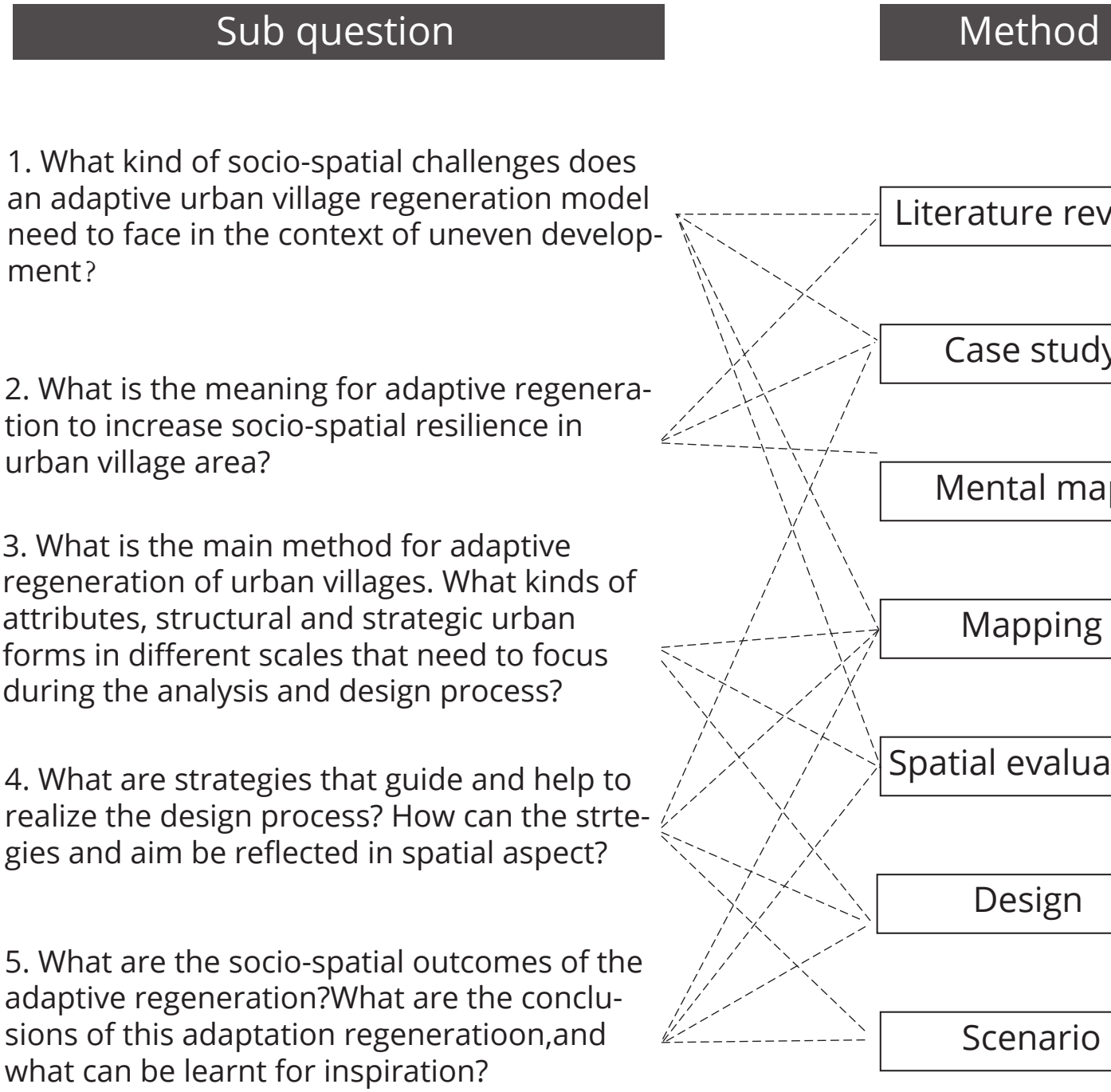
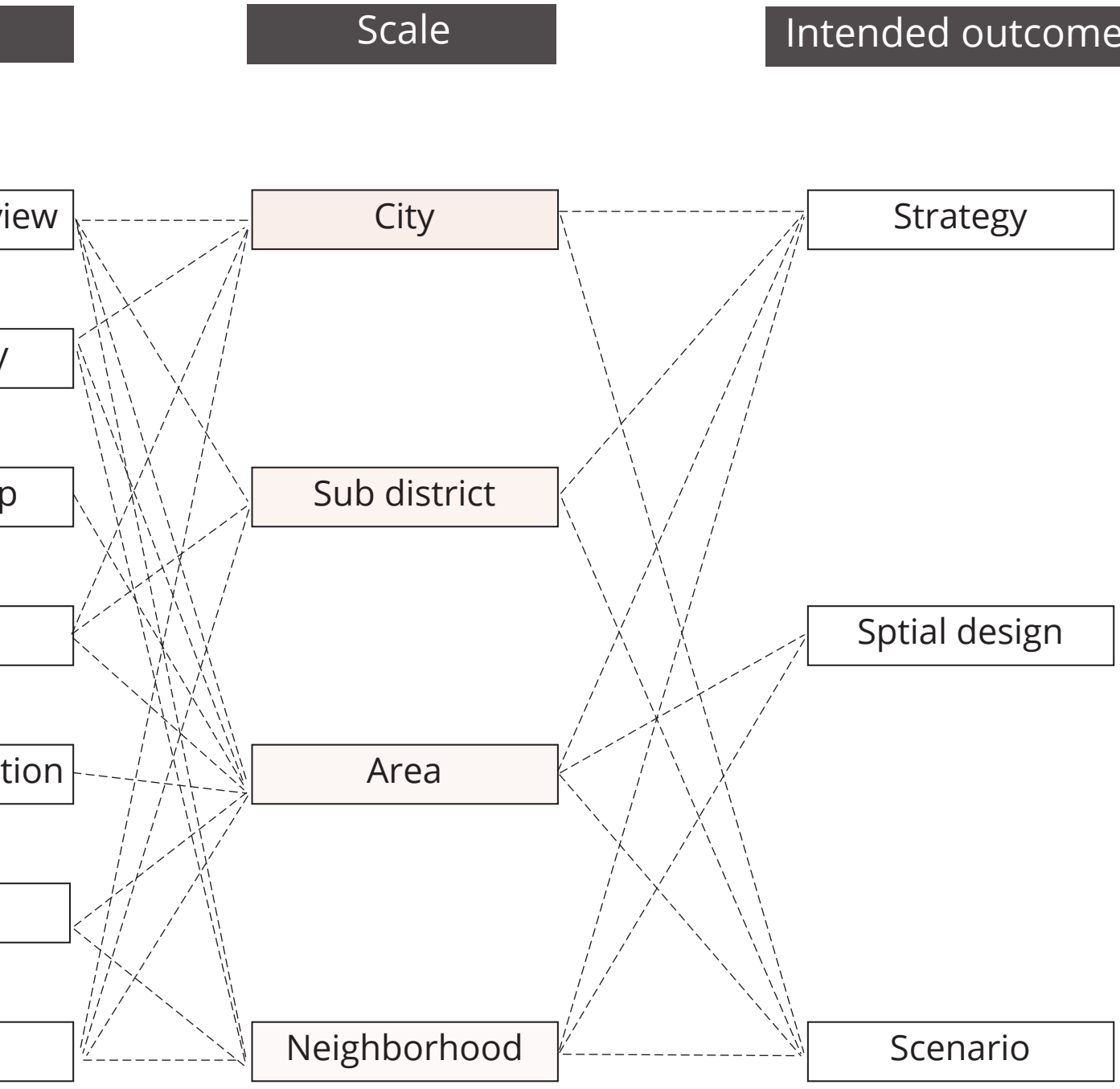


Figure 50 Correspondence between methods and problems, scales, and final results，self drawing


Scale
Intended outcome
City
Sub district
Area
Neighborhood
Strategy
Sptial design
Scenario

ANALYSIS

In the analysis phase, mainly shows the analysis logic, analysis aspect in different scales. Then show different analysis outcome from city,sub district,area and neighborhood scales.Each scale has their conclusion map to overlap and compare.

Figure 51 Aerial photo of Buji, Shenzhen,by “Shilidaoxiang”

Analysis
Logic

The methodology clearly defines the structure and strategic composition in different scales. The analysis focuses on understanding how segregation and disparity manifest in space and identifying relevant aspects of these issues. The structure and strategic composition are combined with the analysis findings and considerations for the conceptual aim. The analysis is summarized in different scales, leading to conclusions that guide the design process and strategies.

Analysis
Literature review-segragation

The intra-urban residential pattern is mainly manifest as socio-economic segregation in China(Wu & Li, 2005). Increased spatial mobility of capital and labor gives rise to greater segmentation of the urban space based on ethnicity, occupation, income, and other socioeconomic attributes.(Pu Hao, 2012). Segregation in urban space is mainly linked to migrants and housing types. Compared to hukou holders, non-hukou migrants typically have lower-paying jobs, poorer living conditions, less education, a lack of social security, and uncertainty in their long-term livelihood (Fu & Ren, 2010; Wang & Wu, 2010). Based on this, Pu Hao visualizes the distribution of non-hukou holders at the district, sub-district, and neighbourhood levels, as well as the distribution of illegal housing in urban villages, in order to assess segregation within the city. Although Pu Hao's calculation method may be complex, the analysis of the underlying causes of spatial segregation and mapping of the calculation results provide valuable insights for the author's subsequent analysis.

Based on Pu Hao's findings, some preliminary conclusions can be drawn regarding Shenzhen's segregation of urban space. Despite removing physical control over the Special Economic Zone (SEZ) in the late 1990s, the SEZ border continues to act as an "invisible wall" with a significant impact. Migrant labourers are granted access to the city but are primarily utilized as a means of production and are confined to the labor-intensive sector. Merely redeveloping urban villages is insufficient to eradicate poverty and segregation; in fact, it may lead to the exclusion of the original communities and exacerbate their displacement. Therefore, an analysis of urban segregation should be conducted in conjunction with a local-scale analysis to comprehend the outcomes of bottom-up and top-down interactions and adaptations.

The analysis method in Pu Hao's segregation mapping regional D is the level of segregation that each region contributed to the segregation of the entire study area. When the local D is mapped, it can indicate the spatial variation of segregation contributed purely by the local units.

The analysis uncovers that residential segregation in Shenzhen is formed in a structure of systematic division at three administrative levels: the separation of the population between the SEZ and the non-SEZ due to their distinct modes of development the separation of the population among sub-districts due to specific local economies and associated employment opportunities the separation of the population among residents' areas due to the availability of housing types

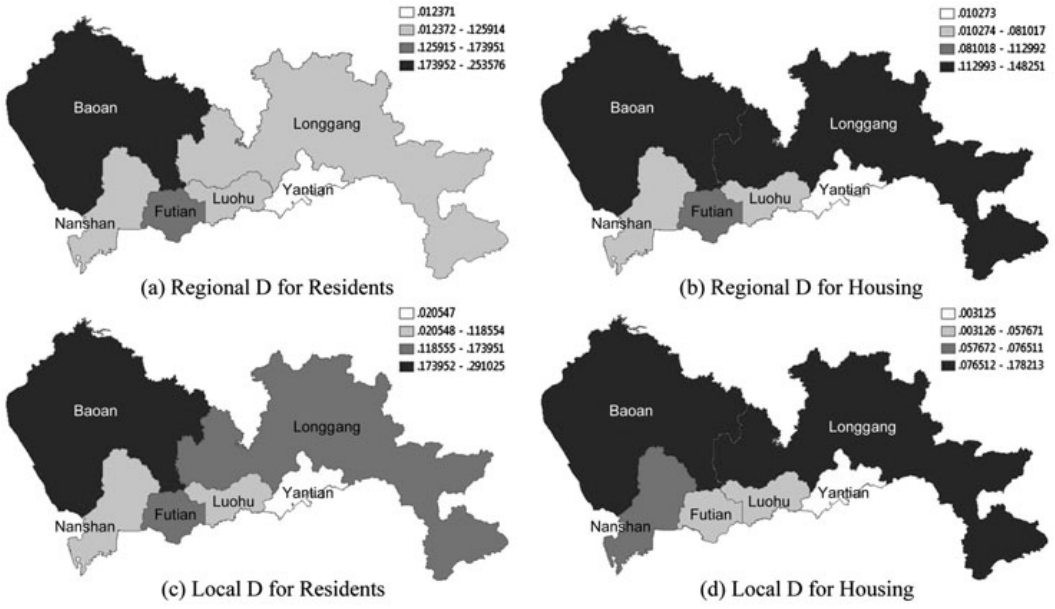


Figure 52 Decomposed segregation measures at district level.From Pu Hao, 2015

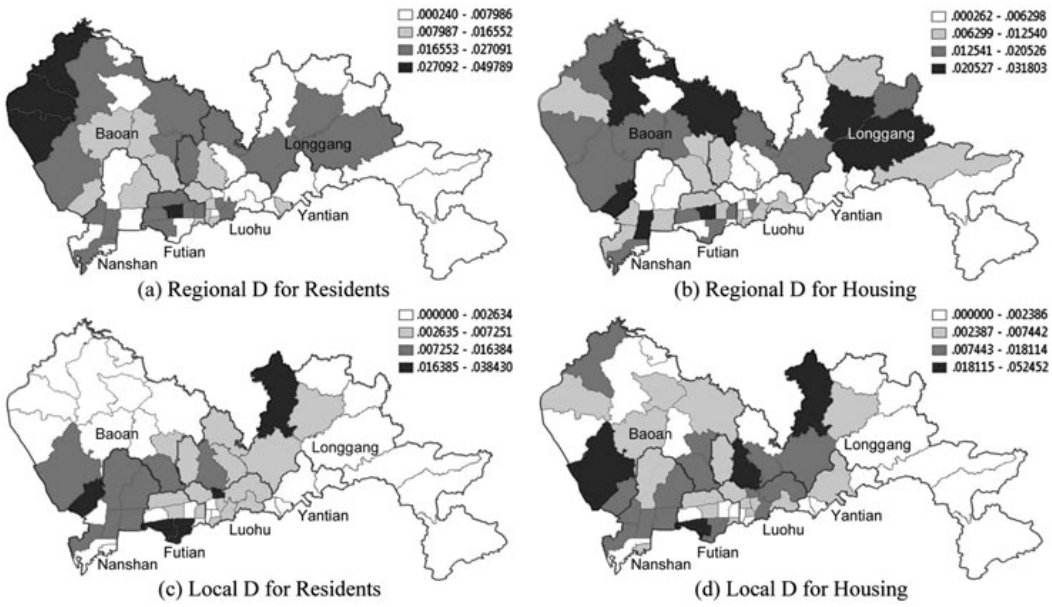


Figure 53 Decomposed segregation measures at sub-district level.From Pu Hao, 2015

Analysis

Literature review-Disparity

The literature review focuses on development disparities at the city scale, with a speciÞc case study conducted in Guangzhou. The study will learn what aspects of development disparities in cities can be considered and visualized and how they can be related to different groups of people. In the paper on Guangzhou, two main components are considered and visualized. One part is the distribution of different social services and transportation facilities. The other part is the distribution of low-income groups(Fig.54). In the paper of Zifeng Chen, the analysis of these two components is combined to derive the disparity in city scale.

In Zifeng Chen's analysis, the uneducated population, unemployment rate, unhealthy residents among elder groups, and residents receiving minimum subsistence allowance are considered for the low-income group. These aspects can also be used as a reference for the author's subsequent work on the spatial representation of disparity. However, it is necessary to combine the socio-spatial characteristics of the urban village and find the aspects that are more related to segregation for spatial visualization.

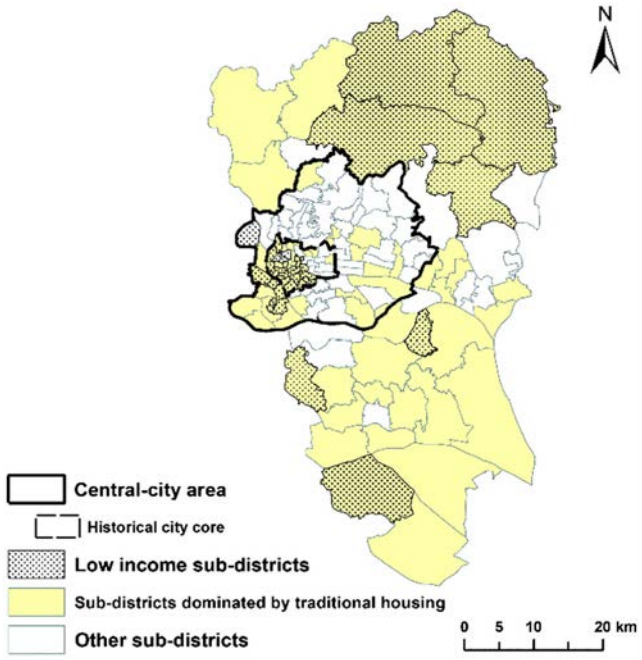


Figure 54 The spatial distribution of low-income subdistricts and the subdistricts dominated by traditional housing. From Zifeng Chen & Anthony Gar-On Yeh

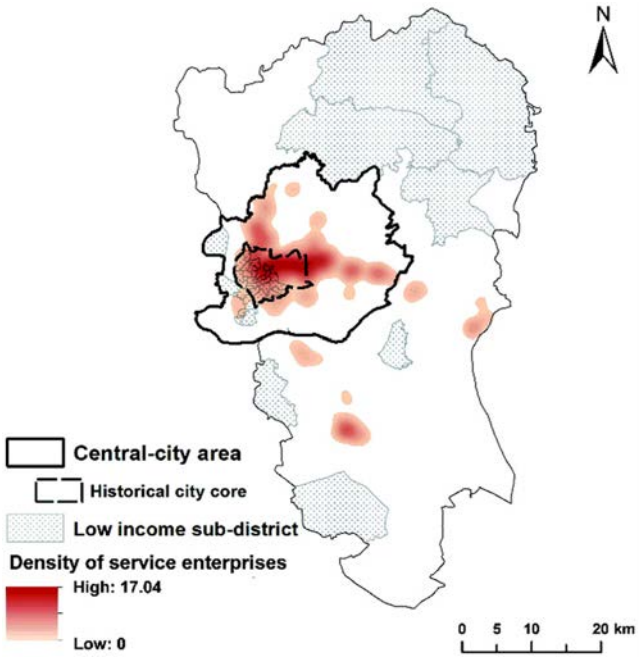


Figure 55 Density of service enterprises in the city (based on point of interest data). From Zifeng Chen & Anthony Gar-On Yeh

Analysis
Learn from literature review and analytical approach

Through the literature study, the author has acquired insights into the analysis of segregation and disparity, emphasizing the need for a comprehensive examination of groups, facilities, and urban form at both urban and local scales. The analysis at the urban and sub-district scales encompasses broader contextual aspects, while the analysis at the area and neighbourhood scales delves into more detailed considerations.

At the urban scale, the study focuses on analyzing key factors such as primary land use, transportation infrastructure, housing pressure, facility distribution, and job opportunities. This analysis aims to grasp the fundamental state of uneven development. Building upon this foundation, the study incorporates spatial analysis of different social groups, integrating social and spatial perspectives to understand citywide segregation. By examining these two dimensions, the study identifies areas requiring further development, assesses the feasibility of providing flexible spaces, and determines Buji's position within the city, ultimately guiding the formulation of preliminary strategies.

For the sub-district scale, the study conducts an initial analysis of the basic urban form to understand the area's status comprehensively. This analysis is then combined with spatial evaluation to assess the quality of the space. Furthermore, the study integrates the social aspect, drawing insights from social media, news sources, and available interviews to gain awareness of social groups and existing social problems related to disparity and segregation in the Buji region. These findings contribute to formulating fundamental spatial strategies and structures and foster a comprehensive approach when combined with city-scale strategies.

These socio-spatial aspects, which encompass segregation and disparity, align with the structure and strategic framework across different scales. Their relevance holds valuable insights for subsequent analyses at various levels. Moreover, these aspects specifically pertain to the context of urban village regeneration, encompassing housing, public space/streets, and migrants. Consequently, by adopting the conceptual goal as a foundation for analysis, the aim is to address issues concerning housing, migrants, public space, and transportation, ultimately mitigating segregation and disparity.

City scale

In city scale, mainly focus on the integration and equality aspect from From a more macro perspective. For the integration aspect, it is about increase the connectivity through the transportation to activate development outside the former special economic zone. And define the zoom in area for urban village regeneration.

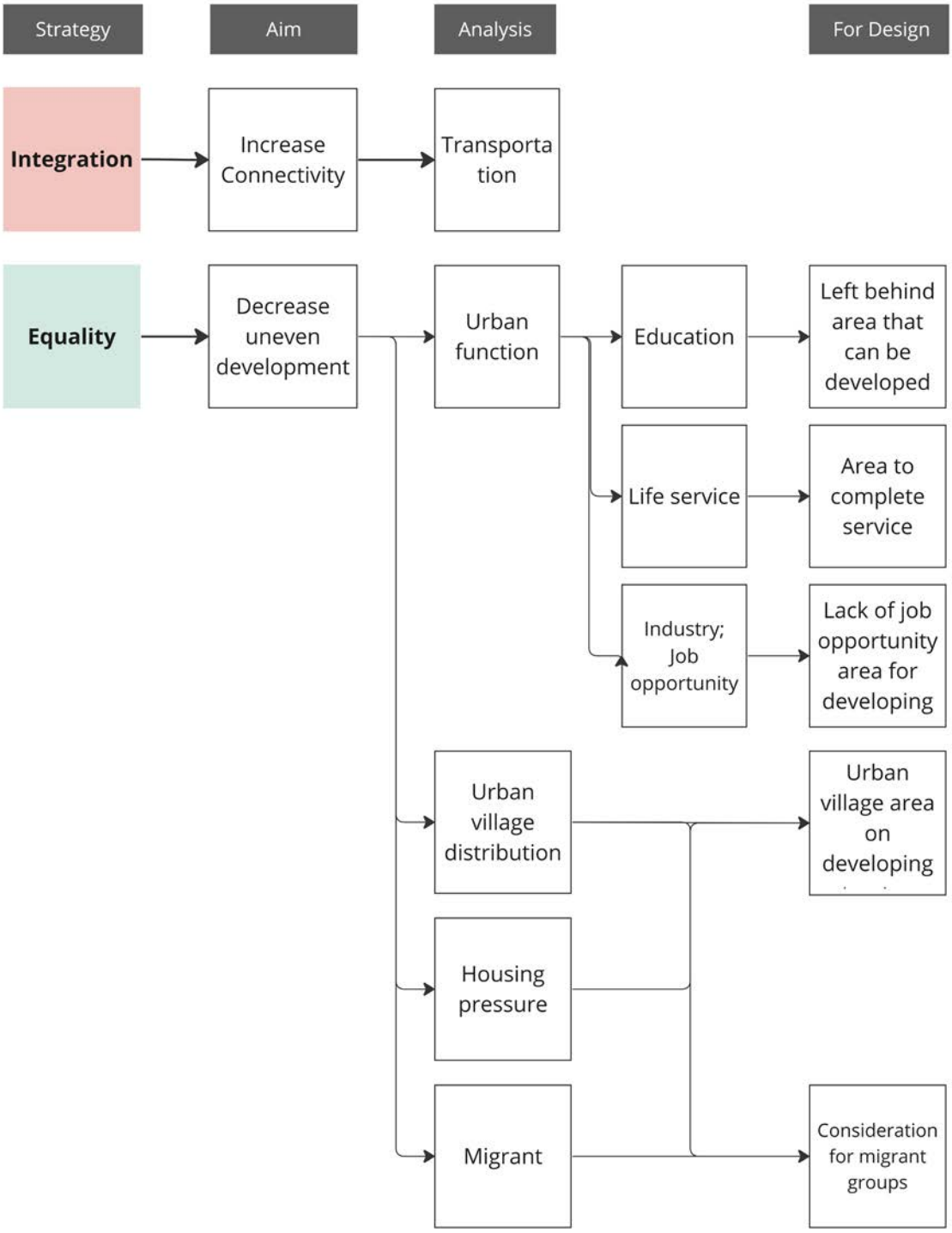


Figure 56 Analysis aspect in city scale, self-drawing

Landuse

Current land use of Shenzhen

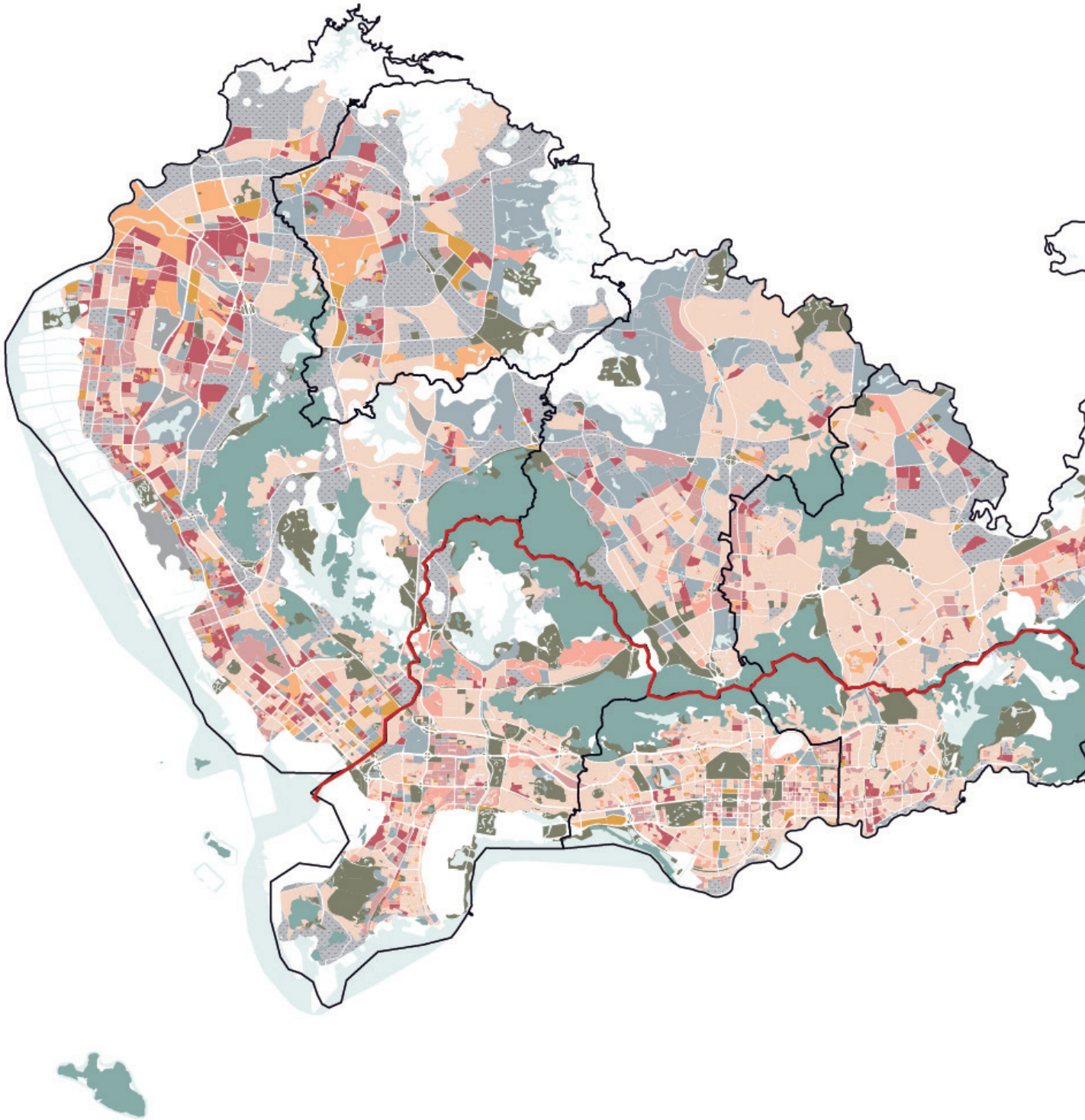
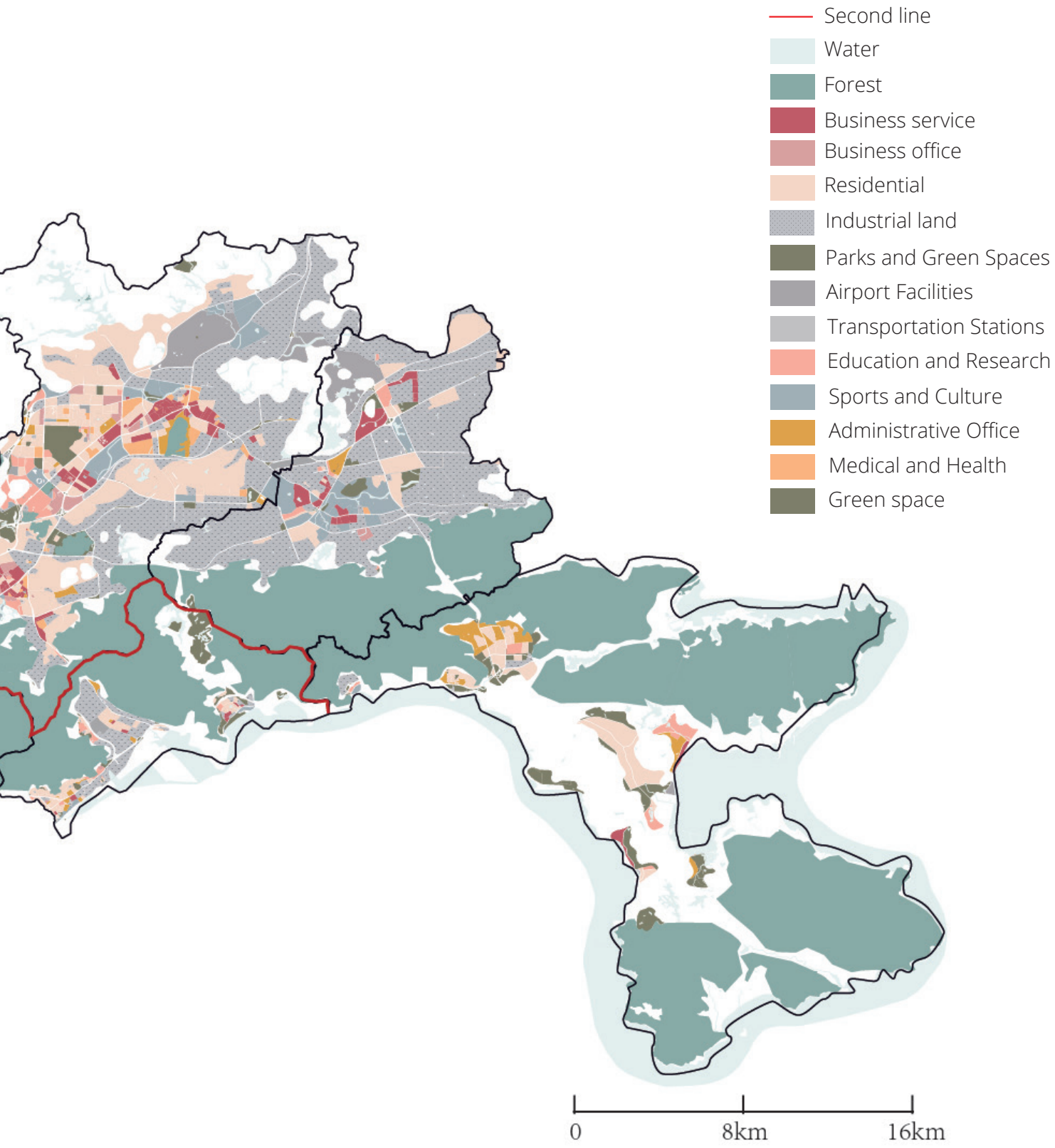


Figure 57 Land use in Shenzhen, Data Source: Shenzhen Government

As a fully urbanized metropolis, the current status of Shenzhen's urban land use function helps to understand further the spatial implication of uneven urban development within the urban scale. The current land use status shows that the city's commercial offices and services are mainly concentrated within the Special Economic Zone. Industrial land uses in the city are



mostly forests/green areas, which is the reason for the existence of agricultural land in this area. Moreover, it also creates a spatial obstacle to the connection and integration inside and outside the special economic zone.

Transportation

Transportation in Shenzhen

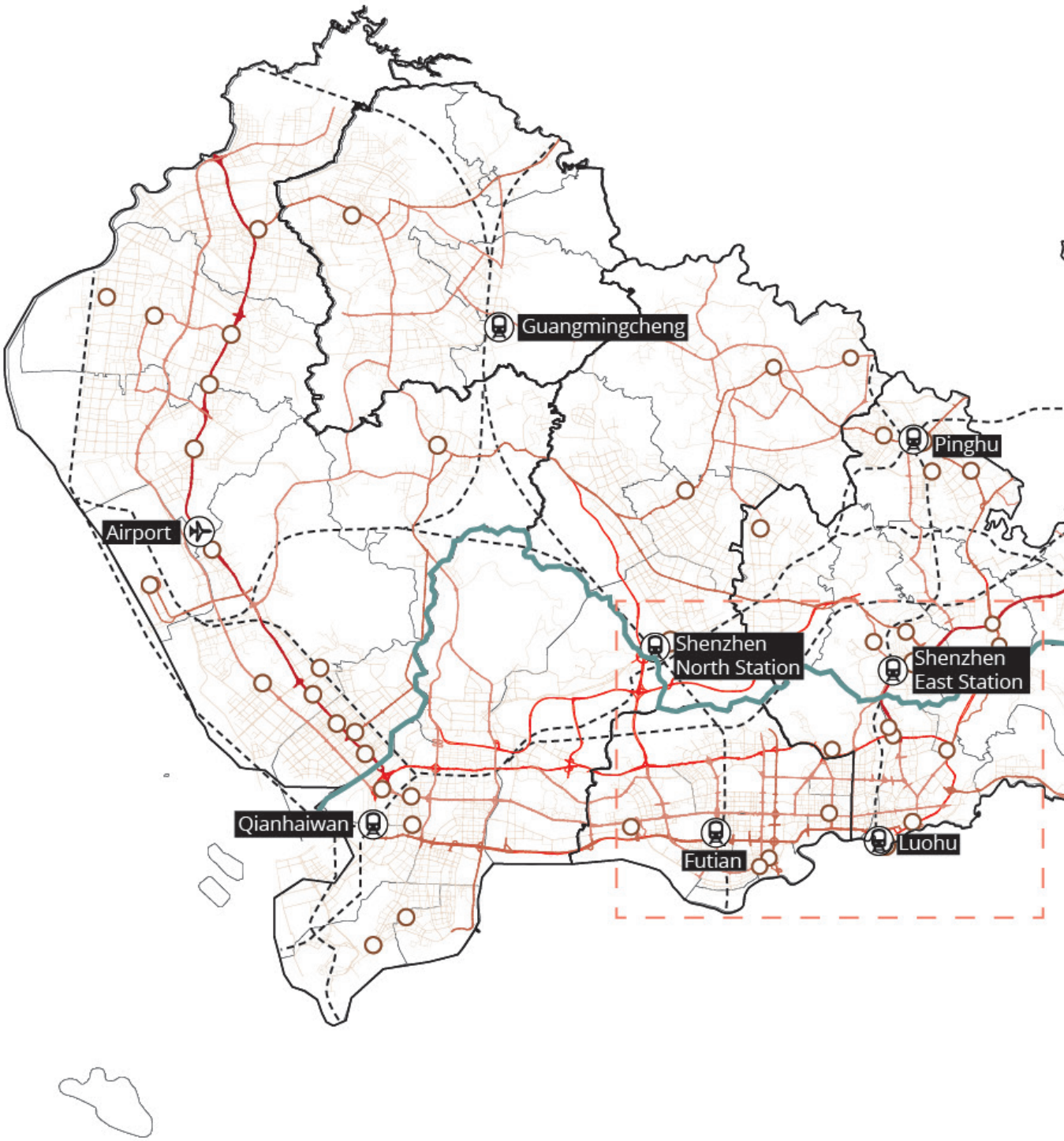
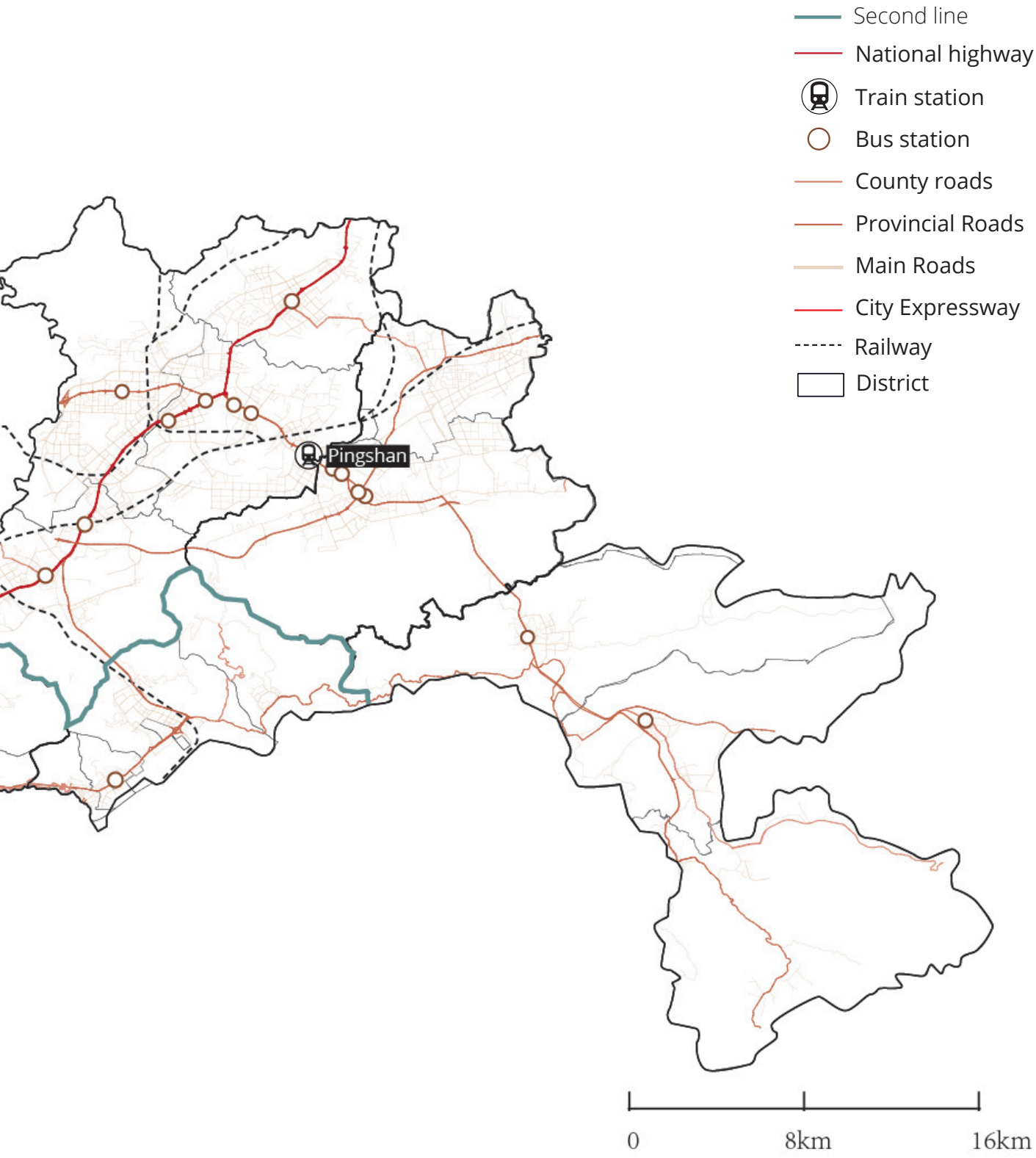


Figure 58 Transportation in Shenzhen, Data Source: Shenzhen Government, OpenStreetMap

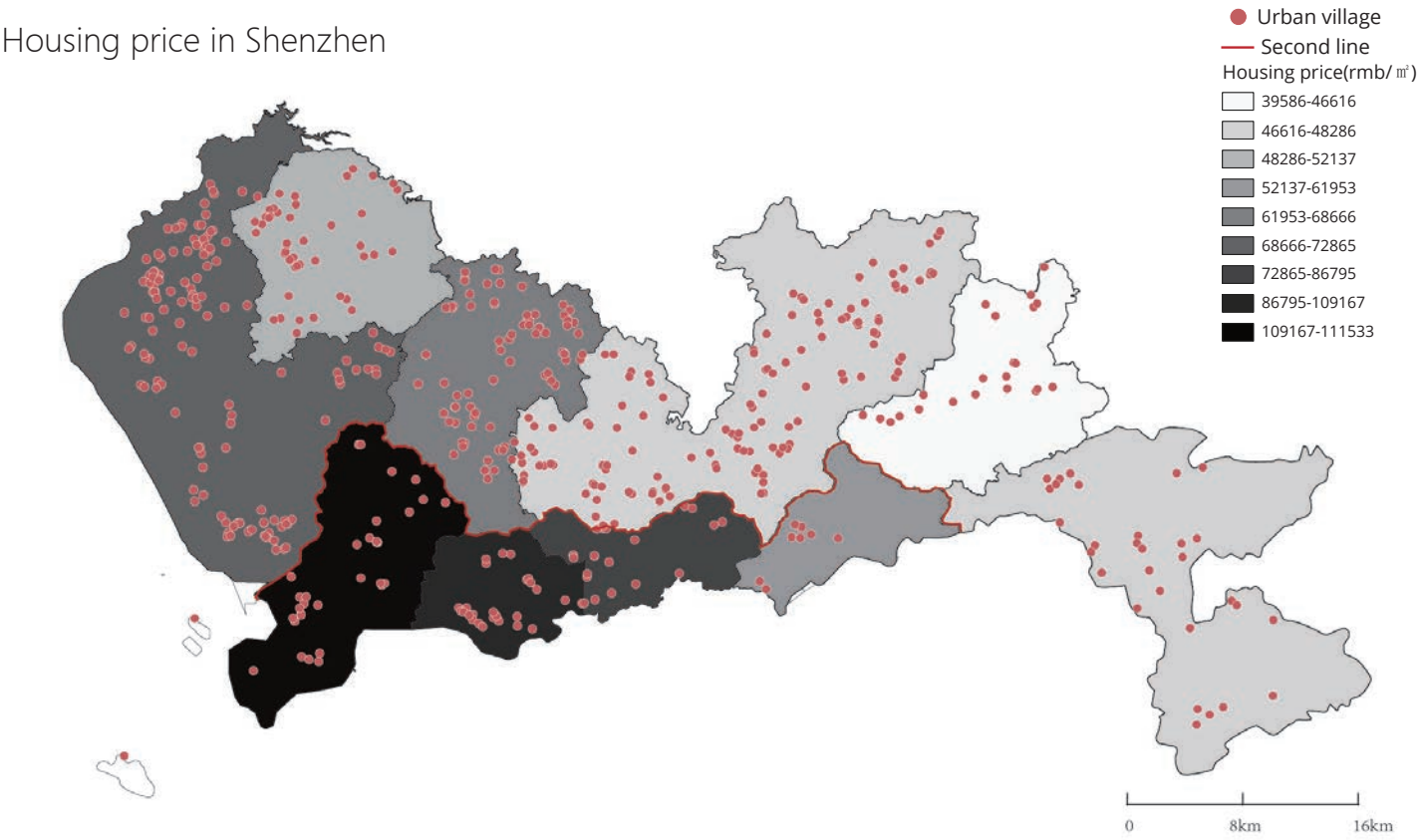
The current status of major public transportation reveals that Shenzhen has transportation cores both inside and outside the SEZ. In general, the transportation cores inside the SEZ are more densely arranged. As the area around the second border is mostly forested and green, the transportation links in the second border area are less tight.


Second line
National highway
Train station
Bus station
County roads
Provincial Roads
Main Roads
City Expressway
Railway
District
Pingshan
0
8km
16km

Analysis-City scale

Housing pressure

Housing price in Shenzhen



Renting price in Shenzhen

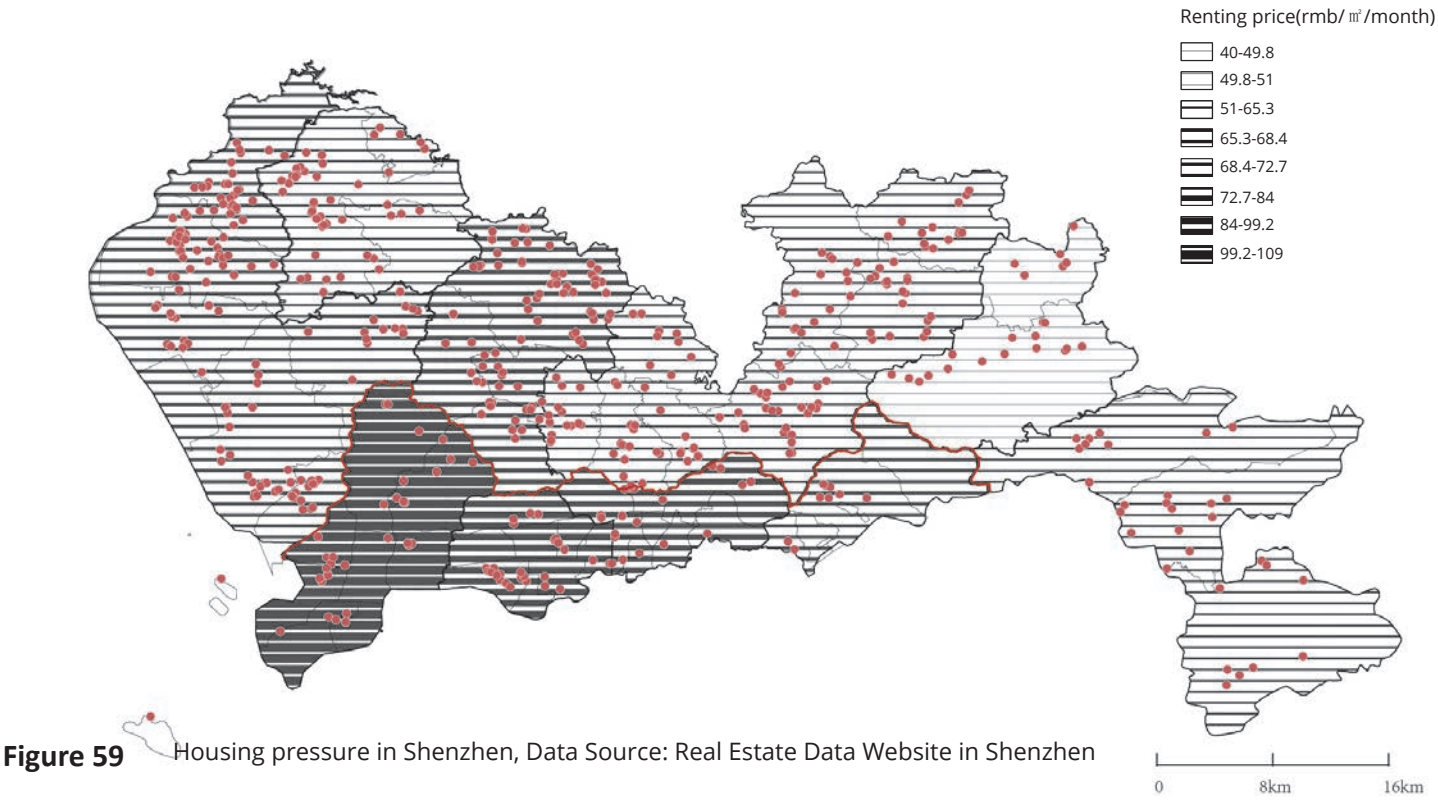


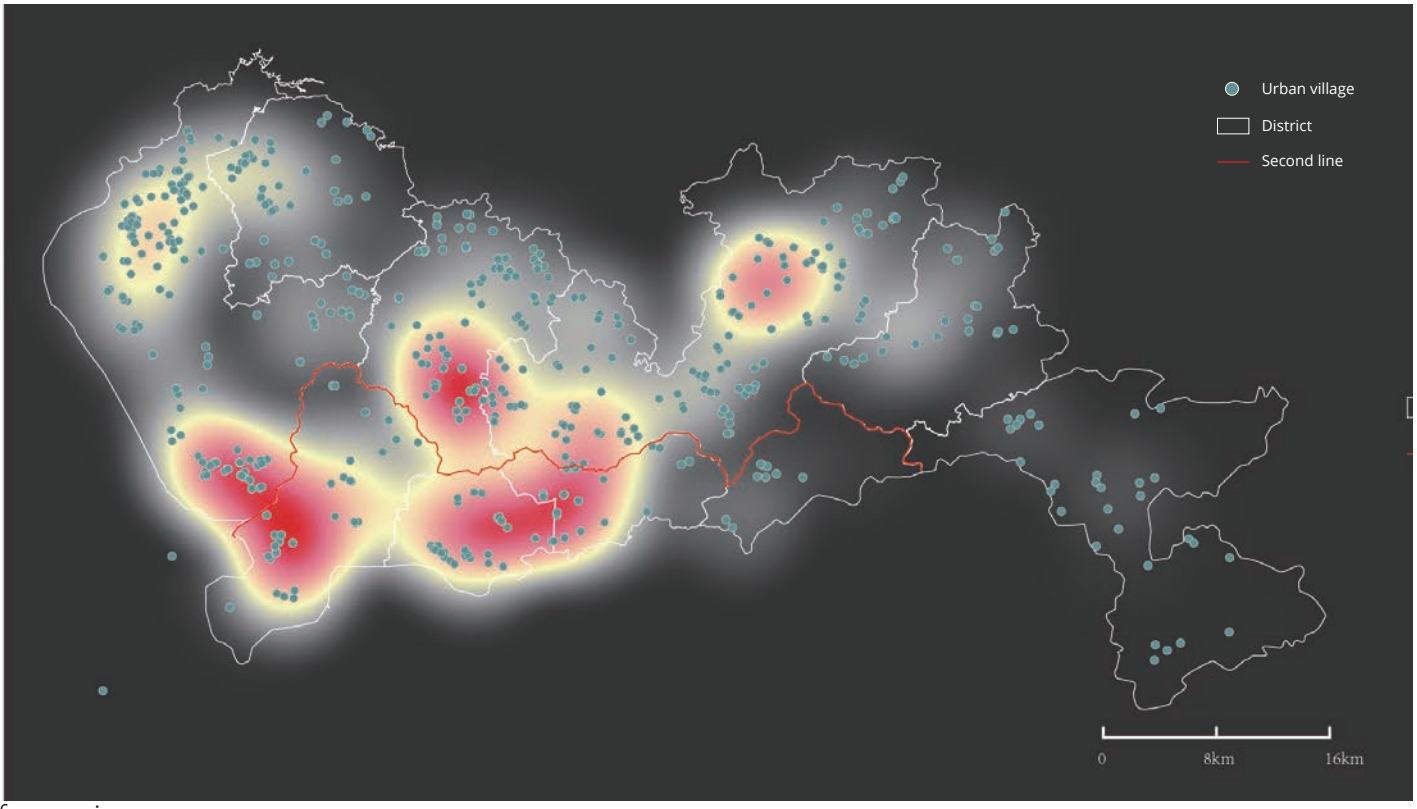
Figure 59 Housing pressure in Shenzhen, Data Source: Real Estate Data Website in Shenzhen

Based on the purchase and rental prices of housing and the distribution of urban villages. It can be found that the housing pressure in the Shenzhen Special Economic Zone is much higher than that outside the Special Economic Zone. The distribution of urban villages is mainly located outside the SEZ, which is also related to the lower rental prices outside the SEZ.

Analysis-City scale

Education and life service

Education



Life service

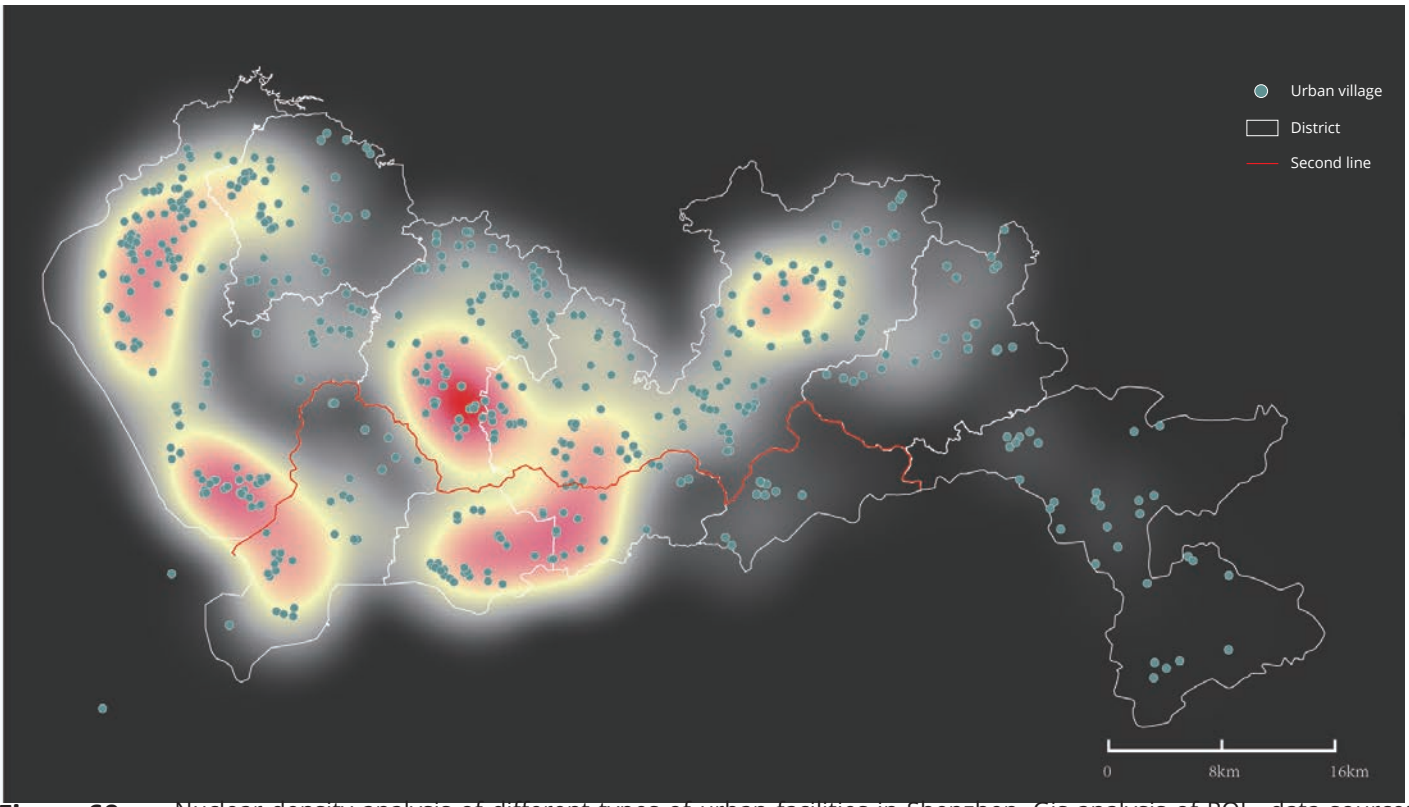


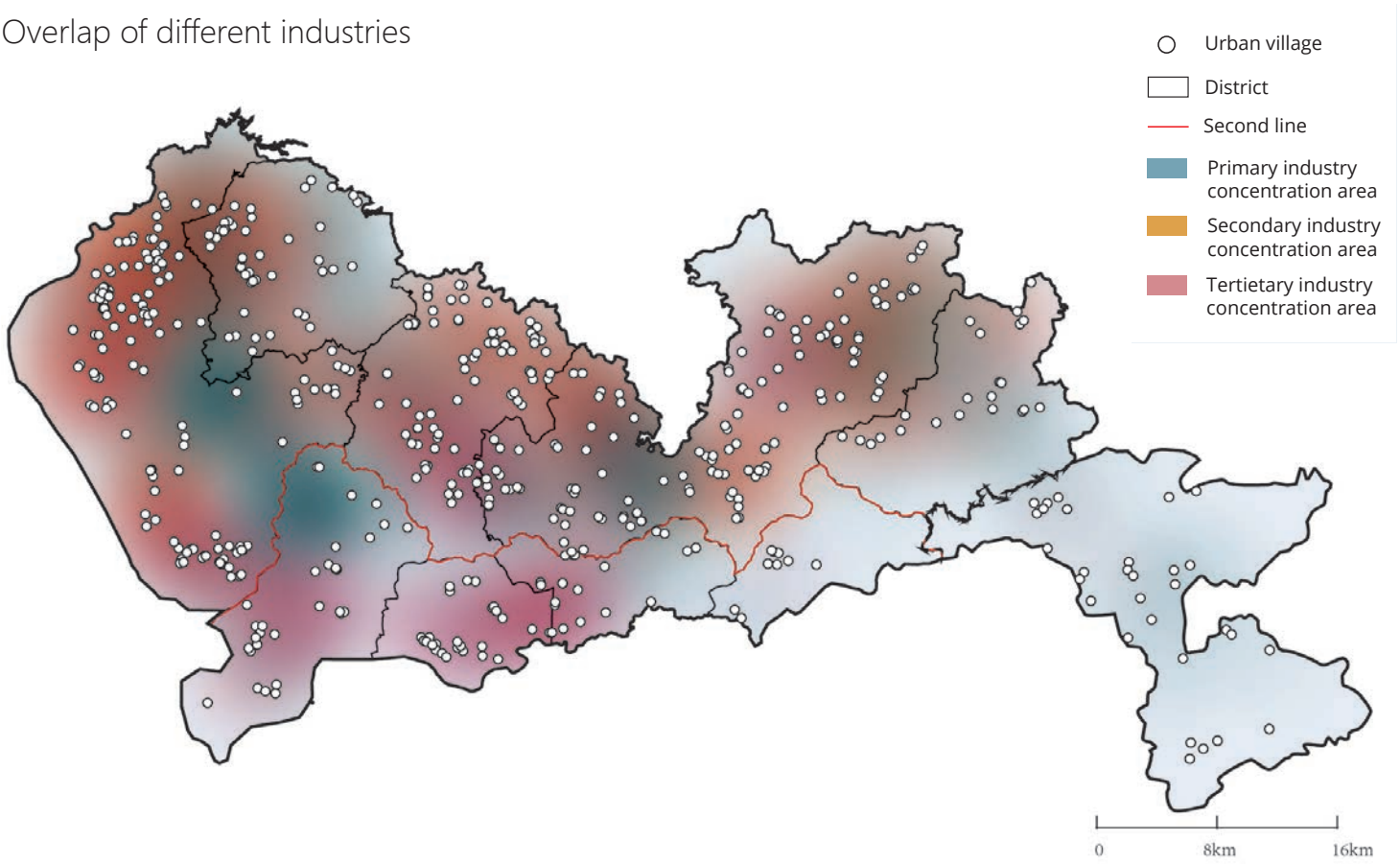
Figure 60 Nuclear density analysis of different types of urban facilities in Shenzhen, Gis analysis of POI , data source: Baidu open data

The overall distribution of facilities in Shenzhen reveals that urban facilities in Shenzhen are mainly concentrated within the Special Economic Zone. Outside the SEZ, they are mainly concentrated in Longhua District. This further indicates that there is a development gap between different districts. There need to be more education and life service facilities outside the SEZ.

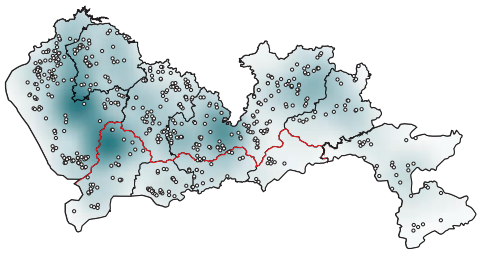
Analysis-City scale

Industry

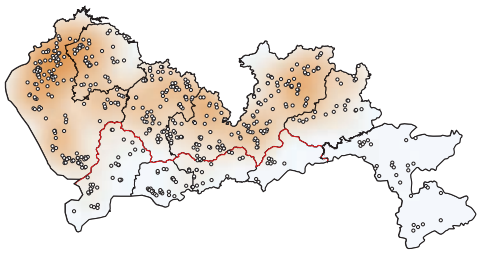
Overlap of different industries



Primary industry



Secondary Industry



Tertiary Industry

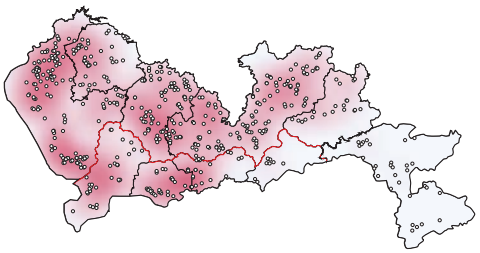


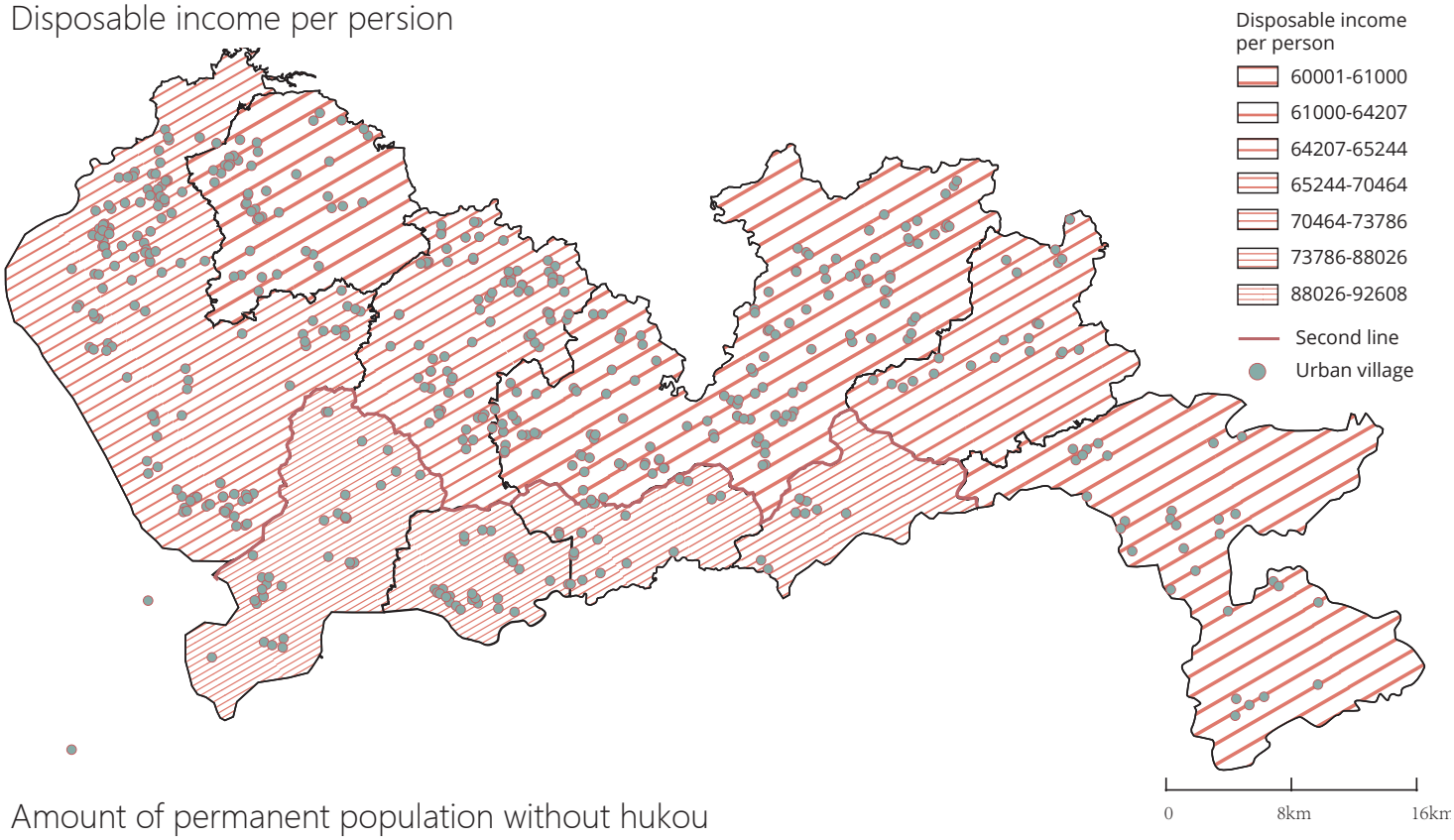
Figure 61 Nuclear density analysis of different types of companies in Shenzhen, Gis analysis of POI , data source: Baidu open data

A comprehensive analysis of employment opportunities in Shenzhen, focusing on industrial distribution, reveals notable disparities. The agricultural industry is primarily concentrated near the second line, which aligns with previous Þndings on land use functions. Lower-income jobs belonging to the secondary industry are predominantly located outside the SEZ. Both the internal and external regions of the SEZ encompass the tertiary industry, but this sector predominantly dominates the internal area. Despite the physical disappearance of the second line, the market and labthe demand continue to serve as intangible barriers, restricting the distribution of groups.

Analysis-City scale

Income and population without hukou

Disposable income per persion



Amount of permanent population without hukou

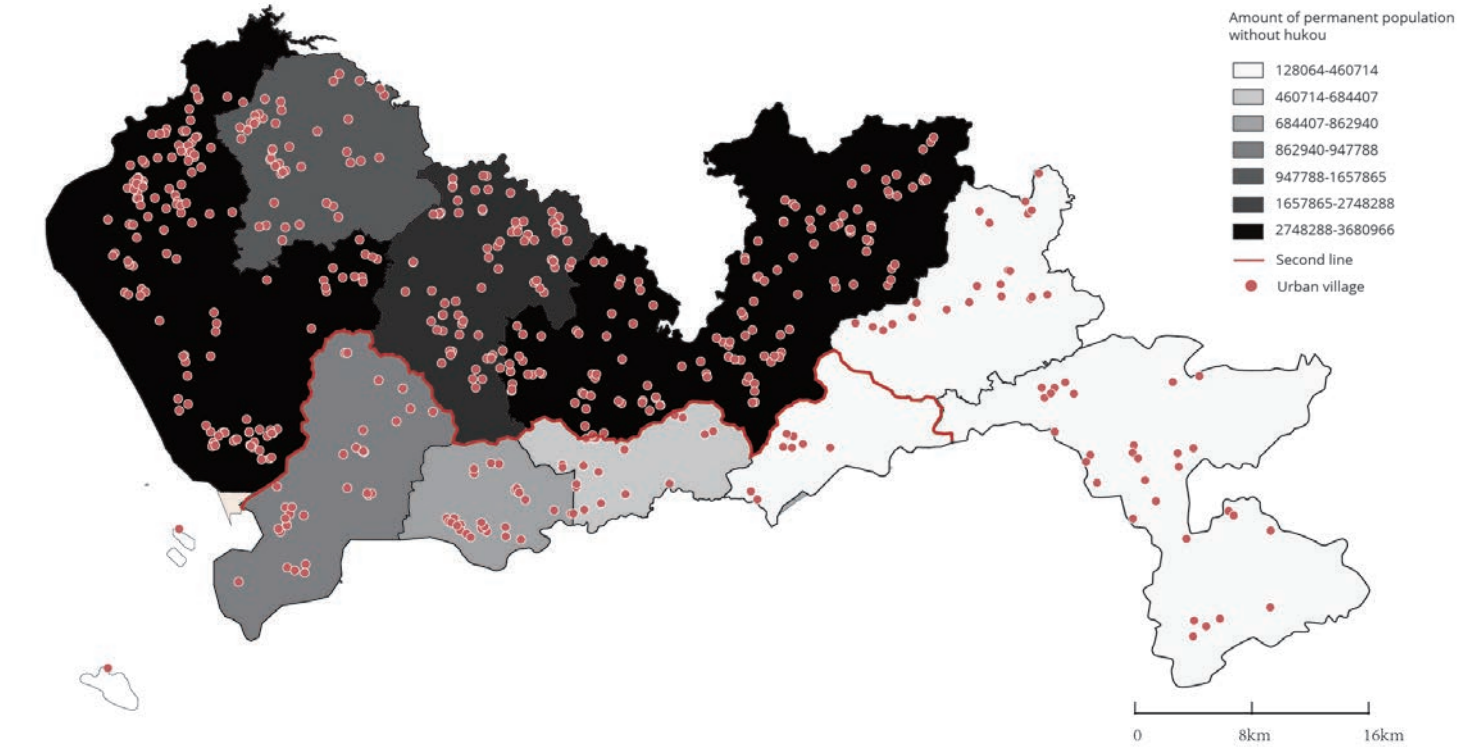


Figure 62 Amount of permenant population without Hukou in districts and income amount of different strict in Shenzhen, Data from Shenzhen Demographic Yearbook

By examining the income levels across different regions and their correlation with the distribution of migrant groups, a clear pattern emerges. Regions with higher income levels tend to have lower numbers of migrants, suggesting that migrant groups, as a whole, have lower income levels and are concentrated in edge areas. This finding underscores the influence of market forces and labthe dynamics in constraining the mobility and economic opportunities of migrants

Migrant

Type of social area

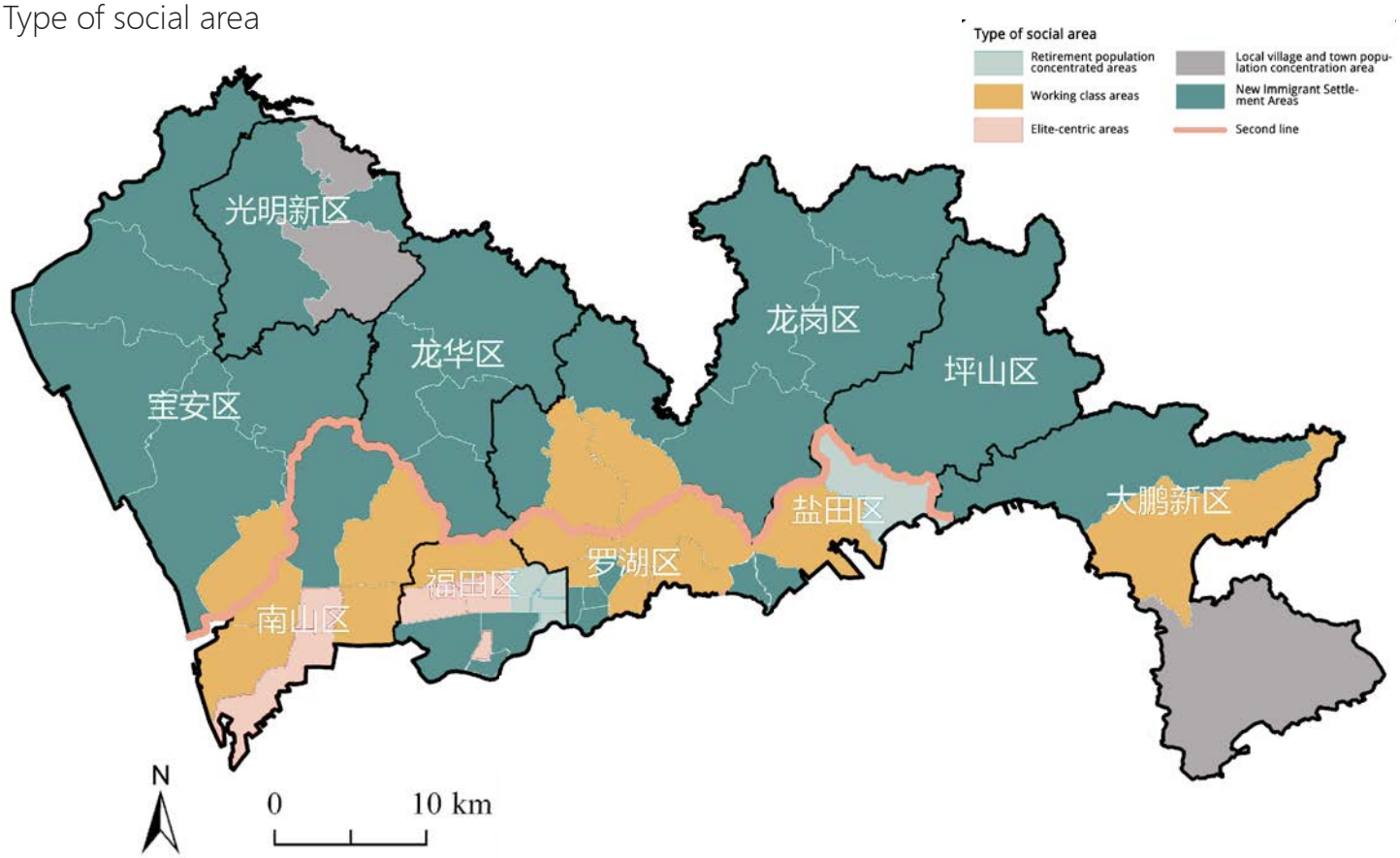


Figure 63 Type of social area, adapted from Rong Wu, Zhuolin Pan, Ye Lin, Zhigang Li

Spatial distribution of Shenzhen's migrants

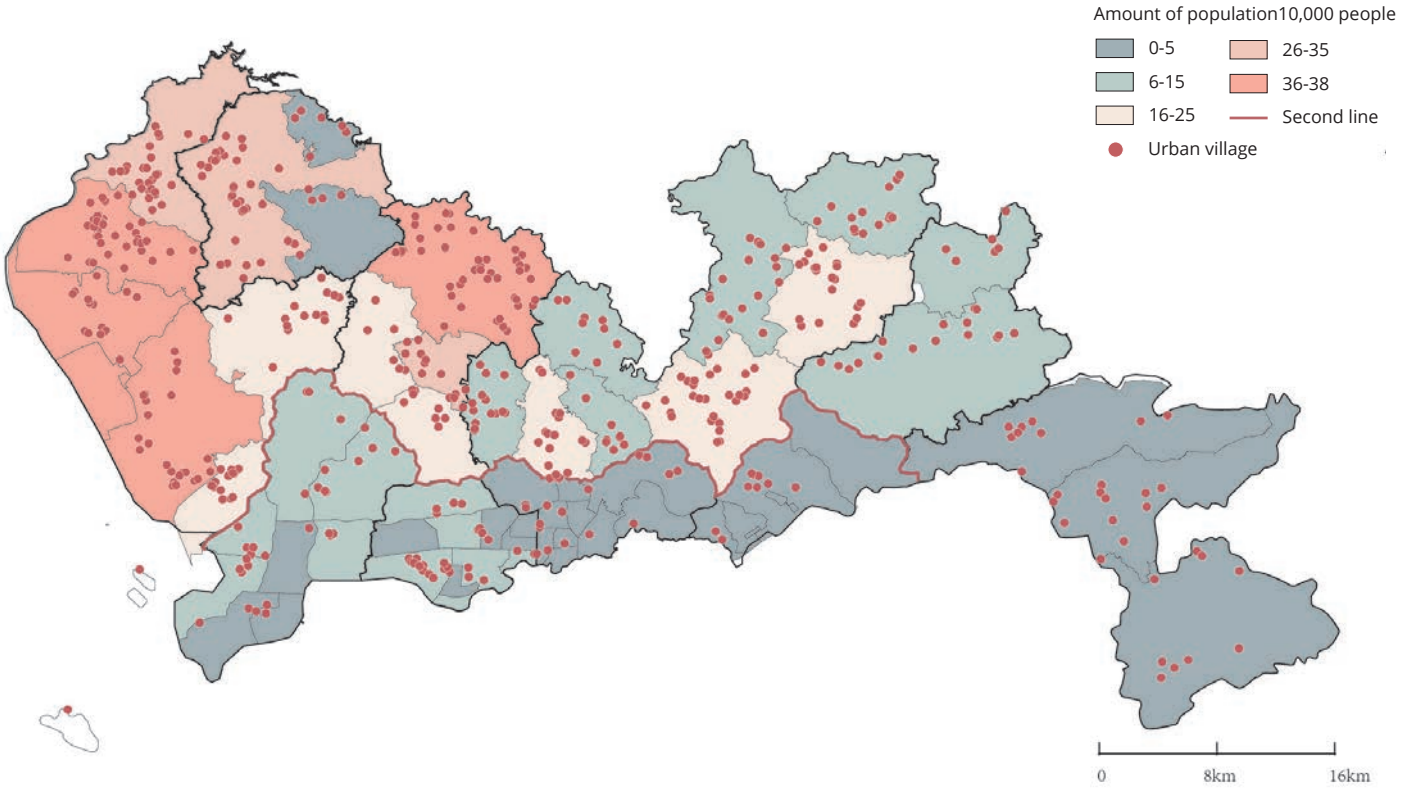


Figure 64 Spatial distribution of Shenzhen's migrants in 2010, adapted from Rong Wu, Zhuolin Pan, Ye Lin, Zhigang Li

Percentage of Populaltion without hukou

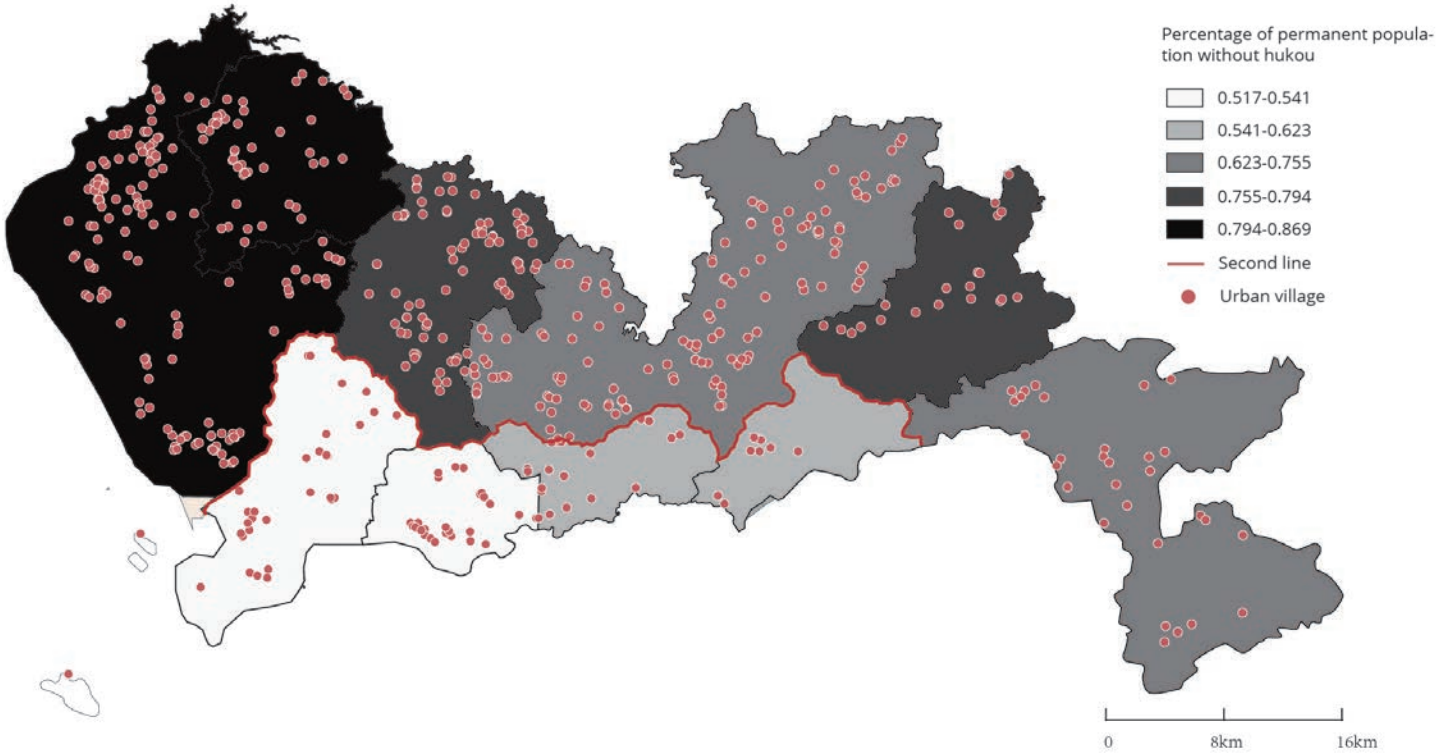


Figure 65 Percentage of permenant population without Hukou in districts in Shenzhen, Data from Shenzhen Demographic Yearbook

Analyzing the distribution of new migrants across sub-districts provides insights into their spatial concentration outside the Special Economic Zone (SEZ), particularly in Baoan and Longhua districts. This suggests that areas beyond the SEZ hold greater appeal for new migrants, possibly due to lower housing pressures and other factors. Interestingly, despite the close proximity between Longgang and Longhua districts, there exists a significant disparity in their attractiveness to migrant groups. Conversely, the primary working class is concentrated within the SEZ. This uneven distribution of social groups helps elucidate the phenomenon of social segregation in Shenzhen.

To address the spatial manifestation of segregation, the focus shifts to the population living in Shenzhen without urban hukou. This group faces unequal access to urban facilities, employment opportunities, and services. They are predominantly concentrated outside the SEZ at the city scale, further indicating their exclusion within the Shenzhen SEZ.The proportionate concentration of the migrant group outside the SEZ serves as additional evidence for the socio-spatial segregation, highlighting the exclusion experienced by migrant groups within the Shenzhen SEZ at the city scale.

Conclusion

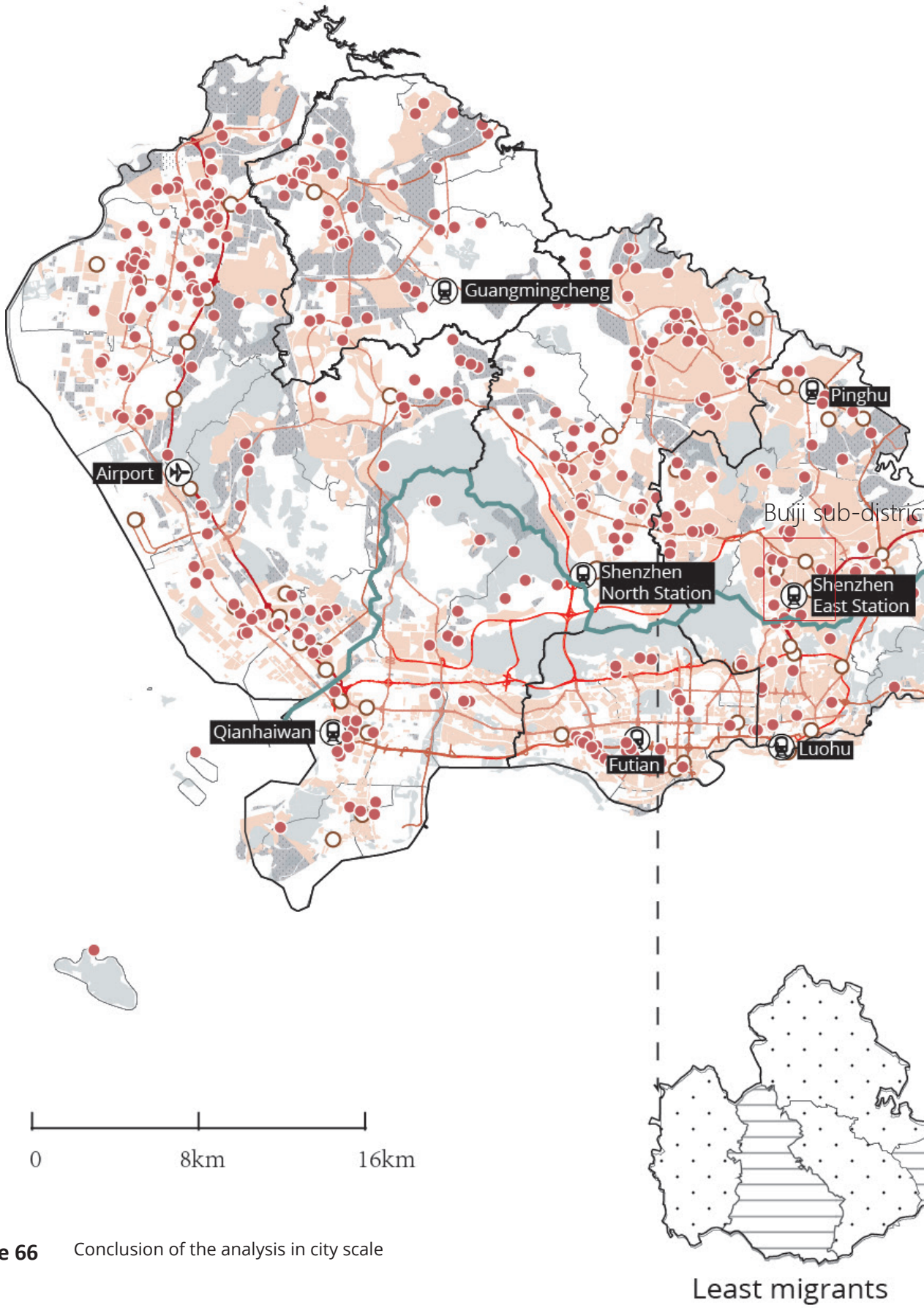
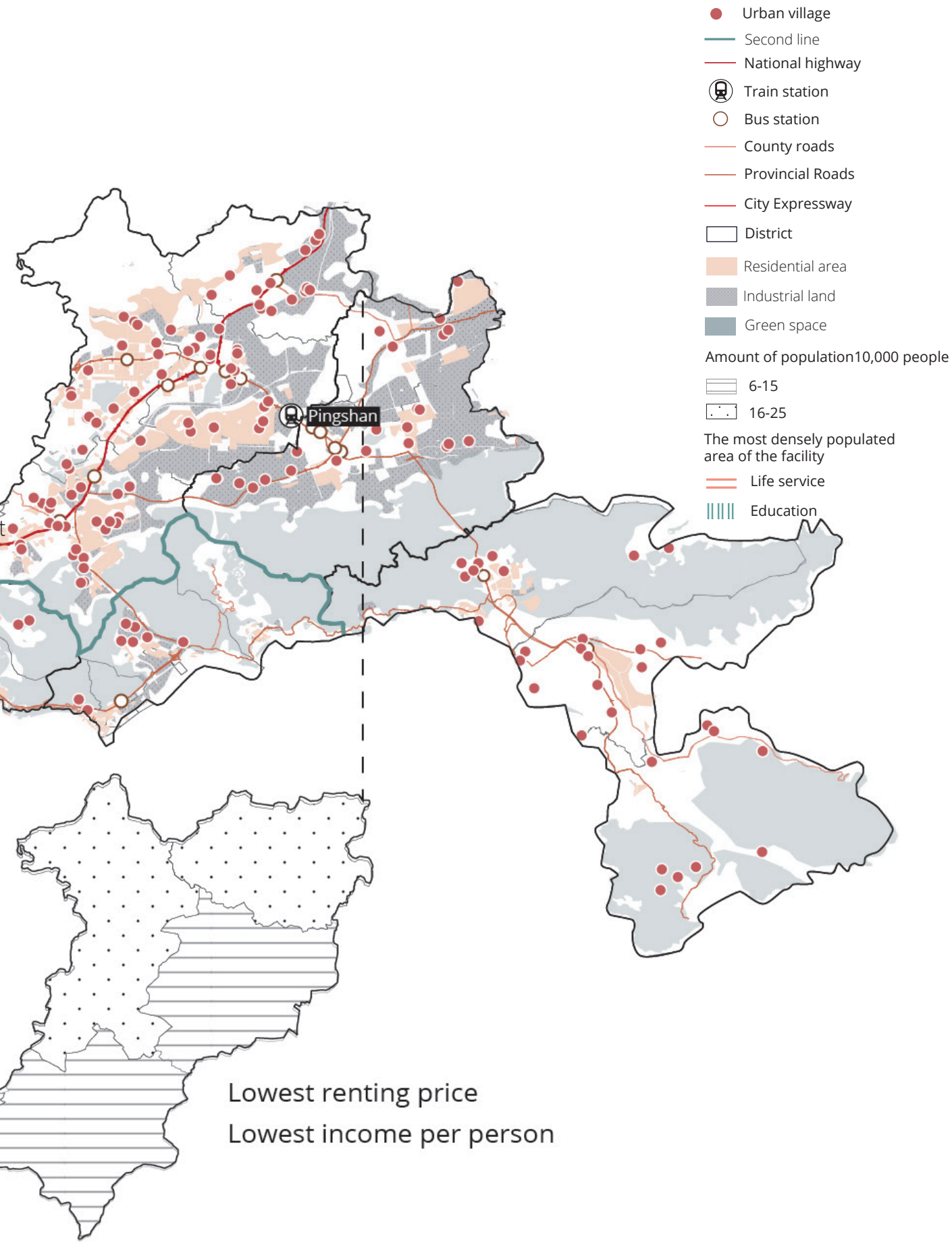


Figure 66 Conclusion of the analysis in city scale

The Buiji sub-district is selected as the next focus area due to its relative underdevelopment compared to the surrounding regions and numerous urban villages. This sub-district is an integral part of the city's development structure. Improving transportation infrastructure outside the former



special economic zone is crucial for better integration. Additionally, developing life services and educational facilities in this area is essential for providing training opportunities. Furthermore, there is a need for industrial upgrading and a trend to extend from the former economic zone to the surrounding districts.

Sub district scale

At the sub-district level, the key aspects to focus on are integration, equality, flexibility, and diversity. Integration involves improving transportation connections within the sub-district and considering influences from a larger scale. Equality includes addressing the development gaps in disadvantaged areas and further developing facilities in areas with better conditions. Flexibility primarily focuses on enhancing urban functions and addressing housing issues in urban villages.

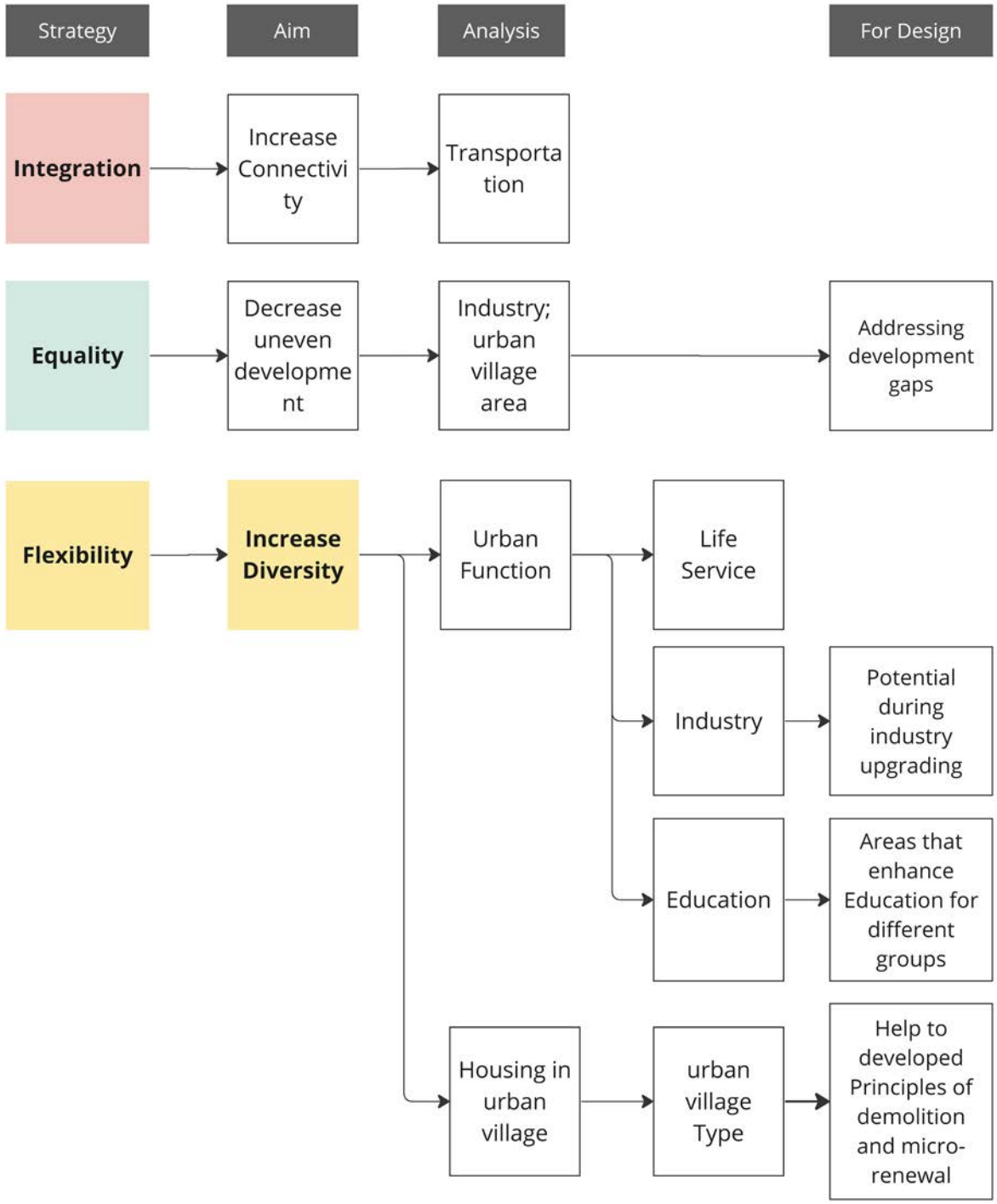


Figure 67 Analysis aspect in sub-district scale, self-drawing

Analysis-Sub district
Transportation

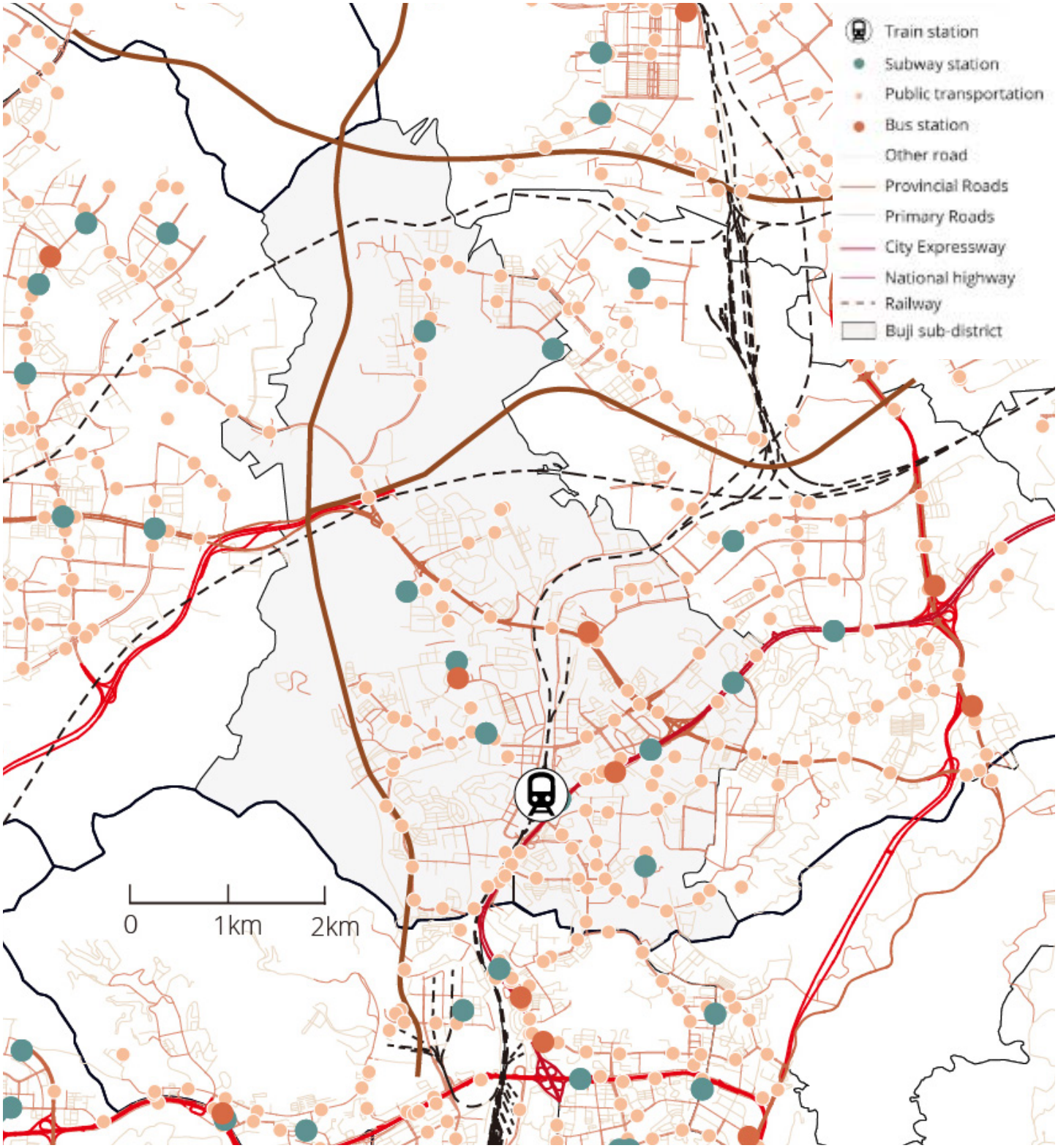


Figure 68 transpotation in buji sub-district, data source:Open street map, baidu map

The current status of major public transportation in the Buji sub-district is mainly concentrated in the station and surrounding area, which is also the in-between area of the former special economic zone and outside districts. This will bring more developing potential in this area, but the north needs to enhance the transportation connection.

Analysis-Sub district

Urban village and industry area

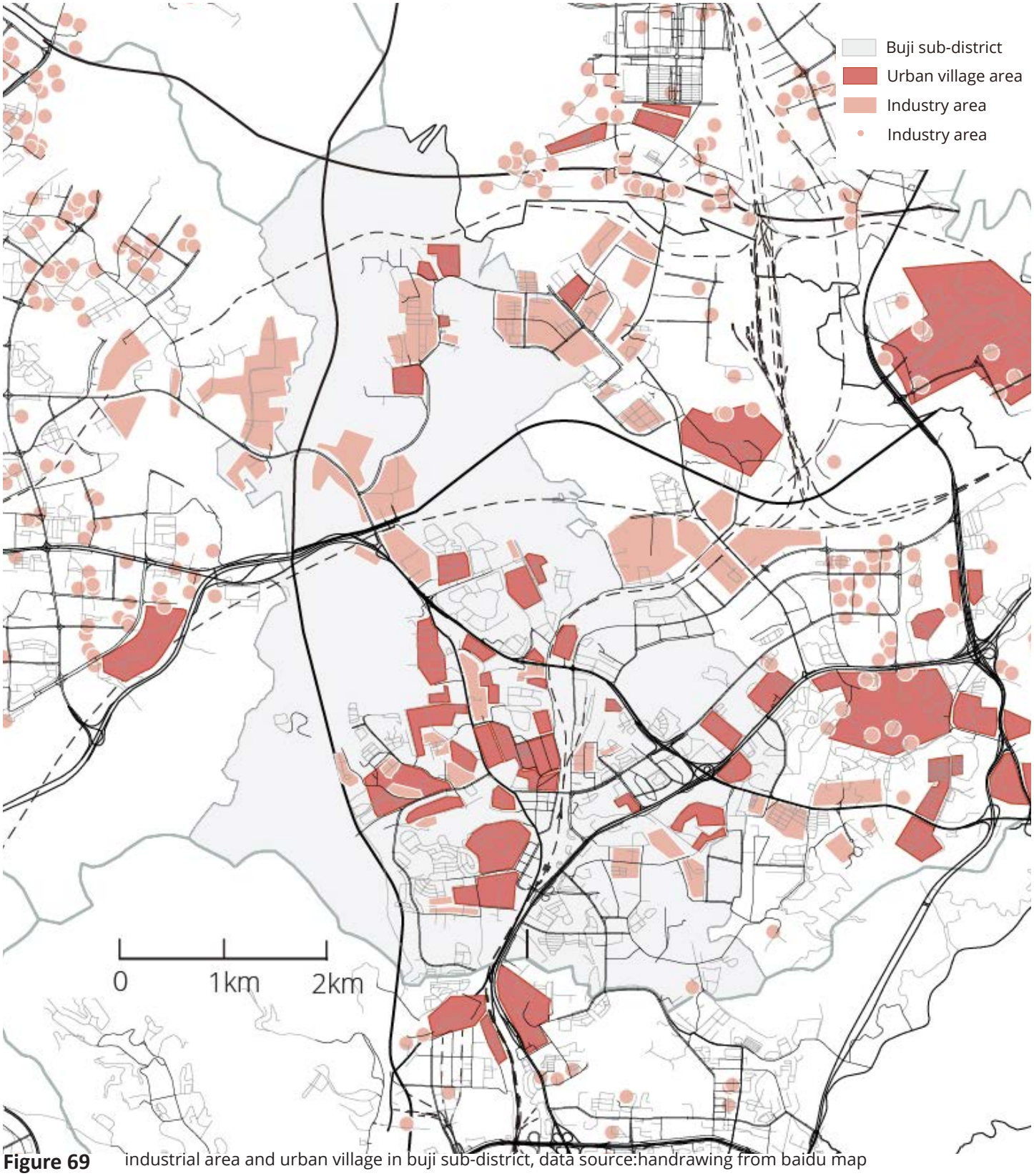


Figure 69 industrial area and urban village in buji sub-district, data source:handrawing from baidu map

There are many urban villages in the south part, where are more possibilities for urban village regeneration. Also south part is near the inbetween of former special economic zone and outside area, so is on the development structure. The north part has better industrial base, there are many industrial park and innovation areas in north part.

Analysis-Sub district

Type of industry

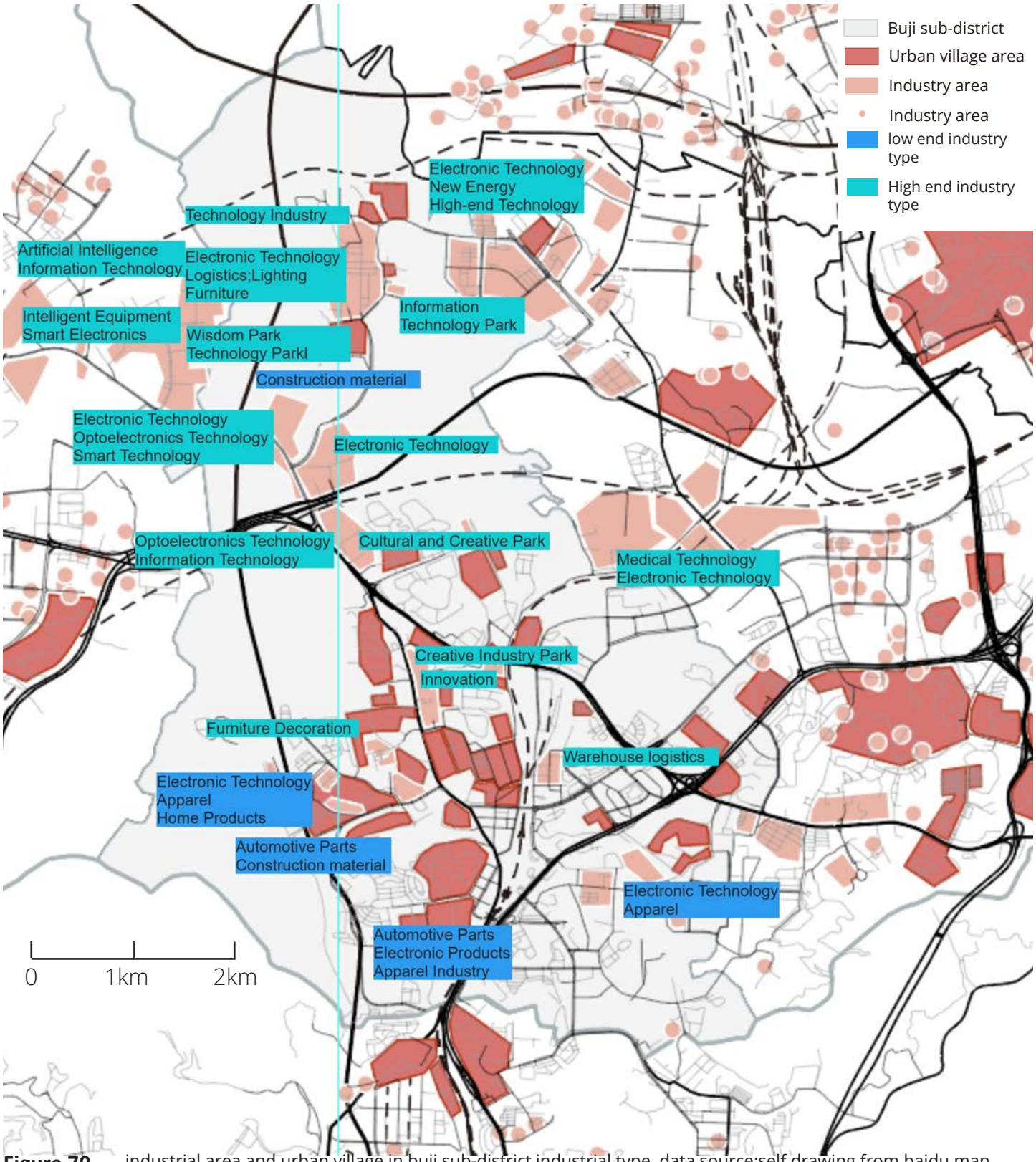


Figure 70 industrial area and urban village in buji sub-district,industrial type, data source:self drawing from baidu map

More low-end industries in the south will be replaced in the future under the industry upgrading trade. The exclusion resulting from this scenario needs to be considered furing the urban village regeneration process. It can strengthen the industrial cooperation of the north and south parts, thus driving the industrial development of the southern area.

Analysis-Sub district

Education

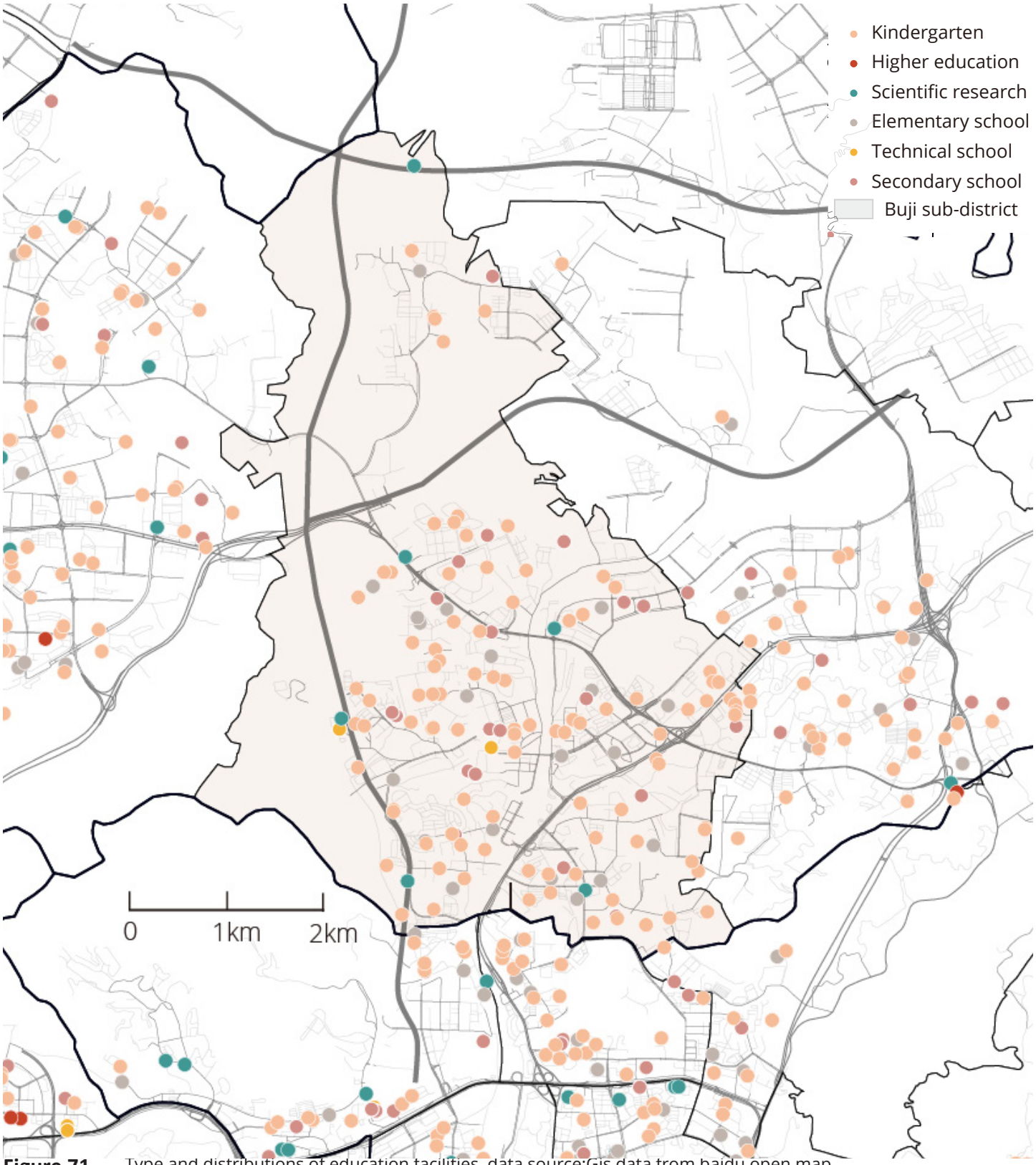


Figure 71 Type and distributions of education facilities, data source:Gis data from baidu open map

The region needs more modern research-oriented educational facilities, with limited engagement between technical schools, diverse communities, and nearby industries. Integration and support for migrants within the education system are also insufficient. Efforts are needed to bridge this gap, create inclusive learning environments, and establish stronger connections with relevant industries.

Analysis-Sub district

Life service

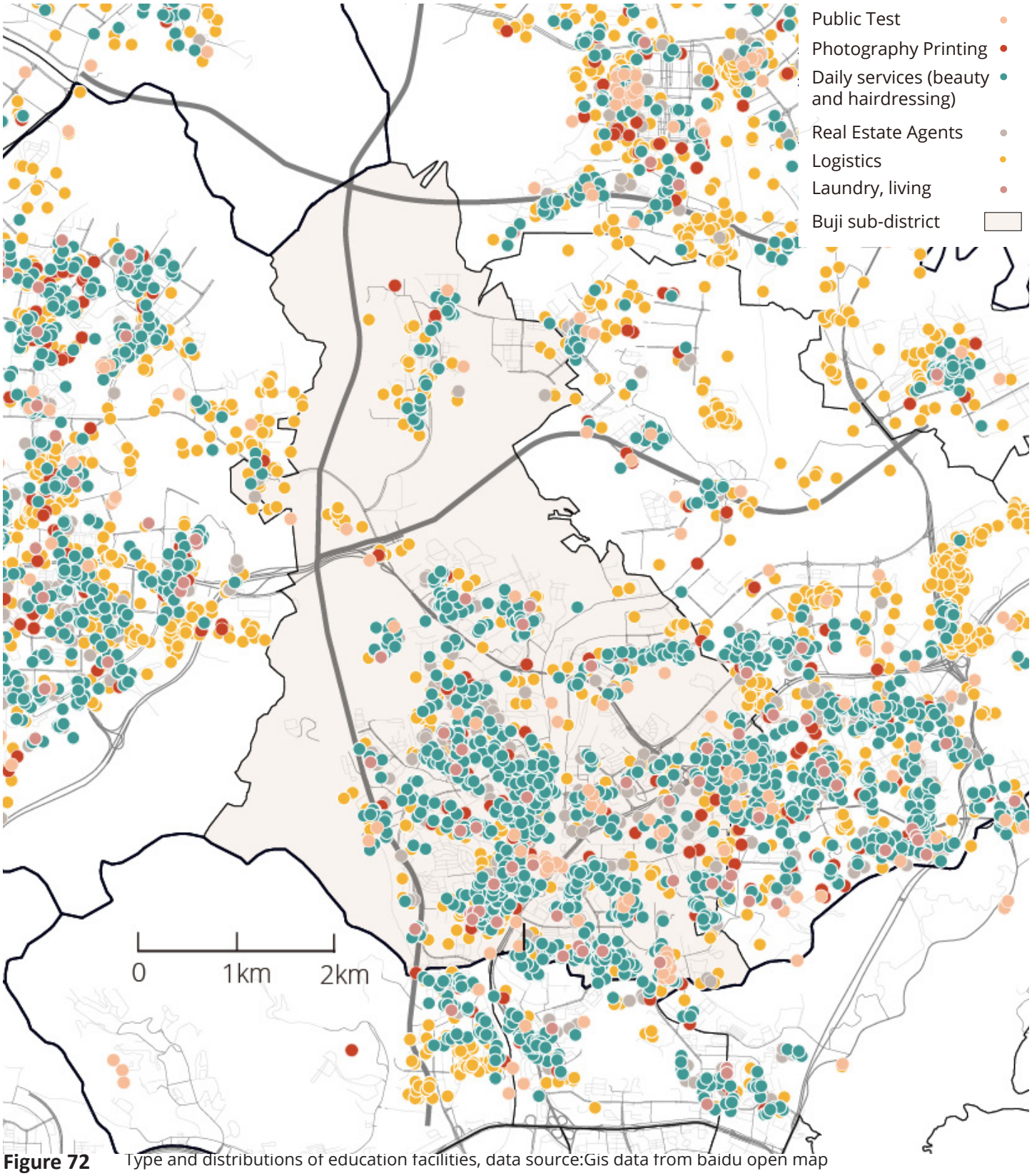


Figure 72 Type and distributions of education facilities, data source:Gis data from baidu open map

Most of the life services in the area are concentrated in the south near the metro station. It further shows that the overall facilities are mostly concentrated where the urban villages are gathered. In the north, the distribution of facilities is much less due to the main industrial area.

Conclusion

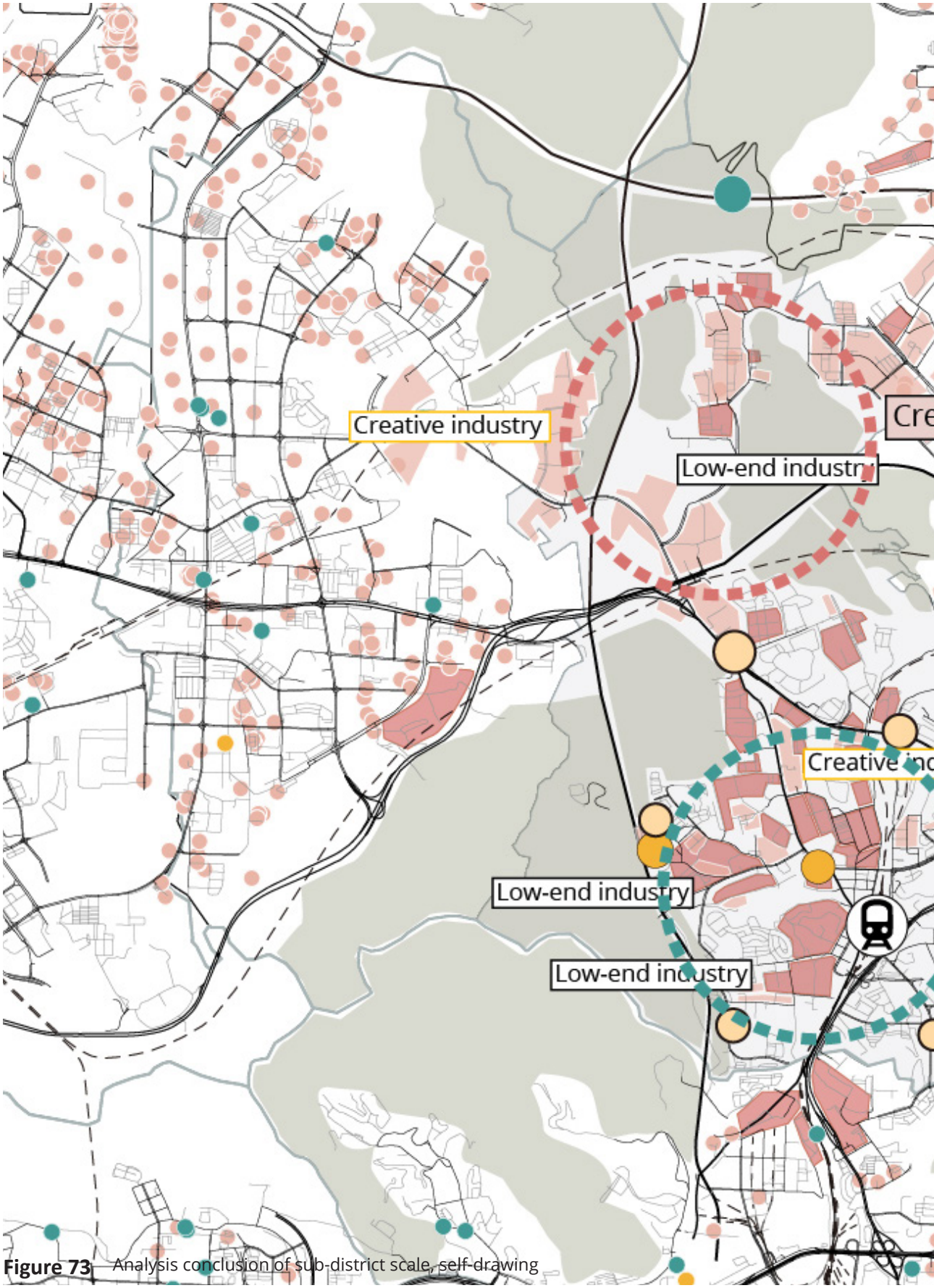
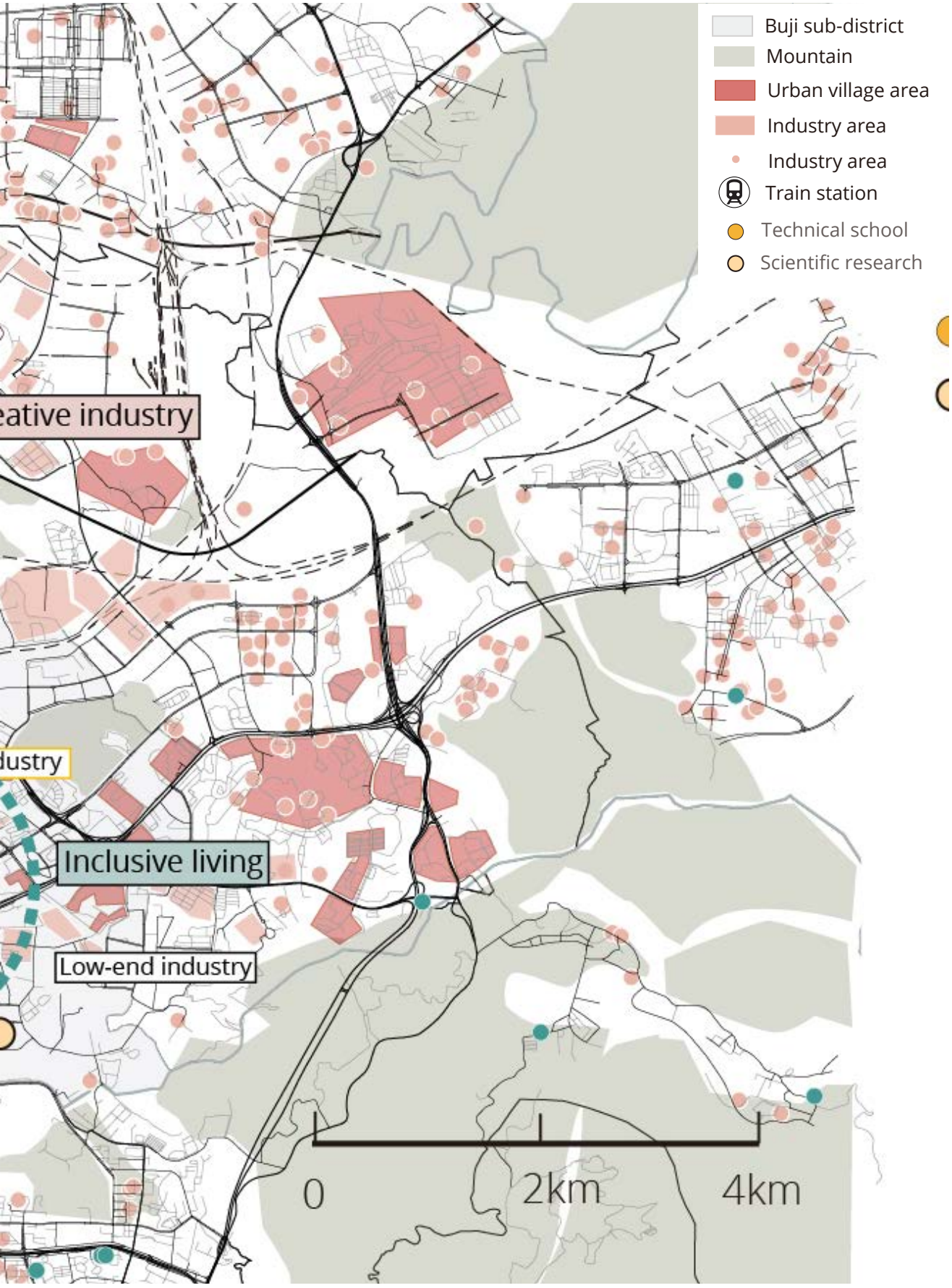


Figure 73 Analysis conclusion of sub-district scale, self-drawing

From the analysis at the sub-district scale, it can be observed that the northern part of the sub-district has a strong industrial foundation and holds potential for further industrial development. In contrast, the southern part of the region is characterized by a greater concentration of urban



villages. It features Shenzhen East Station as a transportation hub, suggesting possibilities for future development as a comprehensive area integrating residential living and transportation. Therefore, select the southern region as the next zoom-in area for exploring urban village regeneration.

Buji area scale

In the area scale, focus more on detailed analysis. Different groups and stakeholders will be analyzed to considerate equality and integration between groups. And more detailed analysis will be reflected in public space,street and buildings.

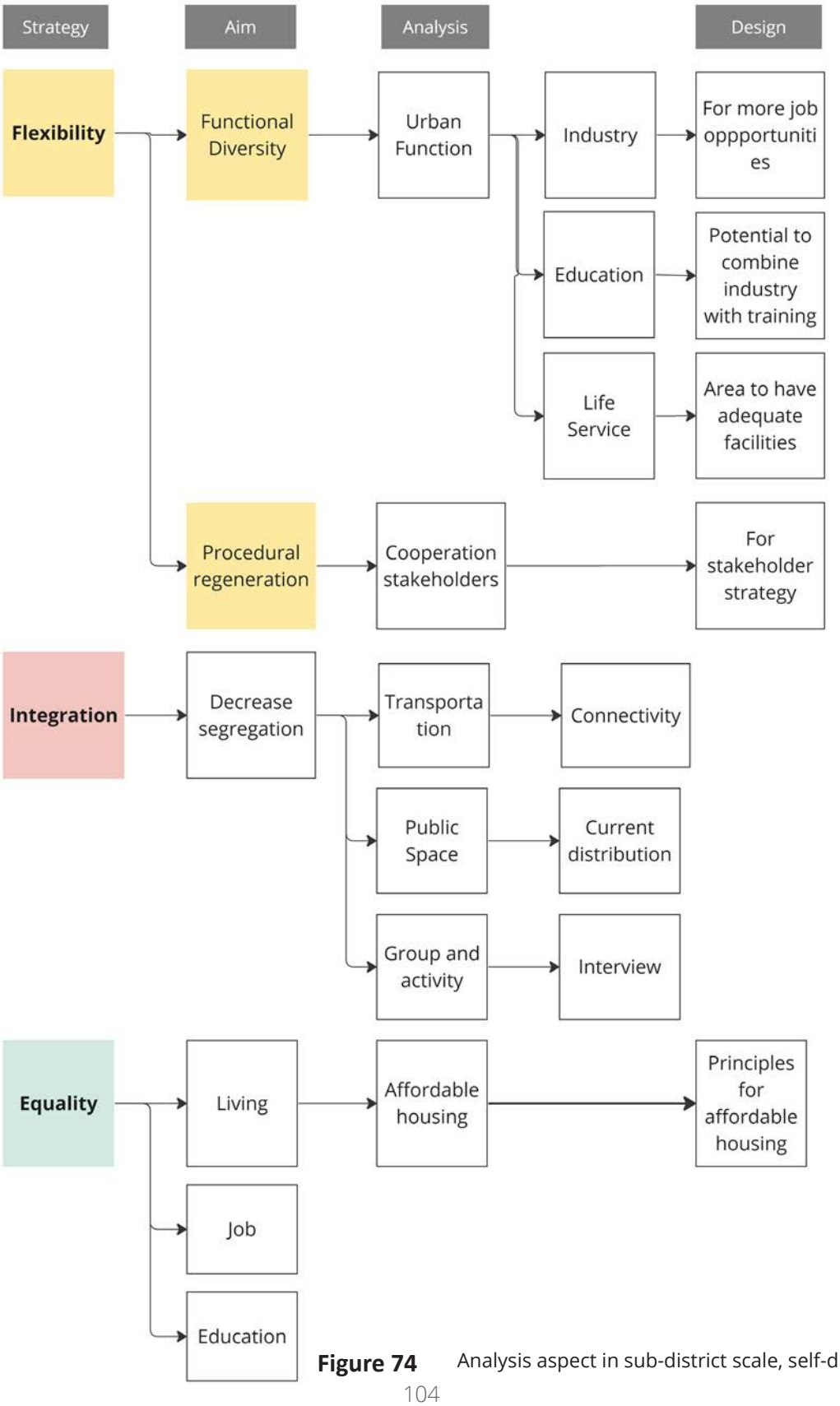


Figure 74 Analysis aspect in sub-district scale, self-drawing

Basic information

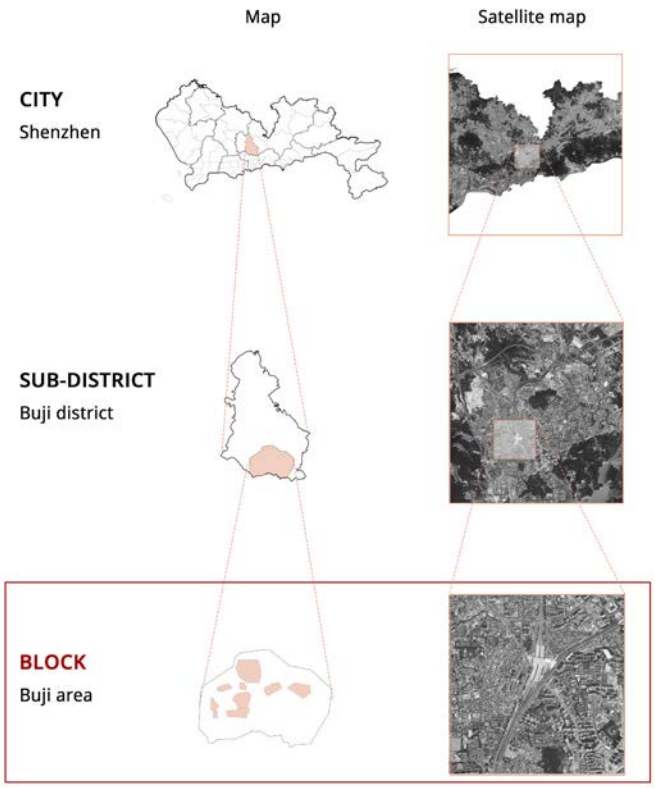


Figure 75 Zoom in scale

Buji is a sub-district within Shenzhen's Longgang District. Specifically, in this project, the term "Buji area" refers to the southern part of the Buji sub-district. This area is notable for its numerous urban villages, including the prominent Shenzhen East Railway Station, and its proximity to Luohu District, marking it as an important region for urban renewal. In fact, with 478 urban villages, Longgang District accounts for a quarter of all urban villages in Shenzhen, making Buji a focal point of attention for recent urban regeneration efforts.

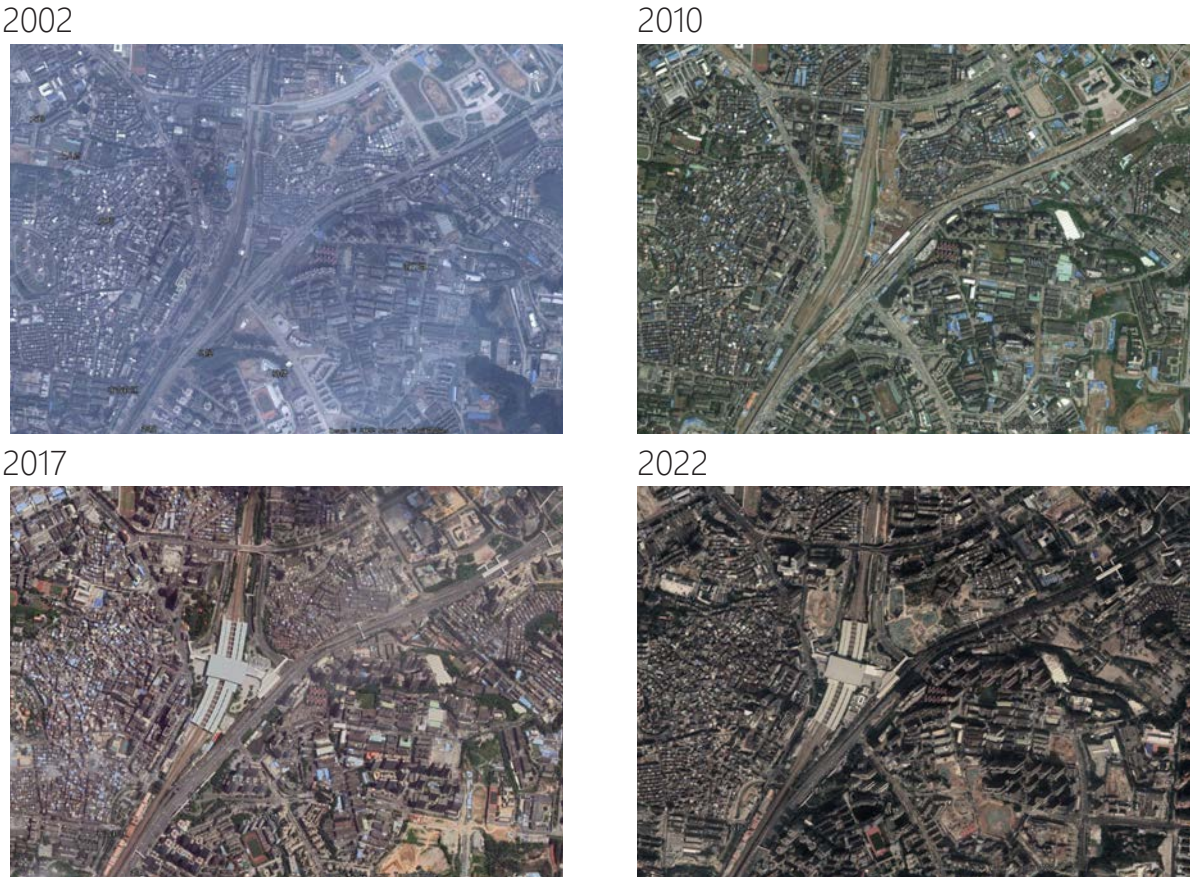


Figure 76 Historical Satellite Map of Shenzhen,source google historical map

Analysis-Area scale

Buji-Development history

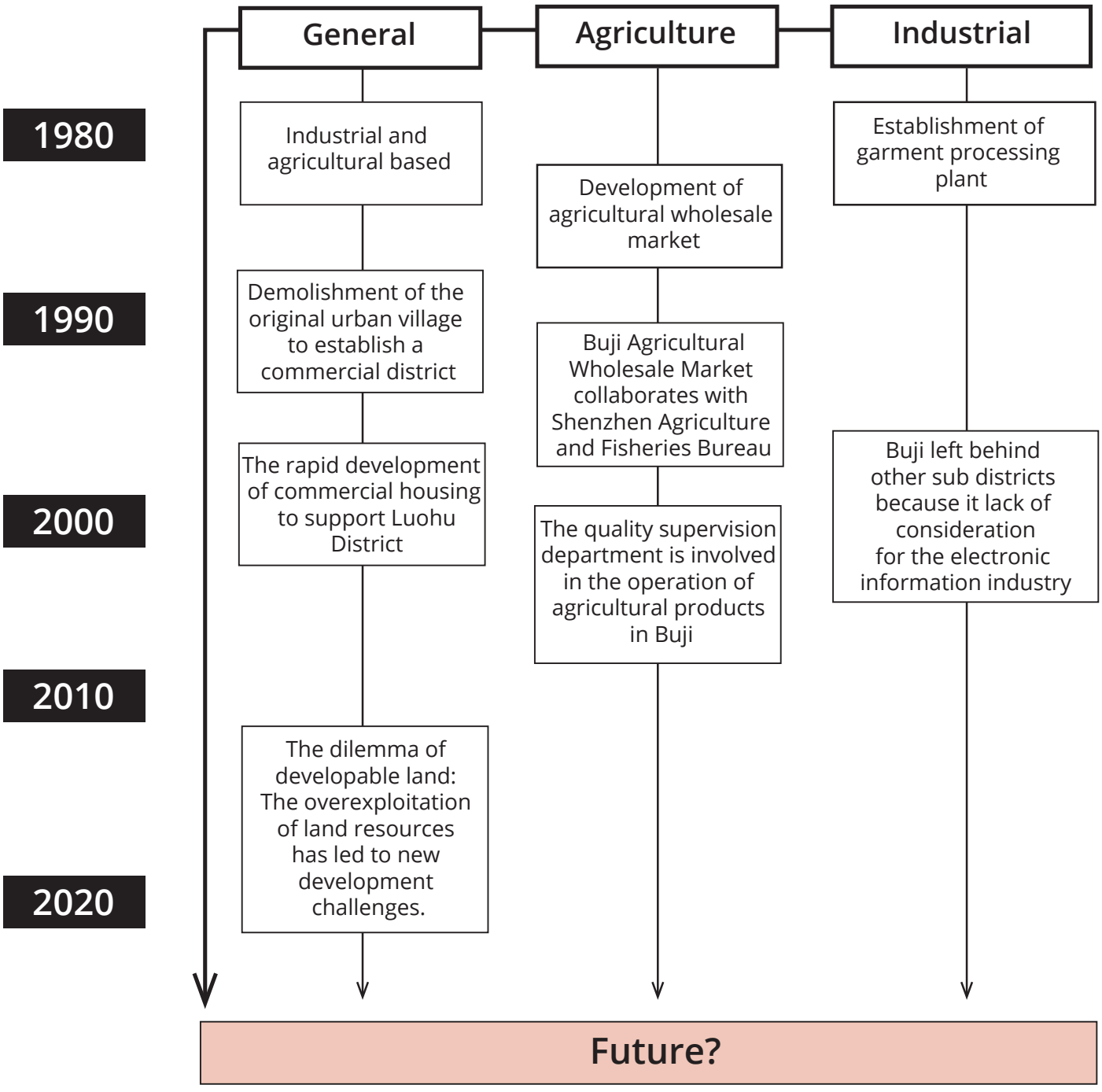


Figure 77 Development history of Buji, self-drawing

Analysis-Area scale

Buji-Public transportation

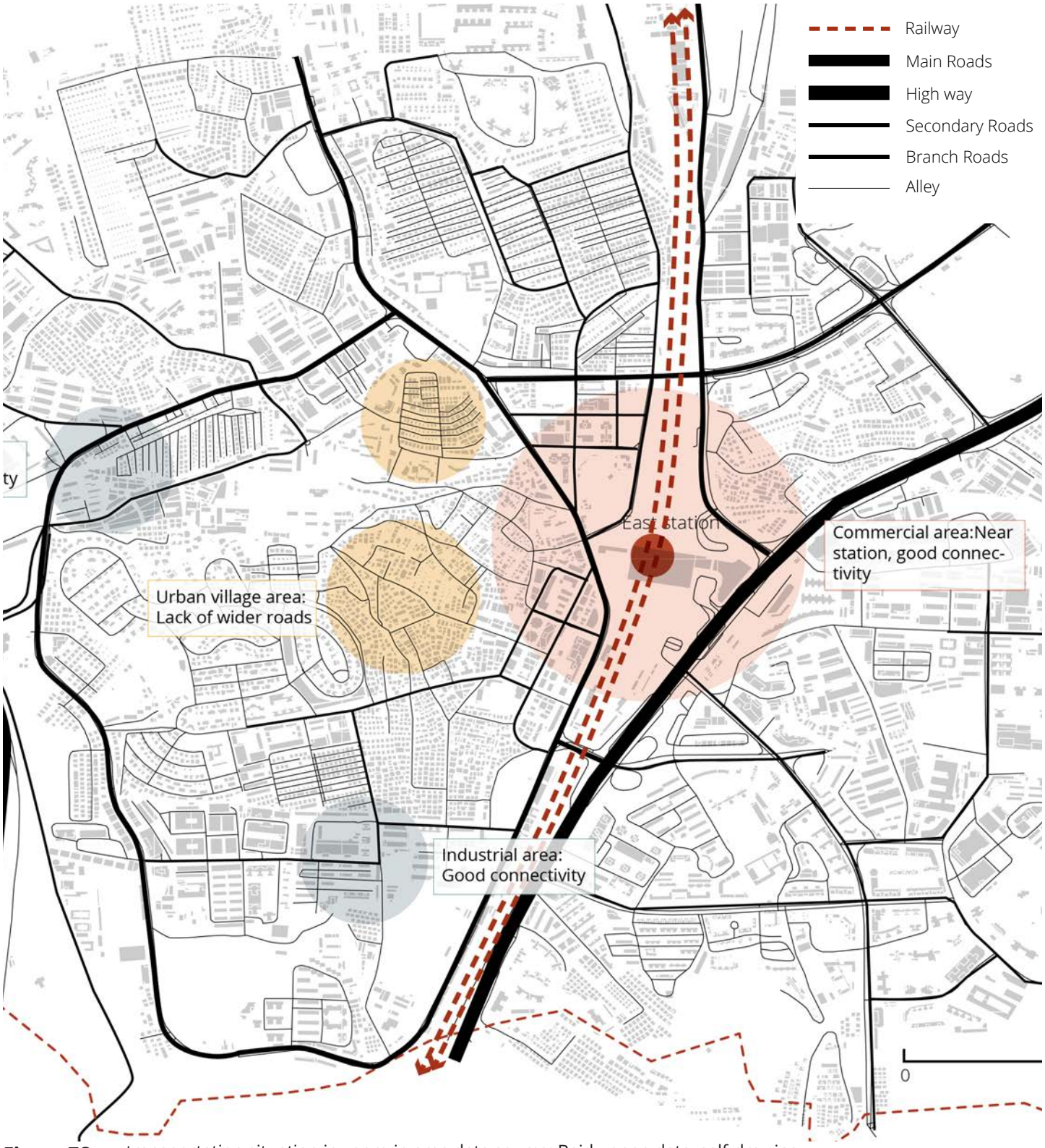


Figure 78 transportation situation in zoom-in area,data source: Baidu open data, self-drawing

There is a lack of accessibility in the urban village and villa areas, while the commercial area around the station demonstrates better connectivity with the surrounding areas, attracting more population to pass through. Therefore, improving transportation infrastructure within the urban village is necessary to address this issue.

Analysis-Area scale

Space syntax-Accessibility

Integration R=1000m

Integration R=500m

Figure 79 Space syntax in zoom-in area, calculated by depthmap software

The urban village area and villa area have lower integration degrees, which means thses areas lack of accessibility. When the ratio is limited to 500m, it is shown that areas between the industrial part and the surrounding have better accessibility.

Analysis-Area scale

Space syntax-Choice

Choice R-500m

Choice R=1000m

Figure 80 Space syntax in zoom-in area, calculated by depthmap software

Choice in space syntax shows the possibility that people will go through this road. Moreover, from the analysis, the area near the station has better potential for people to go through. When the ratio is limited to 1000m, it is shown that the area between industry and villa also has such potential.

Analysis-Area scale

Building in different neighborhoods

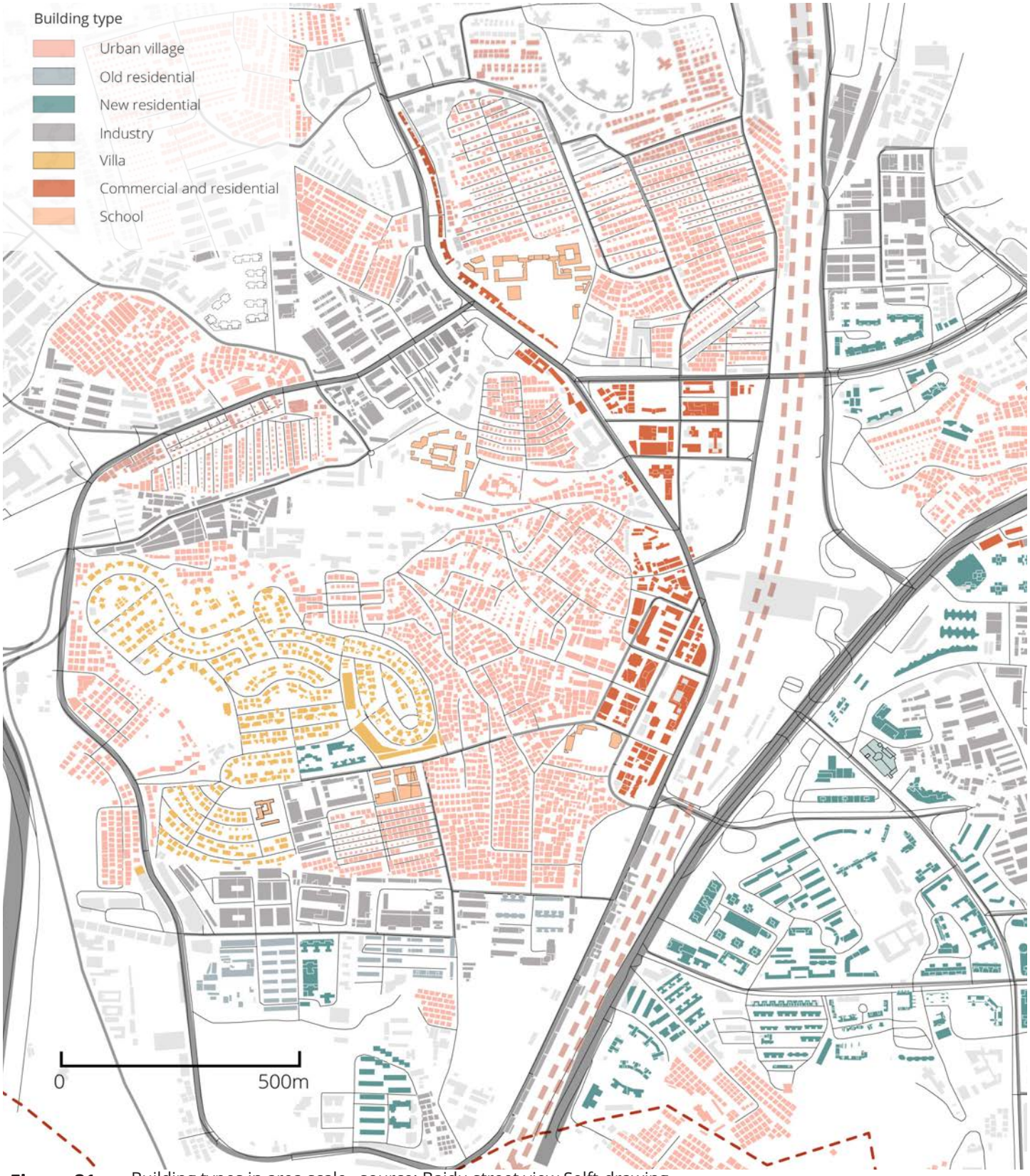
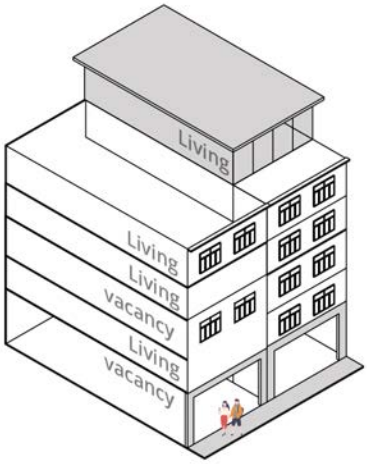


Figure 81 Building types in area scale,, source: Baidu street view,Selft-drawing

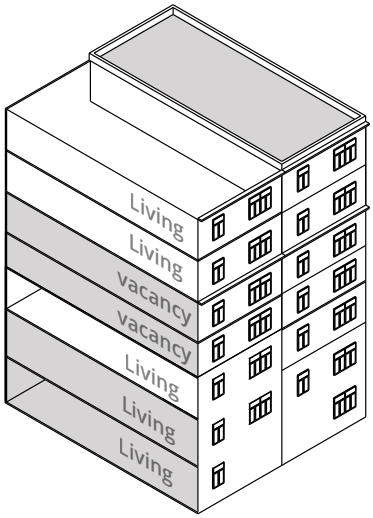
It can be seen from the types and distribution of buildings in the Buji area that there is an obvious problem of spatial fragmentation. The village/villa/factory/new residential buildings in the area are scattered in different areas. Moreover, the quality and age of the buildings are also quite different. Summarize the existing building problems, mainly including illegal additions, vacancy, and single function. There are signiꝑcant obstacles to the regeneration and transformation of the building.

Vacancy and low quality of buildings

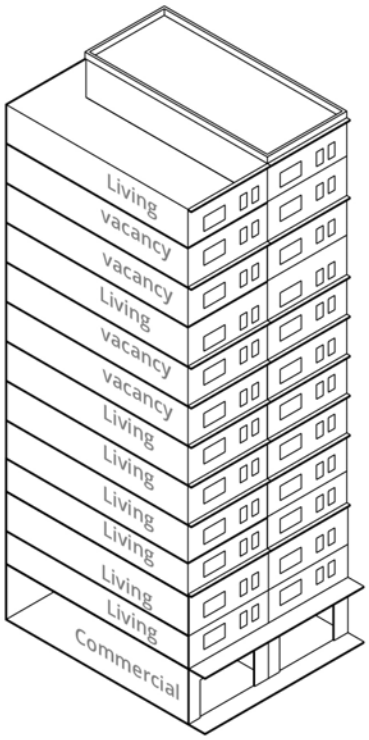
Low quality urban village



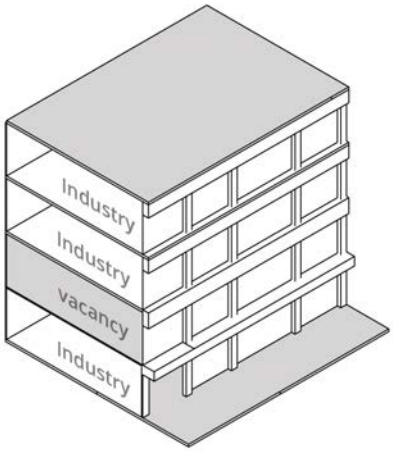
Building with commercial floor



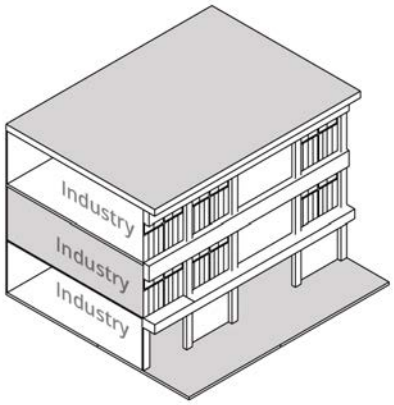
High-rise urban village



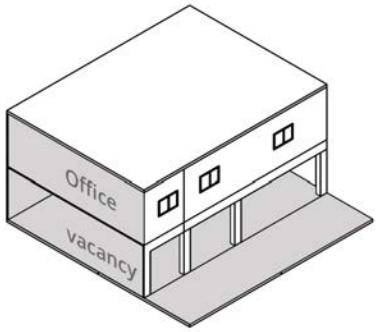
Low quality industrial building



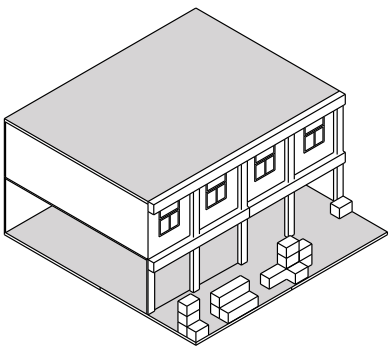
Industrial park



Vacant industrial building



Low industrial building



During the process of micro-regeneration, there will be a focus on improving the building quality within urban villages. This includes addressing dilapidated structures, inadequate infrastructure, and substandard living conditions. Additionally, efforts will be made to revitalize and repurpose vacant floors of buildings, transforming them into vibrant spaces for businesses and community activities. By addressing these aspects, the micro-regeneration process aims to enhance the overall livability and functionality of urban villages, fostering a more inclusive and sustainable urban environment.

Figure 82 Typologies of the current buildings in Buji area according to Baidu street view,Selft-drawing

Analysis-Area scale

Buji-Street view

Street view of different area

Figure 83 Street view of Buji area, source: Baidu street view

Based on the street view photos, there are signiÞcant differences in the appearance of different neighborhoods, resulting in fragmented living experiences for residents in this area. For instance, in photos 5, 7, and 16, the living atmosphere is better, with good greenery and building quality. On the other hand, photos 1, 3, 8, and 14 reveal poor environmental conditions and low-quality

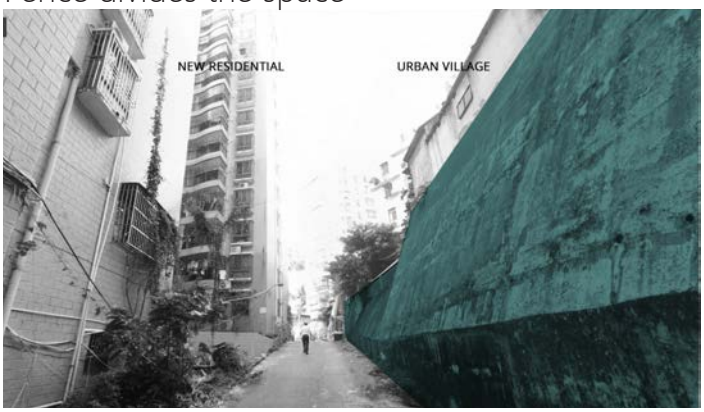
14

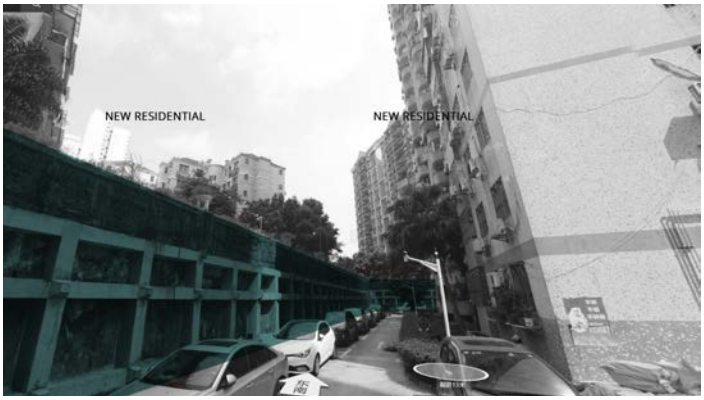
13

12

11

Fence divides the space





buildings in certain urban village areas with narrow road. Hence, there is evident disparity among different neighborhoods. Furthermore, there is spatial segregation between different communities, as seen in the fences between photos 4 and 7, as well as the high walls due to level differences in photos 12 and 14. These barriers to movement and communication hinder overall integration.

Housing price

Figure 84 Housing price according to Shenzhen rental website, Self drawing

The villa and new commercial areas are characterized by high living costs, indicating the exclusion of low-income groups, including domestic migrants. Based on the outcomes of previous regeneration models, it can be observed that most of the current urban village renovations result in increased housing prices in the original areas. Therefore, ensuring a balance between affordability

and improved living conditions in urban villages becomes crucial during the regeneration process. The goal is to enhance the overall living quality without significantly raising the living costs, maintaining inclusivity and accessibility for all residents.

Analysis-Area scale

Public space

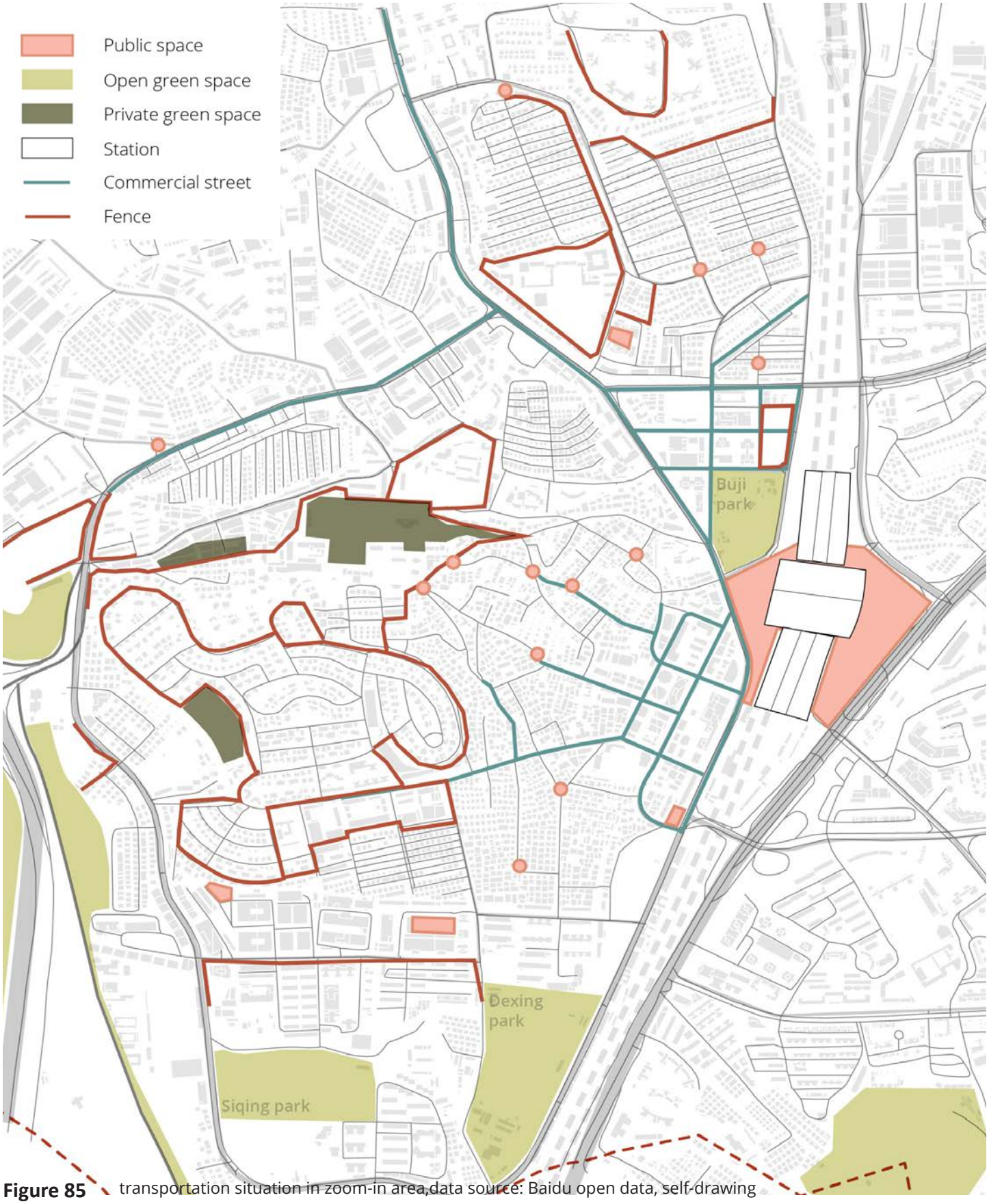
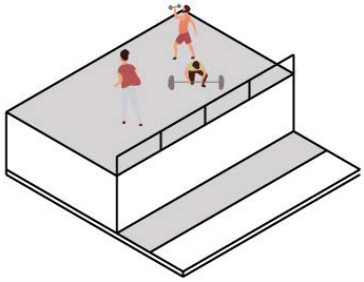


Figure 85 transportation situation in zoom-in area,data source: Baidu open data, self-drawing

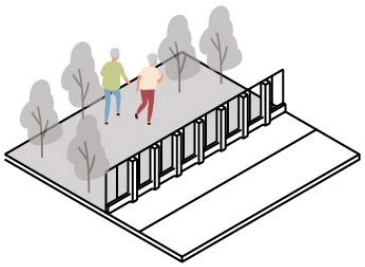
The public space and green space in this area are fragmented and lack connection. There are many small public spaces, but lack of connectivity between different parts. Many fences divide different neighbourhoods. Moreover, some of the green spaces are private and exclusive for people.

Type of public space

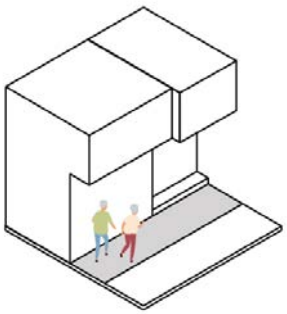
Height difference space



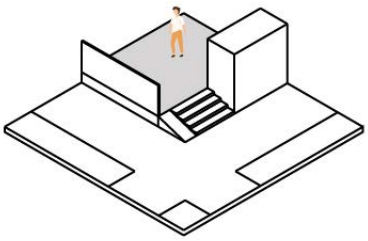
Private green space



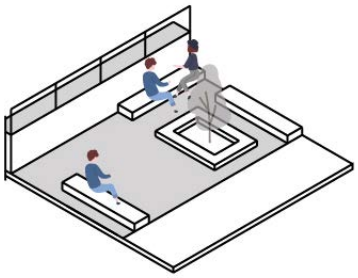
Public space on street



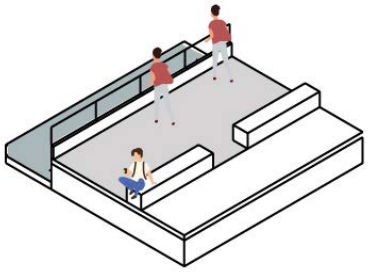
Corner spcae



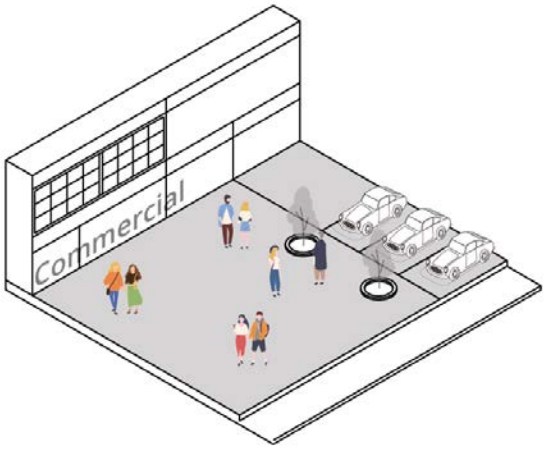
Inside residential area



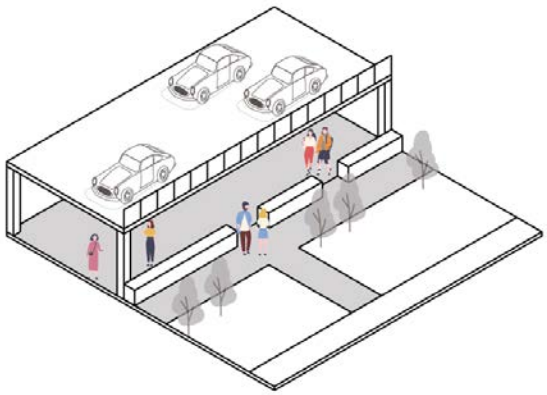
Privatized public space



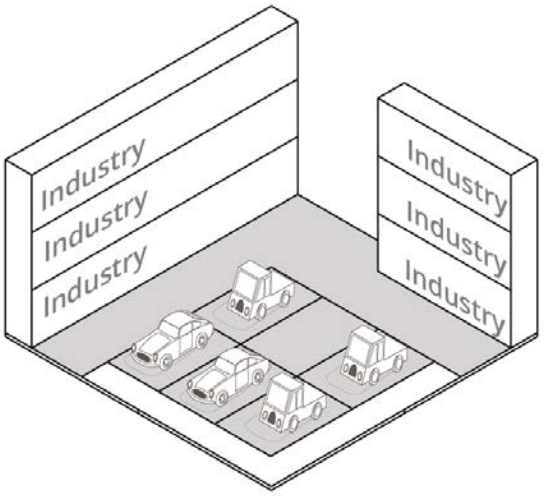
Infront of commercial area



Near station



Covered by parking



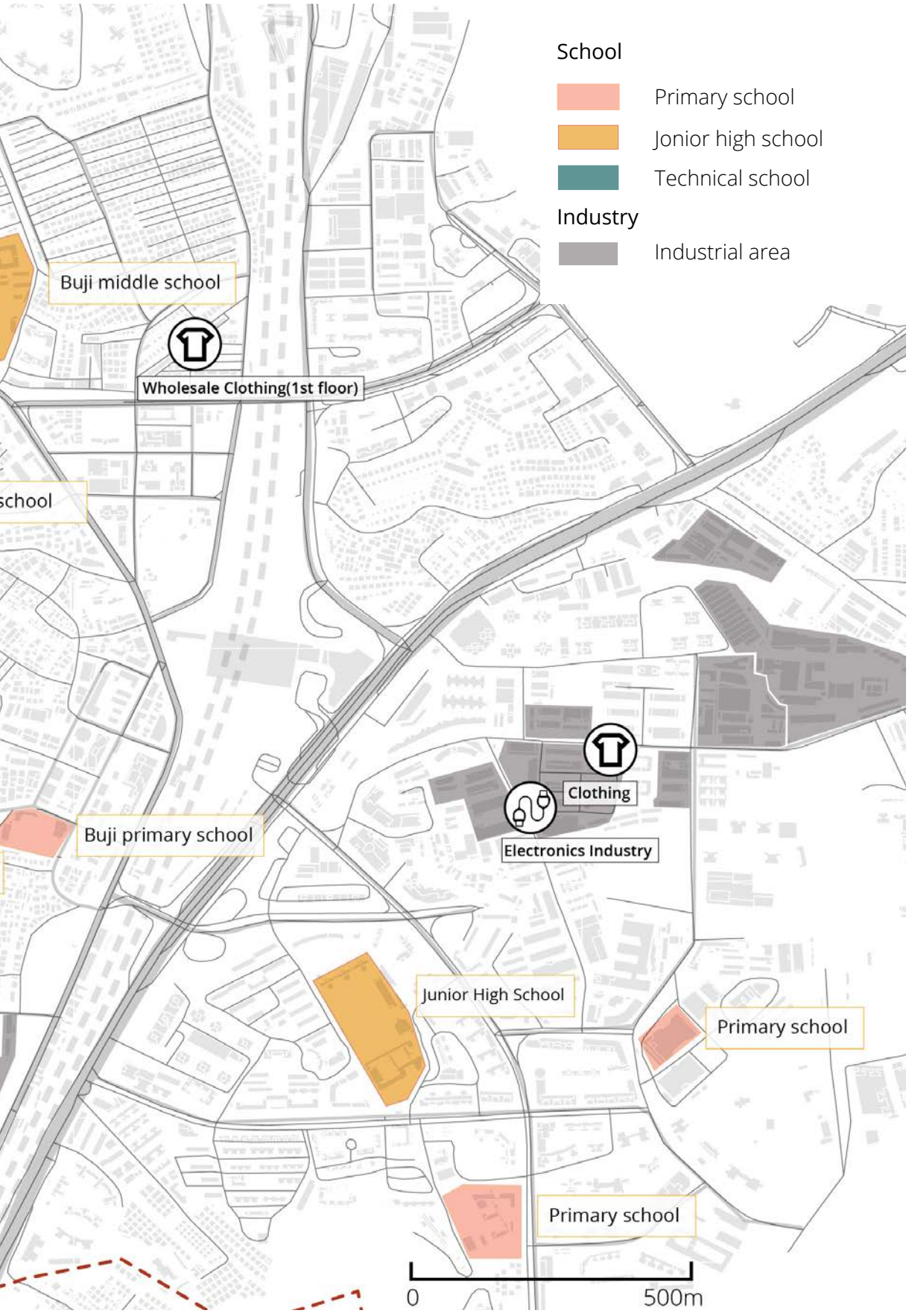
There are different type of public space in the buji focused area. In summary, the public spaces in urban villages lack attractiveness due to a lack of quality environment and service facilities. In the design part, public spaces will be the potential area for integration and giving more opportunities for groups to communicate. And after regeneration, the inclusiveness of orgininal public space will be carried forward.

Figure 86 Typologies of the current public space in Buji area according to Baidu street view,Selft-drawing

Industry and education

Figure 87 industial and education type in area,data source: Baidu open data, self-drawing

In the focus area, dominated by low-end industries, industrial upgrading poses challenges for the original groups, including job displacement, skill mismatch, economic vulnerability, and potential social impact. To address these challenges, exploring the development of current technical schools



can provide enhanced training opportunities for different groups, fostering collaboration with the industrial sector and promoting mutual growth and development, such as cultivating relevant skills aligned with the surrounding industries.

Analysis-Area scale

life service

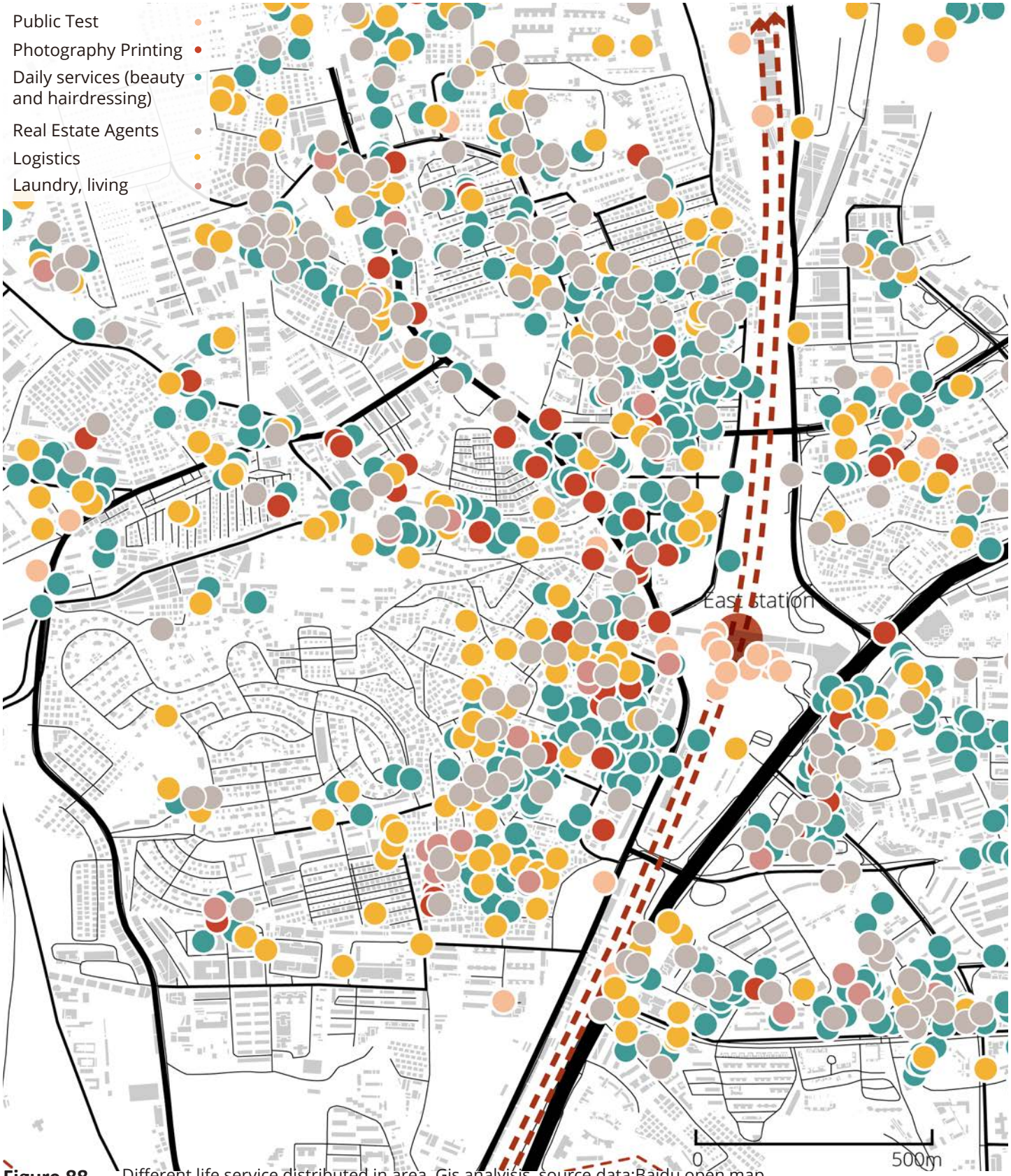


Figure 88 Different life service distributed in area, Gis analysis, source data:Baidu open map

Service facilities in the focus area are primarily concentrated around the station and along the main roads, while there is a noticeable lack of facilities within the urban villages, villa areas. This indicates inadequate development of living services in the urban village and old industrial areas.

Analysis-Area scale

Stakeholder involved during regeneration

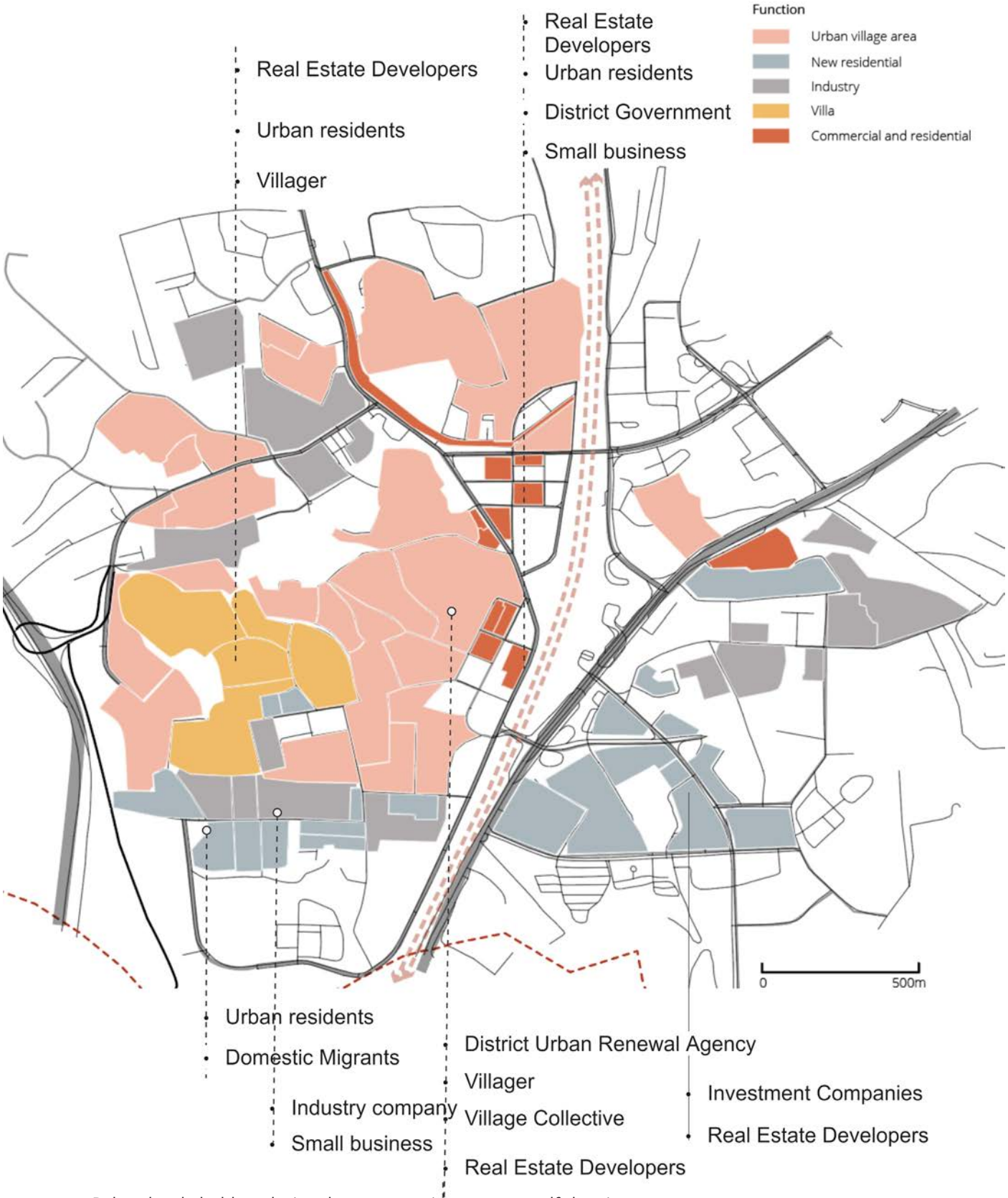


Figure 89 Related stakeholders during the regeneration process, self-drawing

The stakeholders involved in different neighbourhoods during the regeneration process are different. In urban village areas, the village collective and villagers have more power for decision-making. Moreover, in commercial areas, it is related more to developers and the government. However, in the current regeneration mode, domestic migrants do not have much power to let their voices be heard.

Analysis-Area scale

Social groups

Views and experiences of different groups

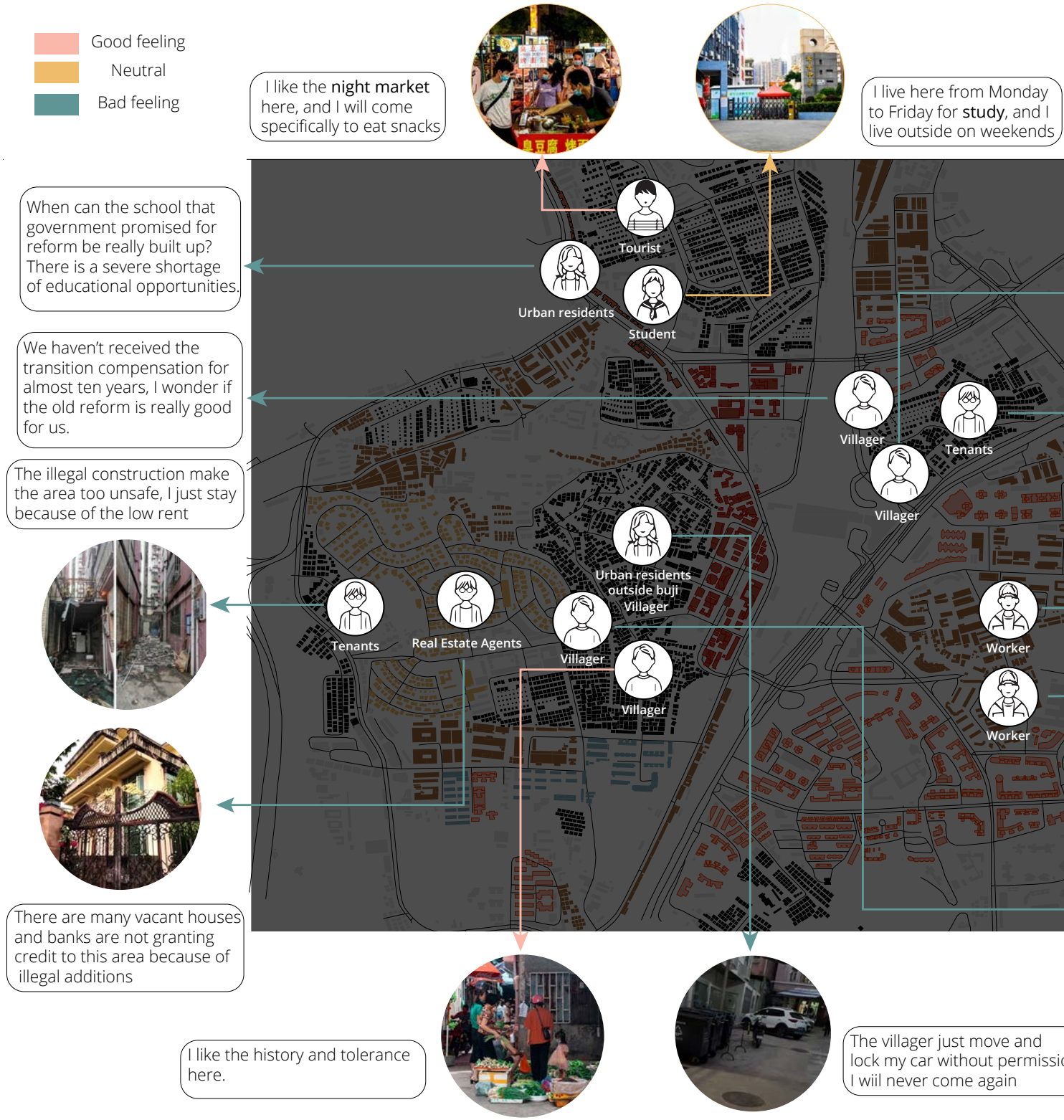


Figure 90 Social groups and basic introduction, Self-drawing

Through analysis of social media and feedback from various groups, several conclusions can be drawn. Exclusionary factors are prevalent within urban village communities, leading to increased conflicts with outside groups. Communication between different groups is hindered, further exacerbating the issue of segregation. The segregation is influenced not only by the quality of

The reform has been delayed for more than ten years, and After demolition I have been renting room outside and can't go back

The environment here is so bad, I stay here just because of the Convenient transportation for work

The traffic here is so bad, and lots of people passing through, and illegal parking

If the factories are demolished, I just have to move to anther industry area for job.

We also want renewl here, but we can't trust government and developer.

Basic introduction of different groups

Groups	Interest	Concerntration in urban village regeneration
Tenants	Rent Transportation	Medium
Villager	Rent Economic Benefits	High
Urban residents outside buji	Environment	Low
Urban residents	Environment Transportation Public service	Low
Worker	Transportation Job opportunity	Medium
Real Estate Agents	Rent	High
Developer	Economic Benefits	High
Government staff	Environment Future development	High

physical space but also by the attitudes of individuals within the urban villages towards the outside area. However, some advantageous conditions are still present, such as unique food markets and bustling streets that can attract diverse groups, as well as convenient transportation options. Nevertheless, these advantageous conditions still need to be fully leveraged in the current situation.

Analysis-Area scale

Mental map

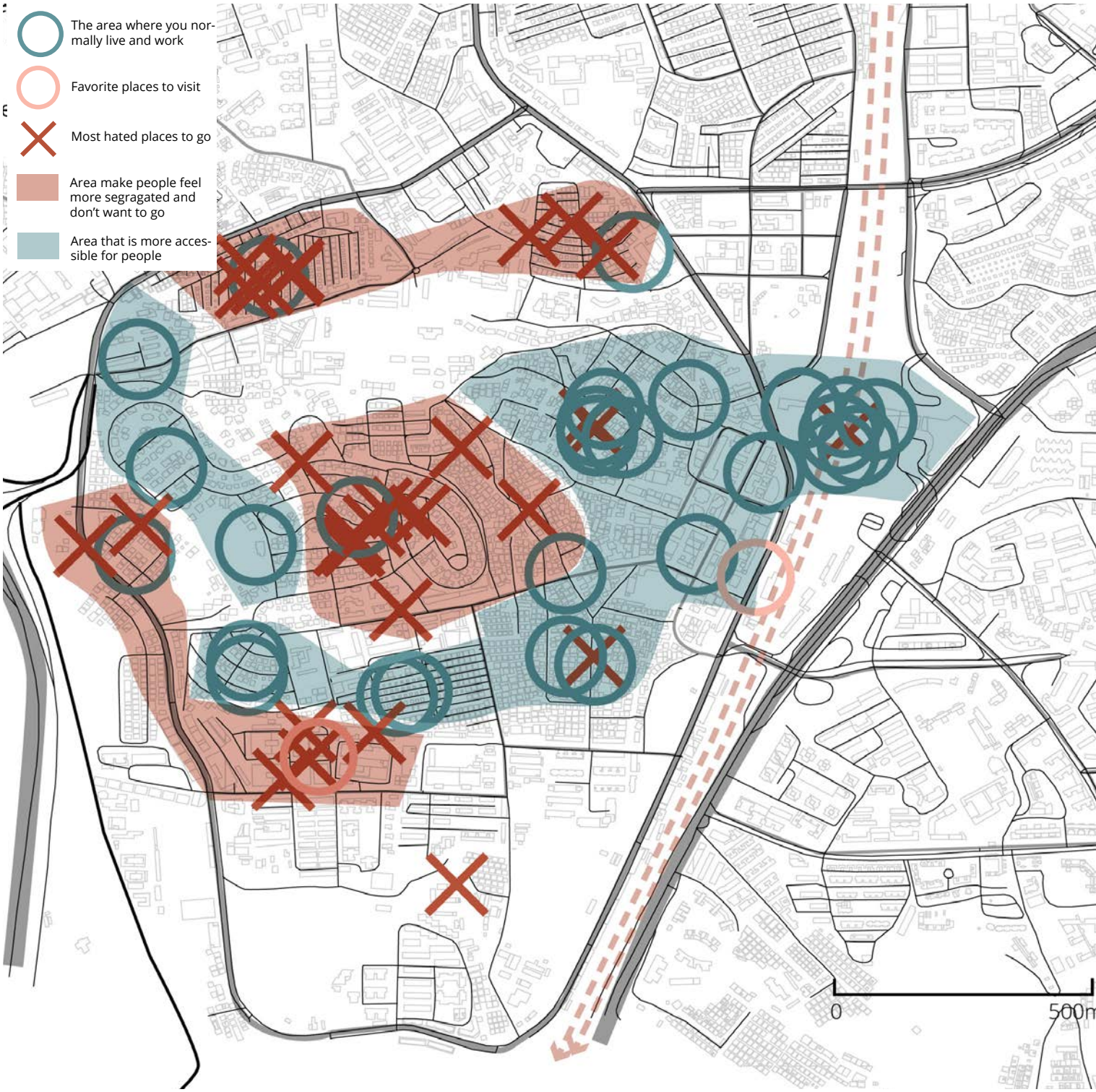


Figure 91 Conclusion of mental map, self drawing

The interview results indicate a widespread issue of segregation in the area, with individuals expressing reluctance to visit or accept areas outside their own residential neighbourhoods. The findings reveal a fragmented psychological landscape across the entire area, emphasizing the need for improved connectivity to foster movement and integration between different areas. While

Figure 92 Mental map according to different people, redraw

the urban village generally attracts diverse groups, efforts are required to connect and facilitate seamless passage through these fragmented neighbourhoods.

Conclusion

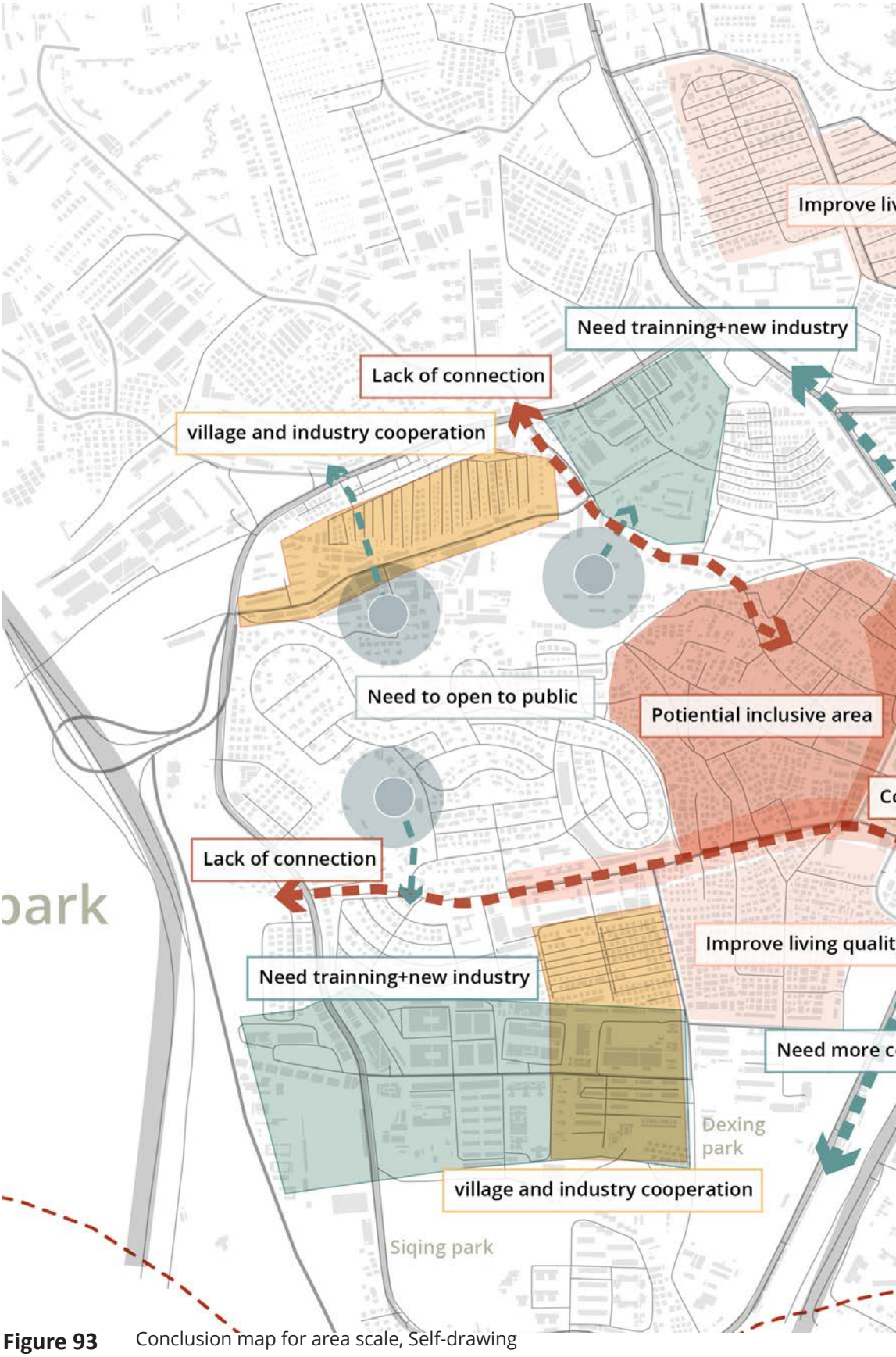
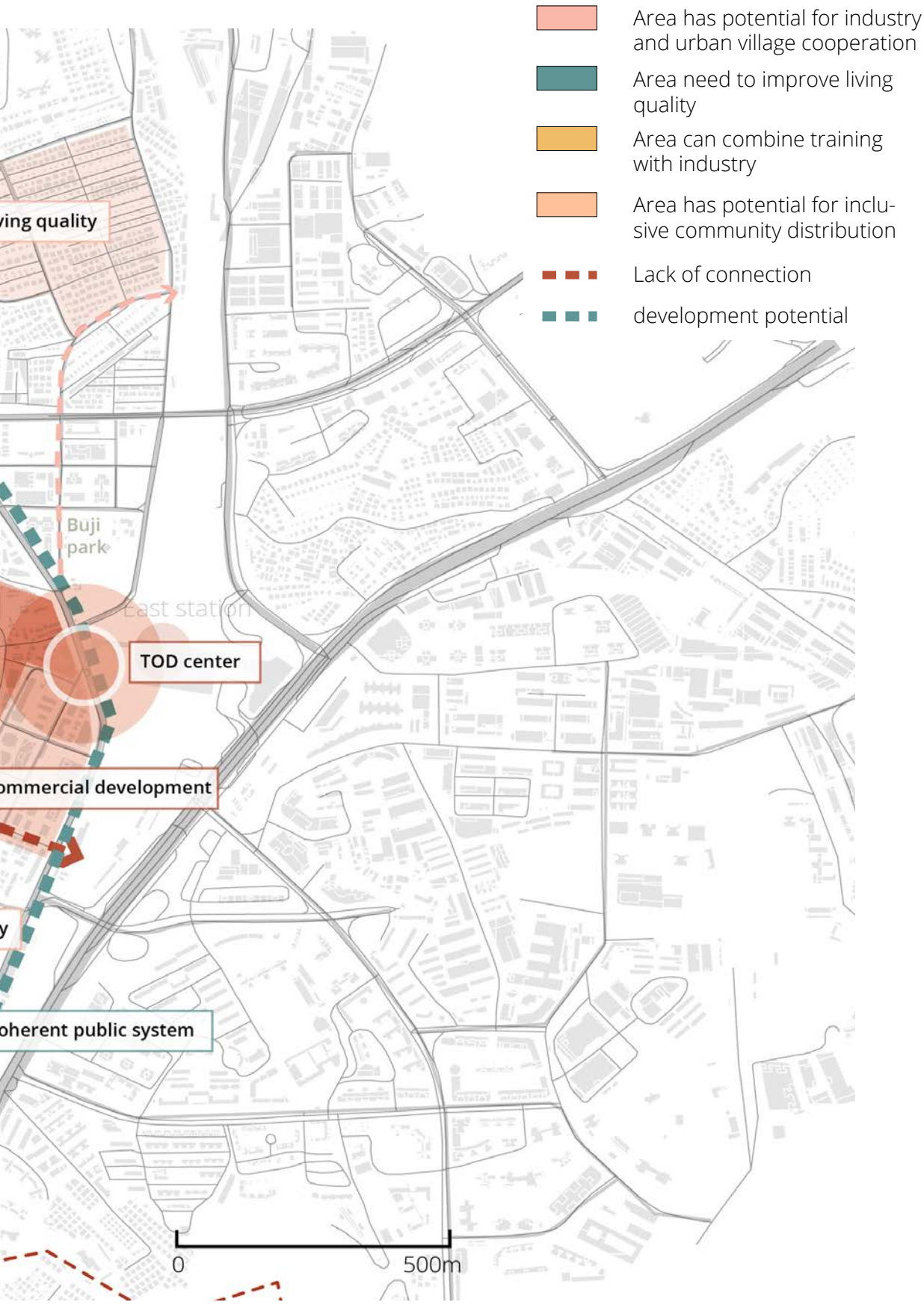


Figure 93 Conclusion map for area scale, Self-drawing

The urban village area near the station is selected as the next focused area, given its strategic location within the development structure. The regeneration process in this area will provide insights into adapting to the significant development pressures faced by urban villages. Furthermore,



addressing the lack of connectivity and spatial fragmentation between different parts of the area will be a crucial aspect to consider in the design phase.

Analysis

Neighborhood scale

At the neighborhood scale, a detailed analysis is conducted to assess the diversity of services, educational facilities, and stakeholders. The transportation infrastructure, public spaces, and green areas are also analyzed to support integration development.

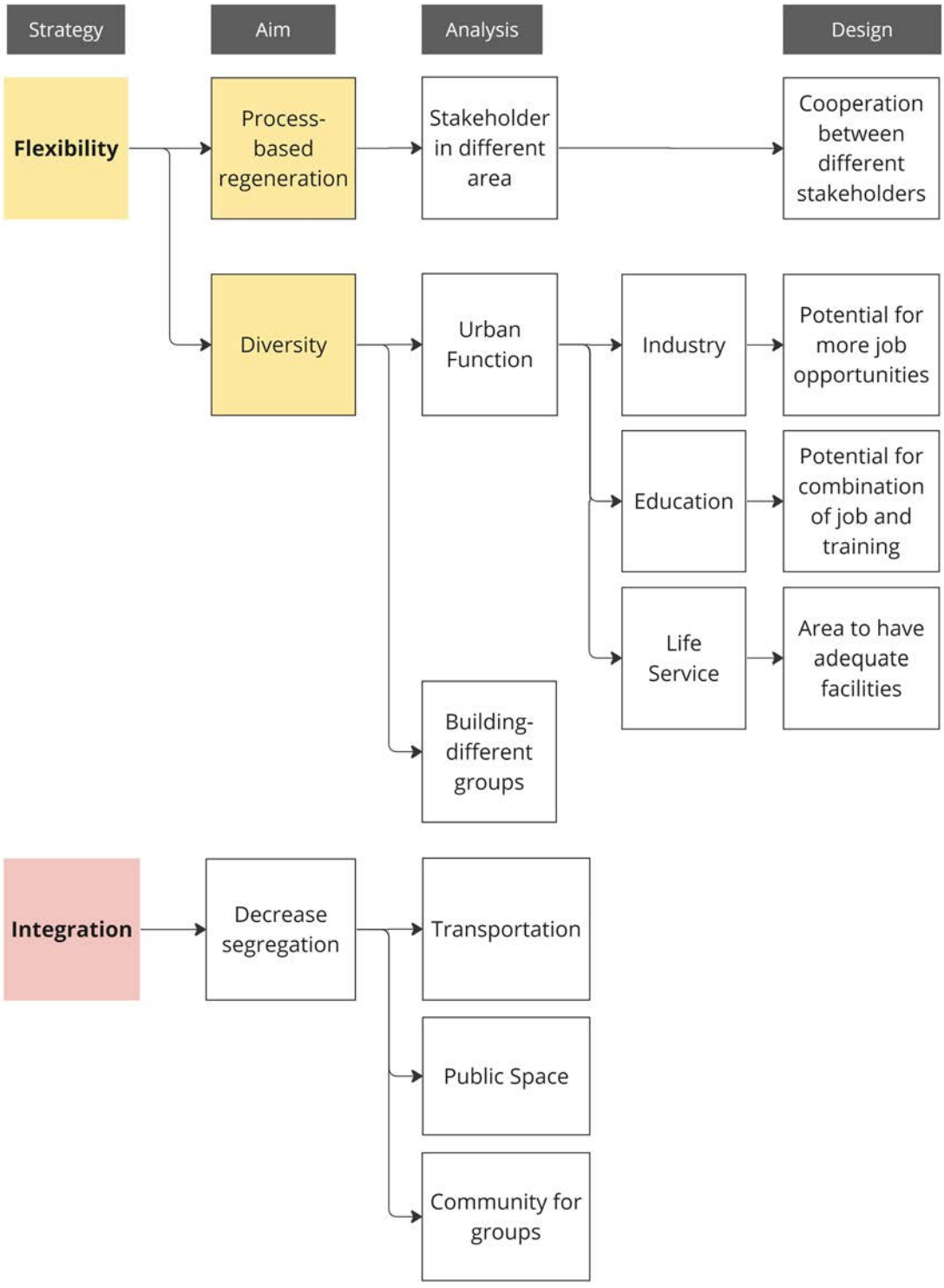


Figure 94 Analysis aspect in neighborhood scale, self-drawing

Analysis-Neighborhood scale
zoom in area

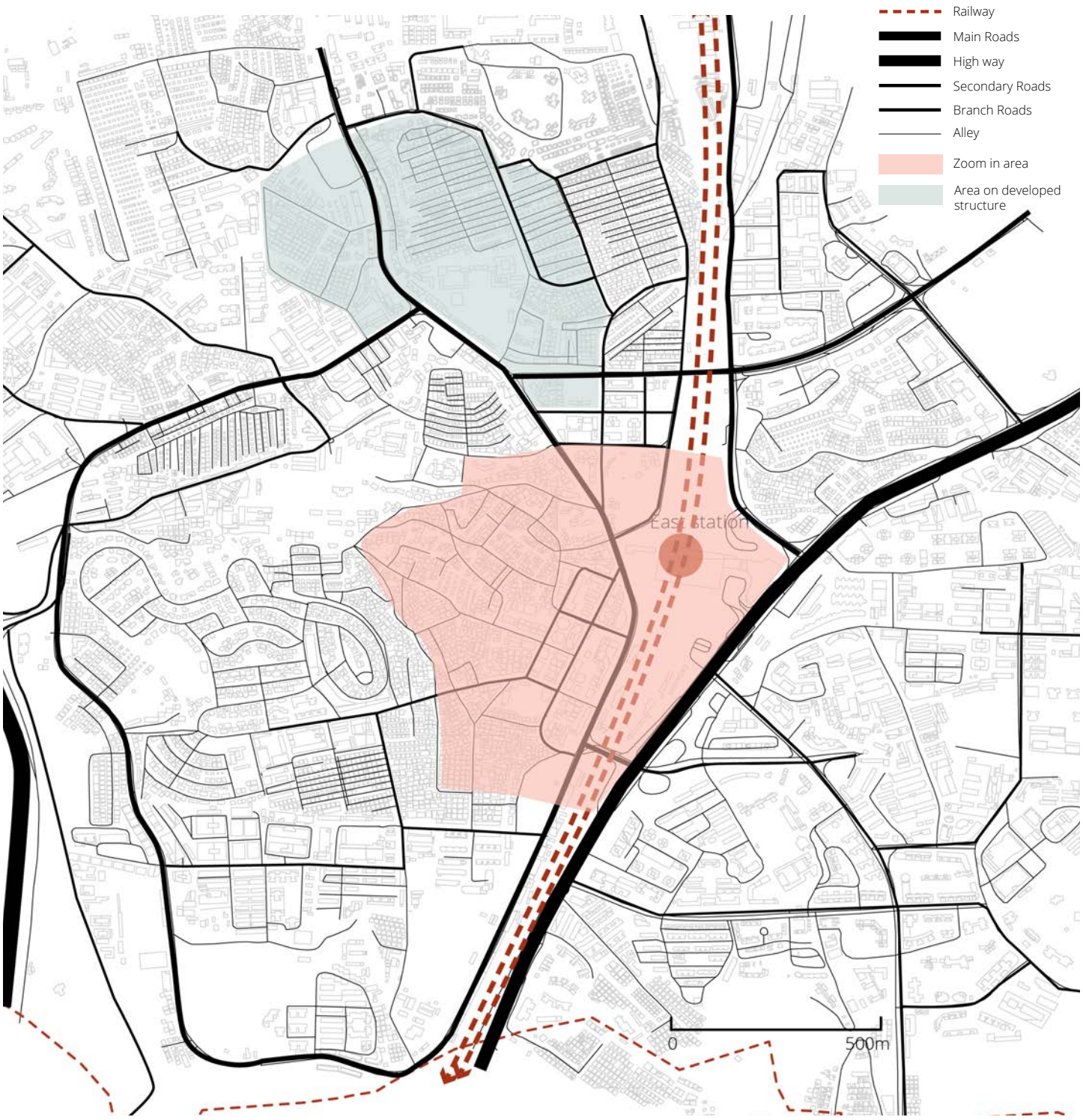


Figure 95 Map about zoom in neighborhood, self-drawing

One neighborhood is selected based on its location within the development structure, encompassing both the urban village and its surrounding area. This approach aims to examine the impact and interaction between the urban village and its surroundings in order to mitigate segregation. Another neighborhood is chosen to undergo a similar regeneration process, thereby testing and expanding the possibilities of the design process and potential scenarios.

Analysis--Neighborhood scale

Transportation

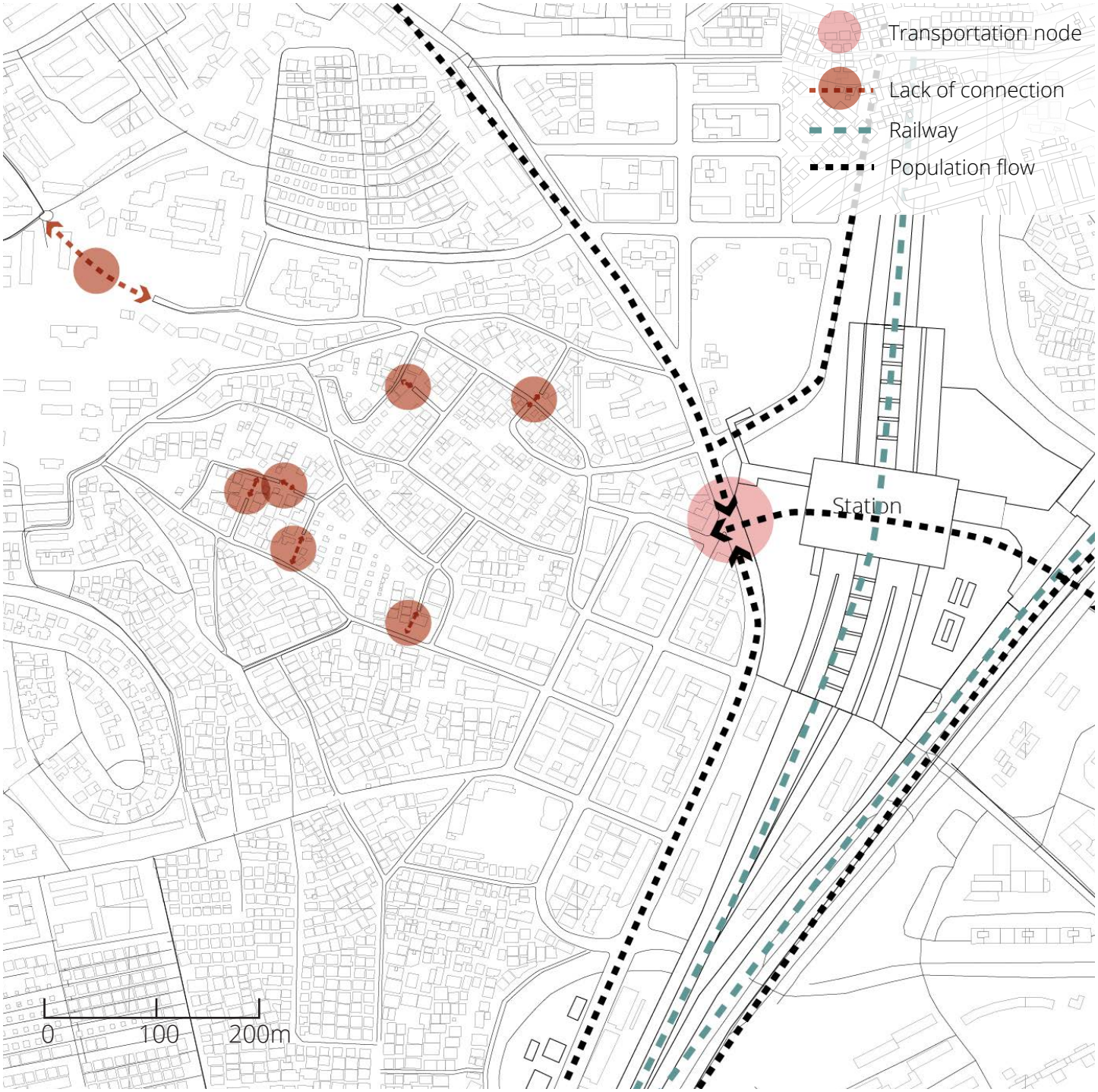


Figure 96 Transporation in neighborhood scale, self-drawing

Many roads lack connection within the urban village and at the junction between the urban village and the industrial area on the north side. These traffic breakpoints lead to poor traffic flow and blockage in the neighborhood. Around the station is the node with the most traffic flows, and the evacuation and concentration of different flows need to be considered.

Building

Figure 97 Building quality and floors according to the baidu map, self-drawing

Baidu Street View is employed to evaluate the building quality and number of floors in urban villages, specifically for micro-upgrades. This assessment helps identify buildings of poor quality and with a low number of stories, allowing for a more efficient allocation of resources and minimizing the time and cost required for demolition and reconstruction. By prioritizing these buildings as compromise zones, the focus can be directed towards the micro-regeneration process in urban villages, ensuring a targeted and effective revitalization.

Analysis-Neighborhood scale

Public space and activity

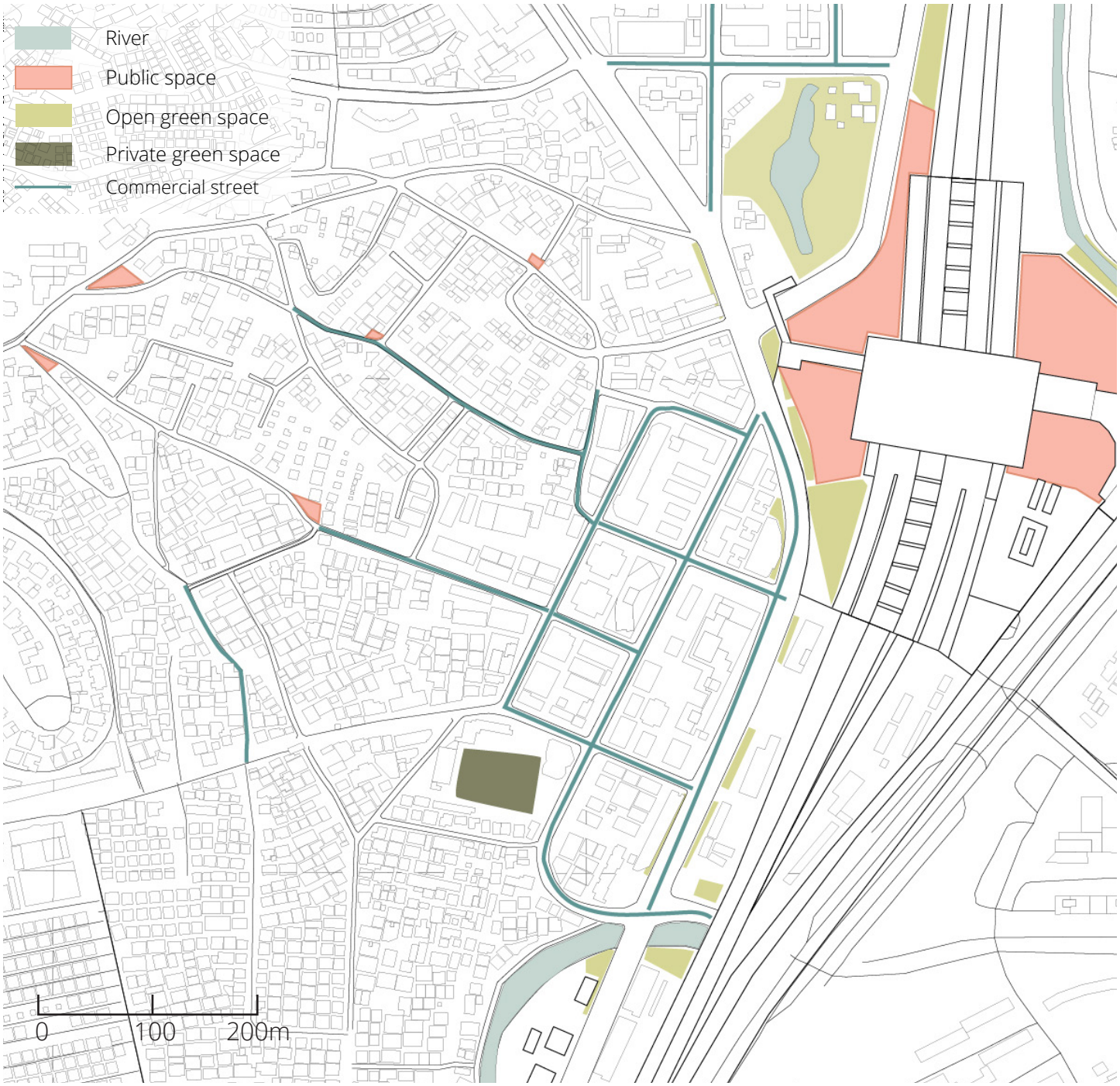


Figure 98 Building quality and floors according to the baidu map, self-drawing

At this scale, the commercial street is seamlessly connected to the station, and its connectivity should be taken into account for future development. Within the urban village, there is a predominance of small public spaces, necessitating improved connectivity between these spaces as well as between public spaces and different residential areas. Furthermore, the foundational green spaces on the site require further enhancement and development.

Stakeholder involved

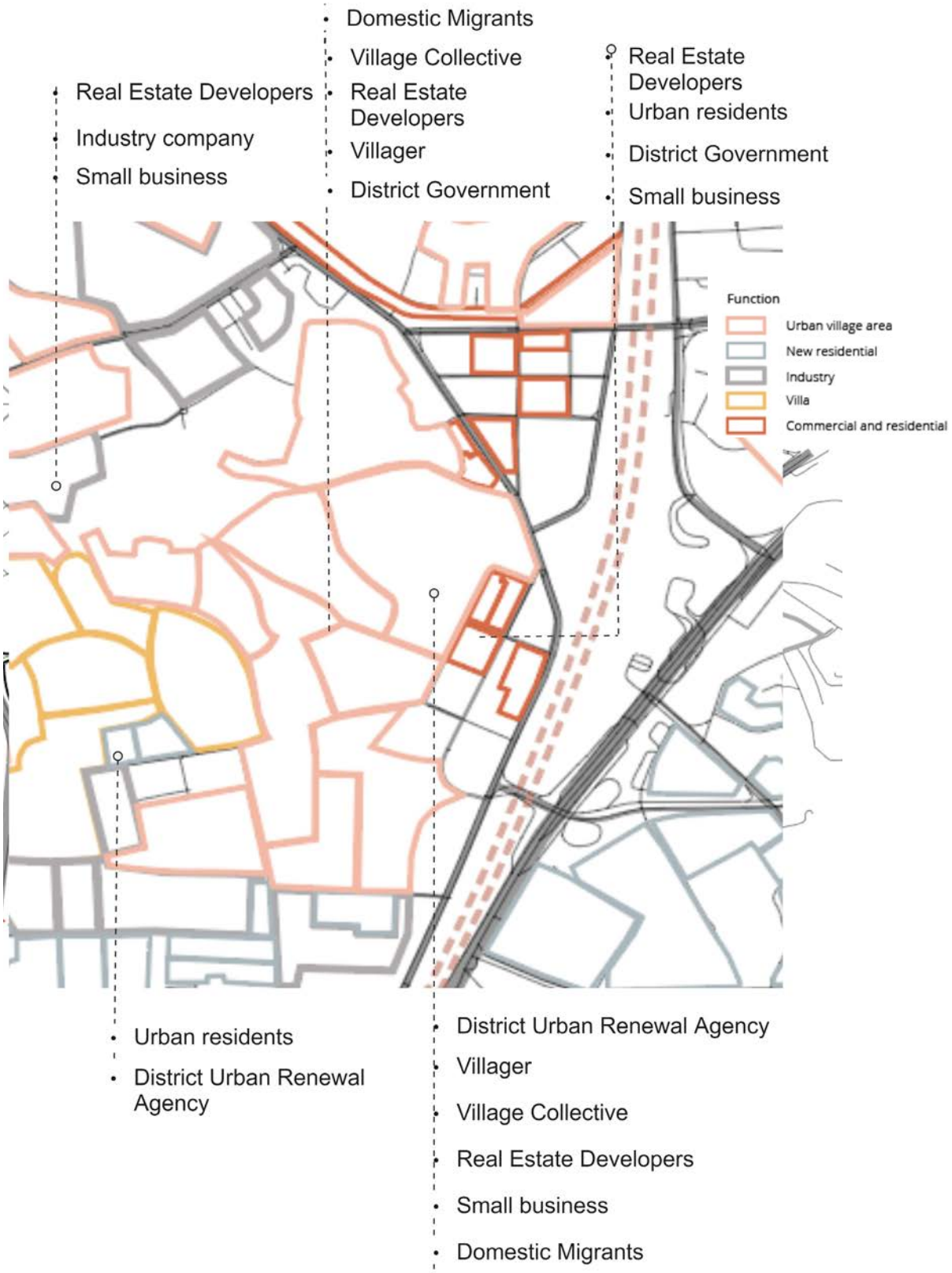


Figure 99 Current stakeholder in area, self-drawing

In different neighborhoods, the urban villages exhibit diverse village collectives. This results in differing stakeholder compositions among the urban villages. However, it is noteworthy that the decision-making process for urban village regeneration is typically not influenced by domestic migrants. This underscores the importance of incorporating urban planning expertise into the decision-making process to ensure effective and inclusive urban development.

Life service

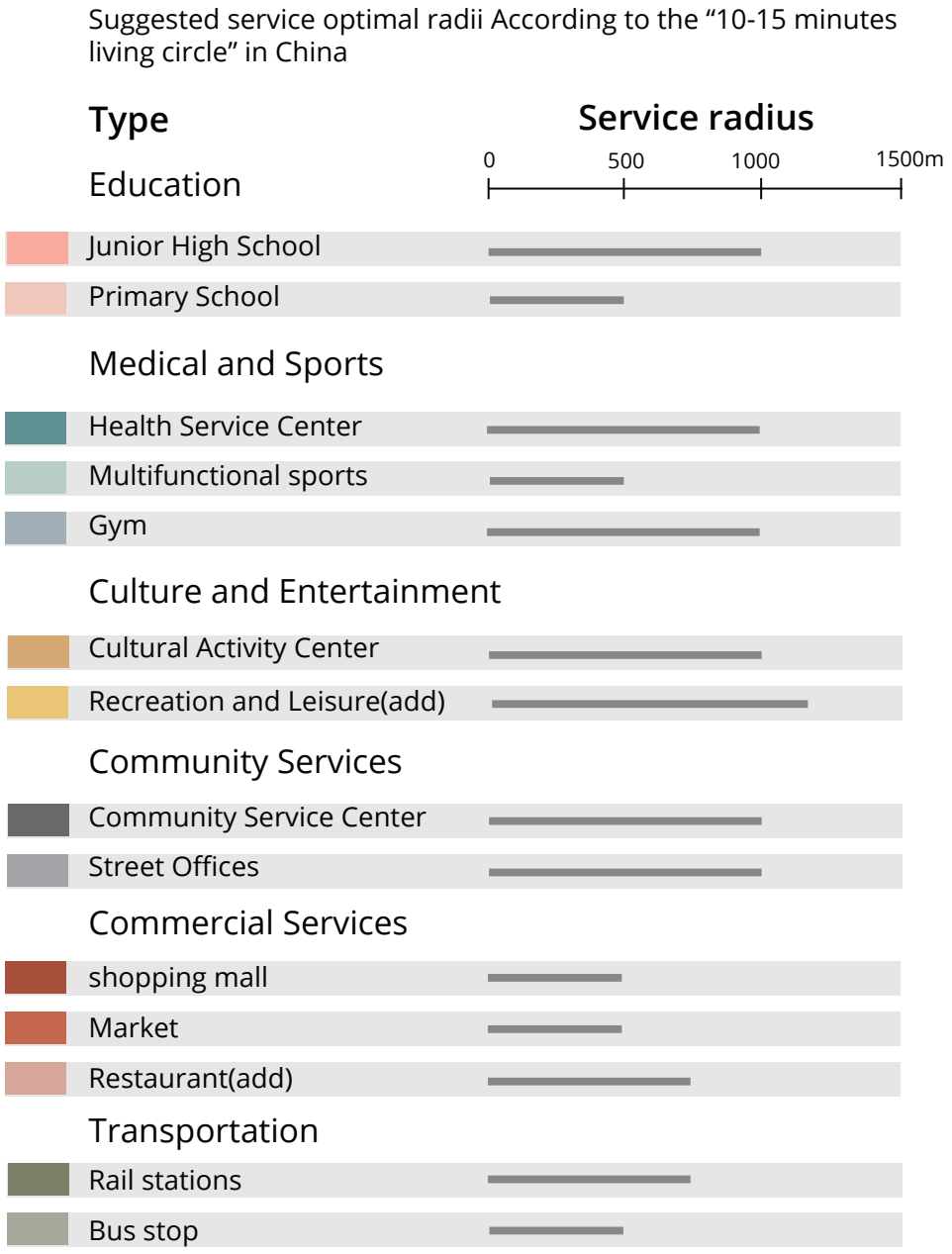


Figure 100 Suggested service optimal radii according to the principle of "10-15 minutes living circle" in China

The organization of the service radius and types of amenities in urban villages is guided by the "15-Minute Community Living Circle Guidelines" in China. These guidelines specify that the service radius should not exceed a certain number, which helps determine the minimum number of facilities required. Using this as a reference, I analyze the various types of facilities and their service coverage to better understand the range of services available.

Figure 101 Distribution of life service in neigborhood area, data source:Baidu map,self-drawing

The commercial area around the station and the urban village area near the commercial area are generally rich and well-equipped. The lack of facilities inside the urban village compared to the outside indicates that the demand inside is far less than outside. Therefore, in the subsequent development and renewal, it is necessary to consider enriching the number and types of facilities inside the urban village.

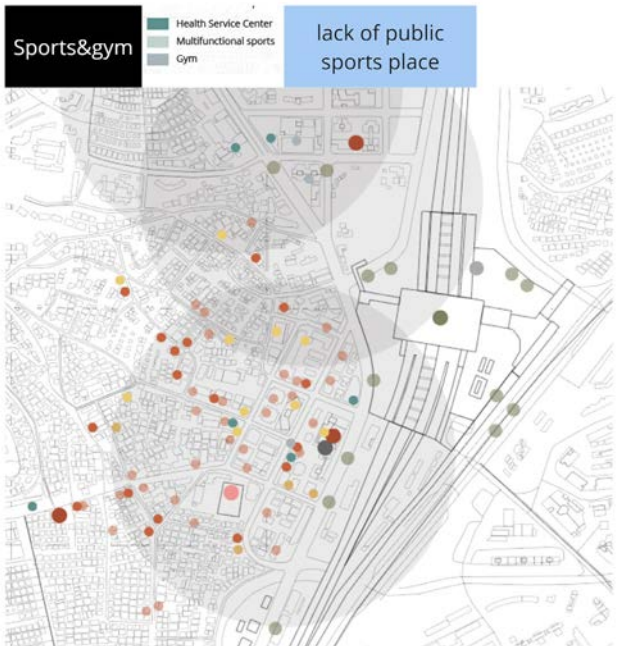
Analysis-Neighborhood scale

Life service

According to the standard of 15-minute living circle, the distribution and service scope of different types of living facilities are drawn according to the radius and classification of the current situation.

Throughout the site, the urban village lacks adequate sports facilities to cater to the community's needs. In future regeneration plans, considering their types and distribution, priority should be given to improving sports facilities.

Medical facilities across the site are relatively comprehensive and can be further enhanced with diversified services in subsequent developments.While the site boasts abundant and diverse commercial facilities, the urban village itself lacks commercial services due to limited commercial development, resulting in homogeneity. Efforts should be made to address this disparity and promote commercial growth within the urban village.The site benefits from various transportation services, including stations and bus stops, contributing to convenient traffic flow. Community services primarily concentrate in the commercial area near the station, while the urban village lacks street offices. Future considerations should include adding and enriching street offices within the urban village.



Educational facilities within the site are relatively well-developed, as there is no industrial development. Therefore, educational facilities speciPcally geared towards technical training

In general, the facilities of the focused neighborhood basically meet the daily living needs. But there is a need to increase diversity and richness if flexibility and resilience in the face of future changes is to be realized.

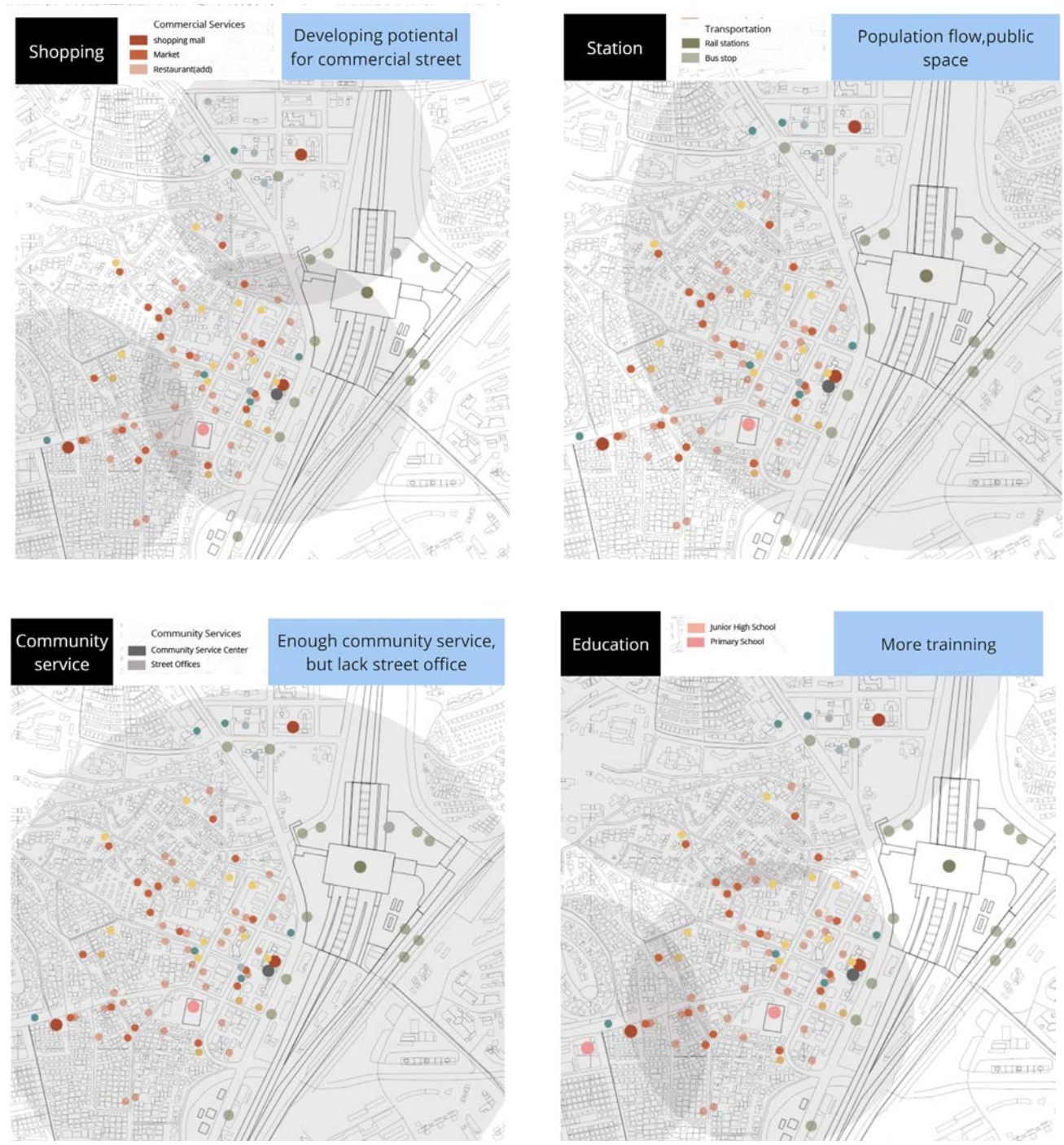
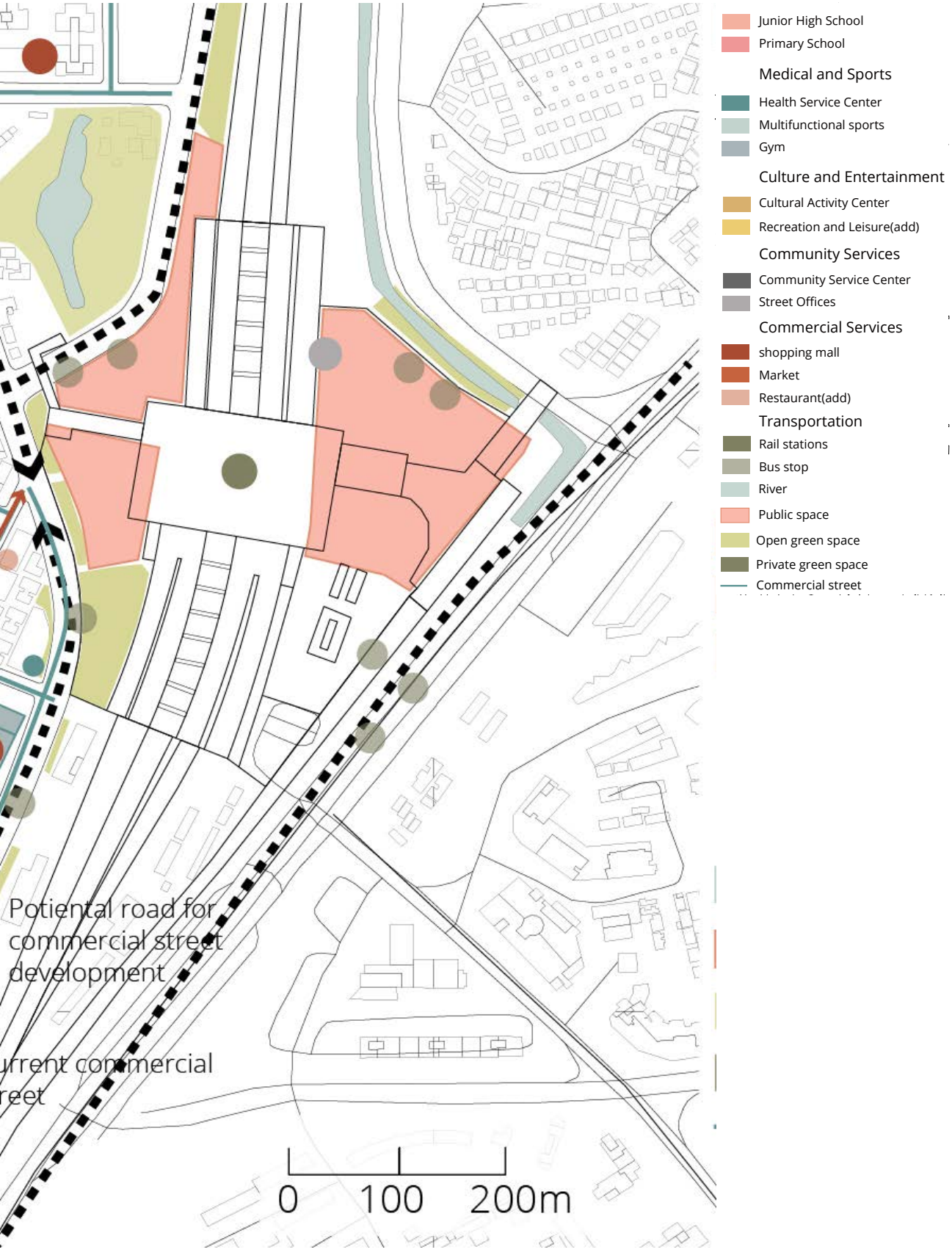


Figure 102 Distribution and service radius of different facilities, data source:baidu map,self-drawing

Conclusion

Figure 103 Conclusion of area scale analysis, selfdrawing

At the neighborhood scale, it is crucial to align with the previous scale's development direction, which emphasizes the area surrounding the station. The station and commercial street can serve as an opportunity to guide the development towards the interior of the urban village.



Additionally, some fragmented public spaces within the urban village require integration and connectivity in the design process. This development can be coupled with improving facilities, thereby driving the micro-regeneration and development of the urban village.

Analysis
Summary

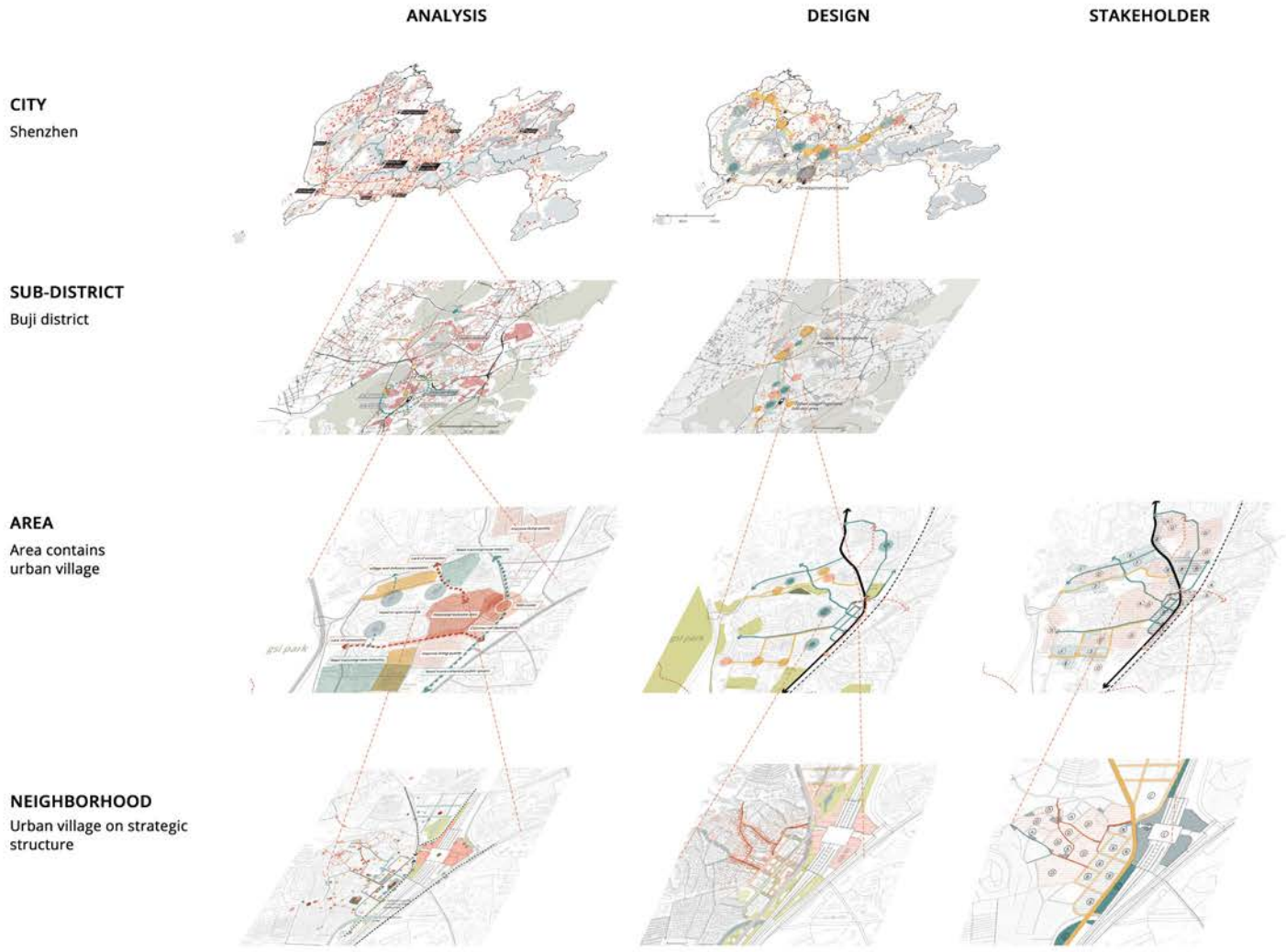


Figure 104 Overlap of different scales conclusion map, selft-drawing

Structure

Transportation: Lack of transpotation connection from former special economic zone to the outside area

Housing:Lack of housing opportunities, urban village on the development structure face more pressure

Service: Life service ouside the former SEZ are not adequate

Industry and education: Job opportunities and training need to be developed from south to north.

Transportation: Lack of transpotation connection from South to north

Housing:More urban villages in the south area near the former second line

Service: Lack of enough service

Industry and education: The north part has better industrial base

Transportation: Lack of transpotation connection in urban village neighborhood and different community

Housing:urban village near station has more potential

Service: Lack of enough service in urban village

Industry and education: There is potential for combine education and industry

Transportation: Use the transportation to connect fragmented space

Housing:Choose different buildings for regeneration

Service: Lack of enough service, especially sports place and open green space

Industry and education: There is potential for combine education and industry

Strategic composition

Area facing with more devepoment pressure: Longgang district- Buji sub district

Area facing with more devepoment pressure: areas that near the station

Area facing with more devepoment pressure: areas that near the station

Different spatial bases have different development possibilities for living.

STRATEGY&DESIGN

In the design and strategy section, the design process is grounded in the conclusions drawn from the analysis chapter, which encompasses various scales. The initial step involves formulating an overarching strategy to guide the design, considering the current conditions across different scales and the interconnections between them. The primary focus is on the neighborhood design, which entails incorporating resilience and adaptive regeneration elements. This section will outline the thoughtful considerations made in this regard.

Figure 105 Nantou urban village in Shenzhen after micro-regeneration, photo by "Urbanus"

Strategy aspect

The logic of the design and strategy part is to analyze and design the issues related to housing, public space, facilities and migrant through adaptive regeneration in order to achieve integration, flexibility, diversity and equality. The strategy takes these fthe goals as the starting point and guides the design.

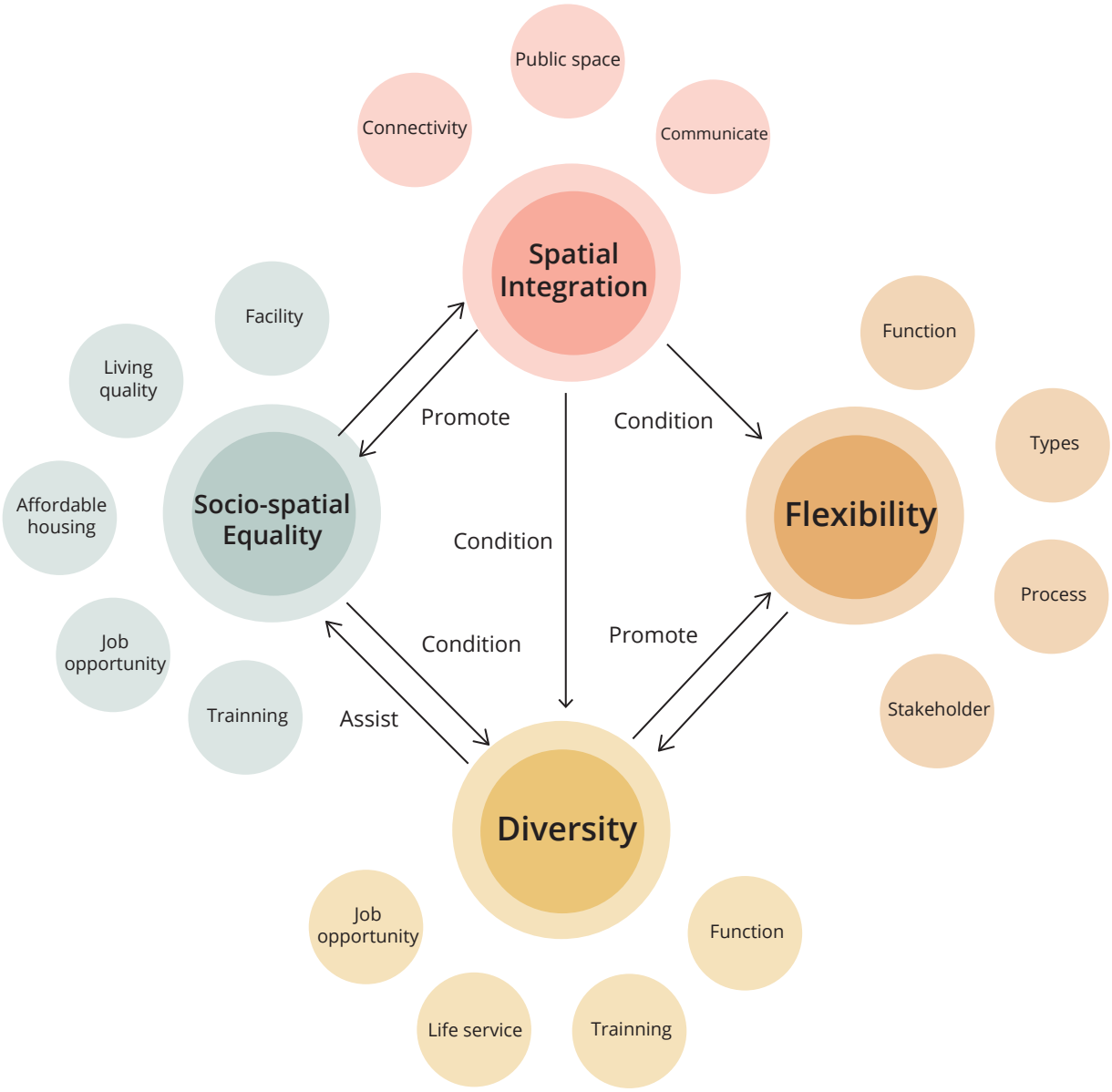


Figure 106 diagram of strategy aspect , self-drawing

Strategy

Spatial Integration

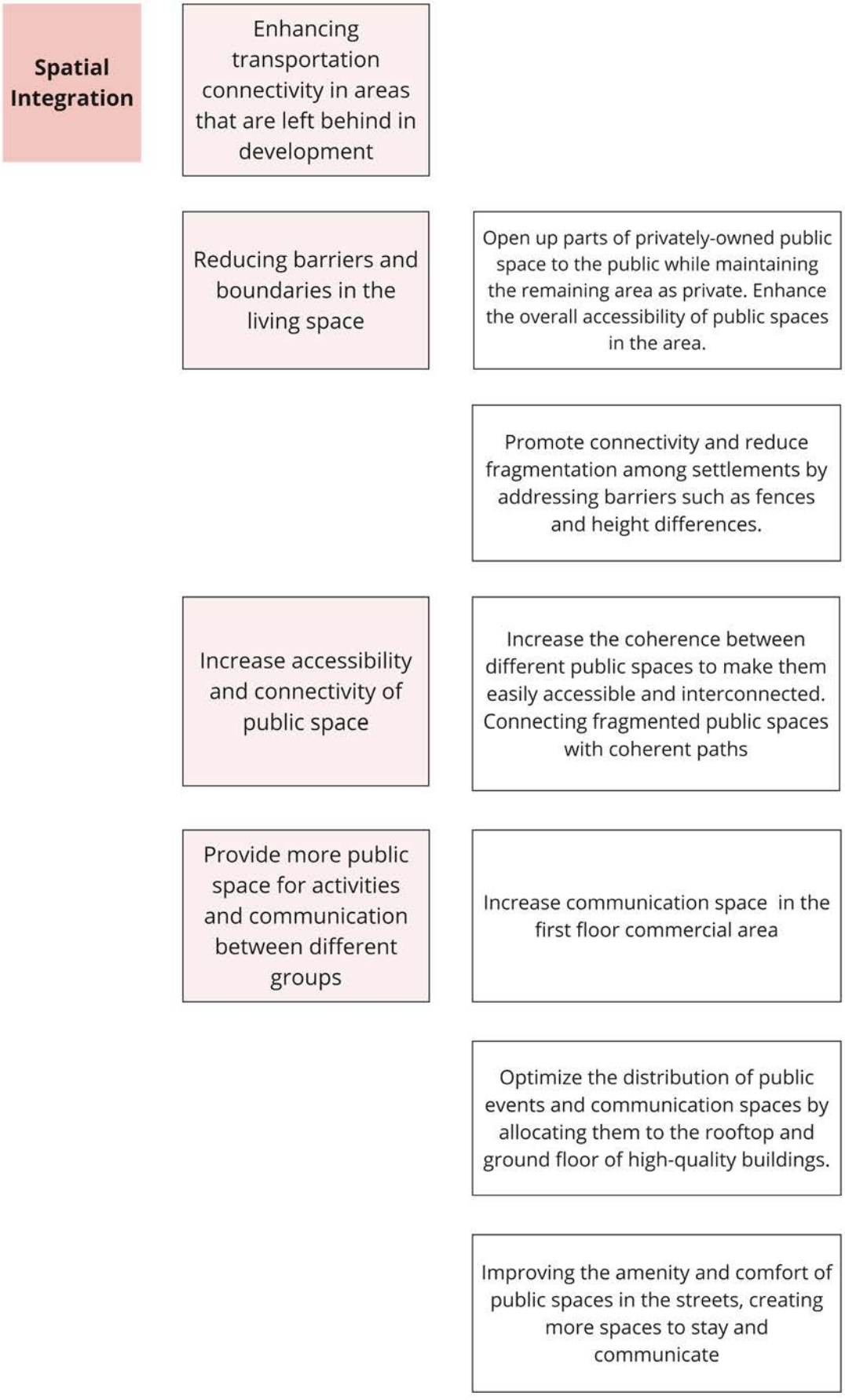


Figure 107 Strategy of spatial integration , self-drawing

Strategy

Socio-spatial equality

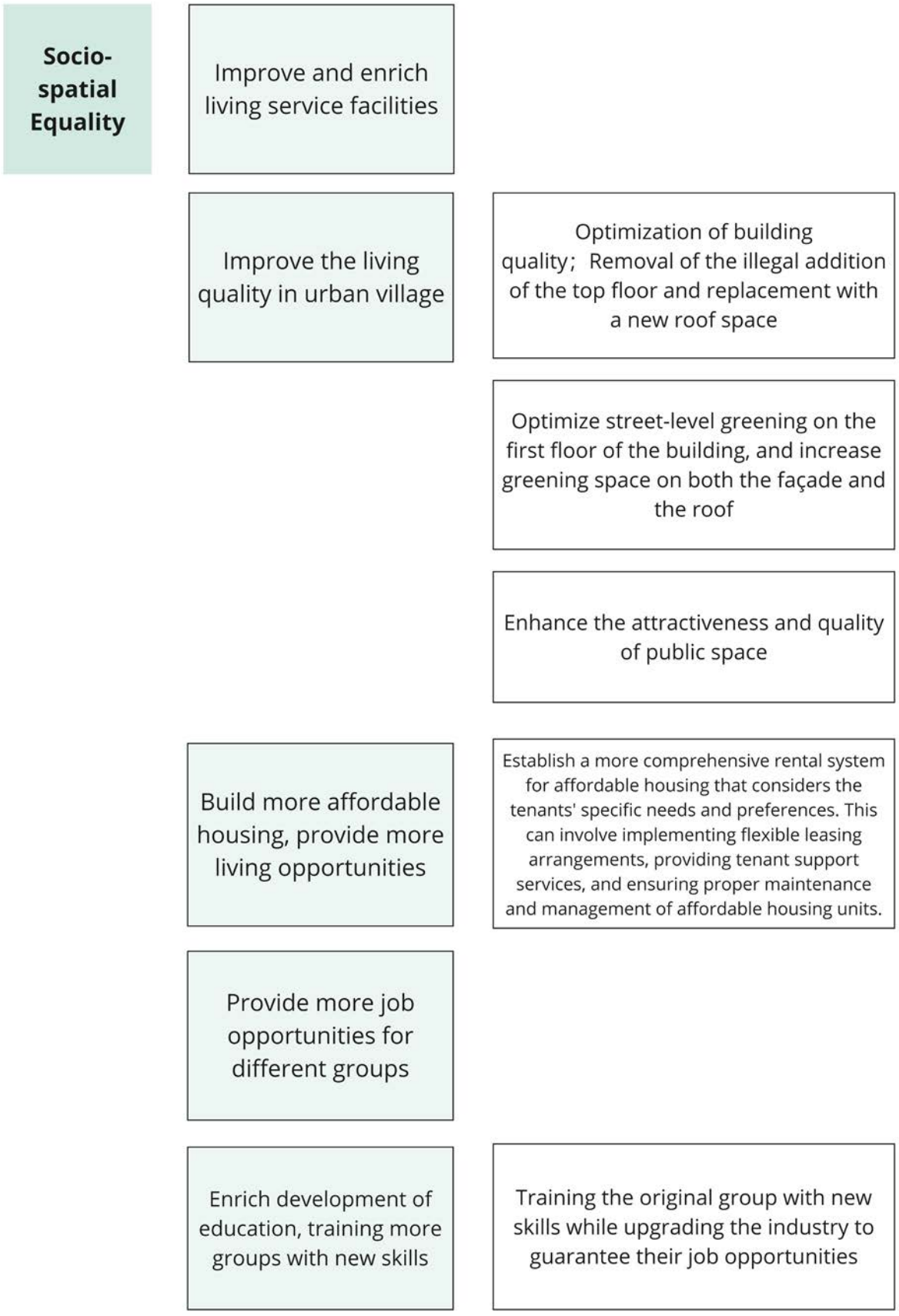


Figure 108 Strategy of diversity and flexibility , self-drawing

Strategy

Flexibility and diversity

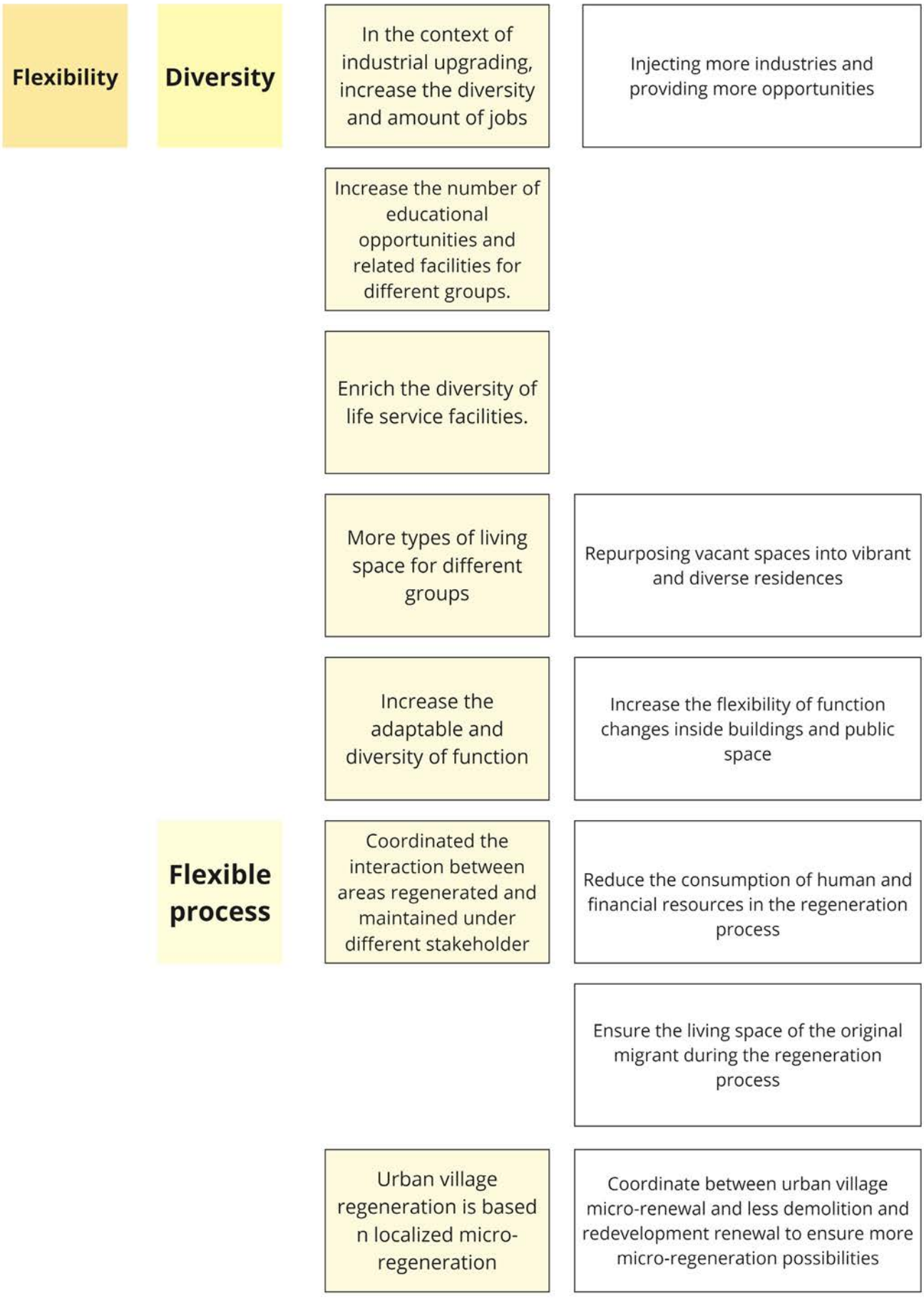


Figure 109 Strategy of diversity and flexibility , self-drawing

Design
City-strategy

At the city scale, integration and equality are mainly focused through planning. In the previous analysis, the areas lacking living services and educational facilities, transportation connections, and job opportunities at the city scale have been summarized. Therefore, the design of city scale is more about the design of the structure to guide the development of other scales. In addition, it guides the development direction of the urban village area, which is located in the development structure.

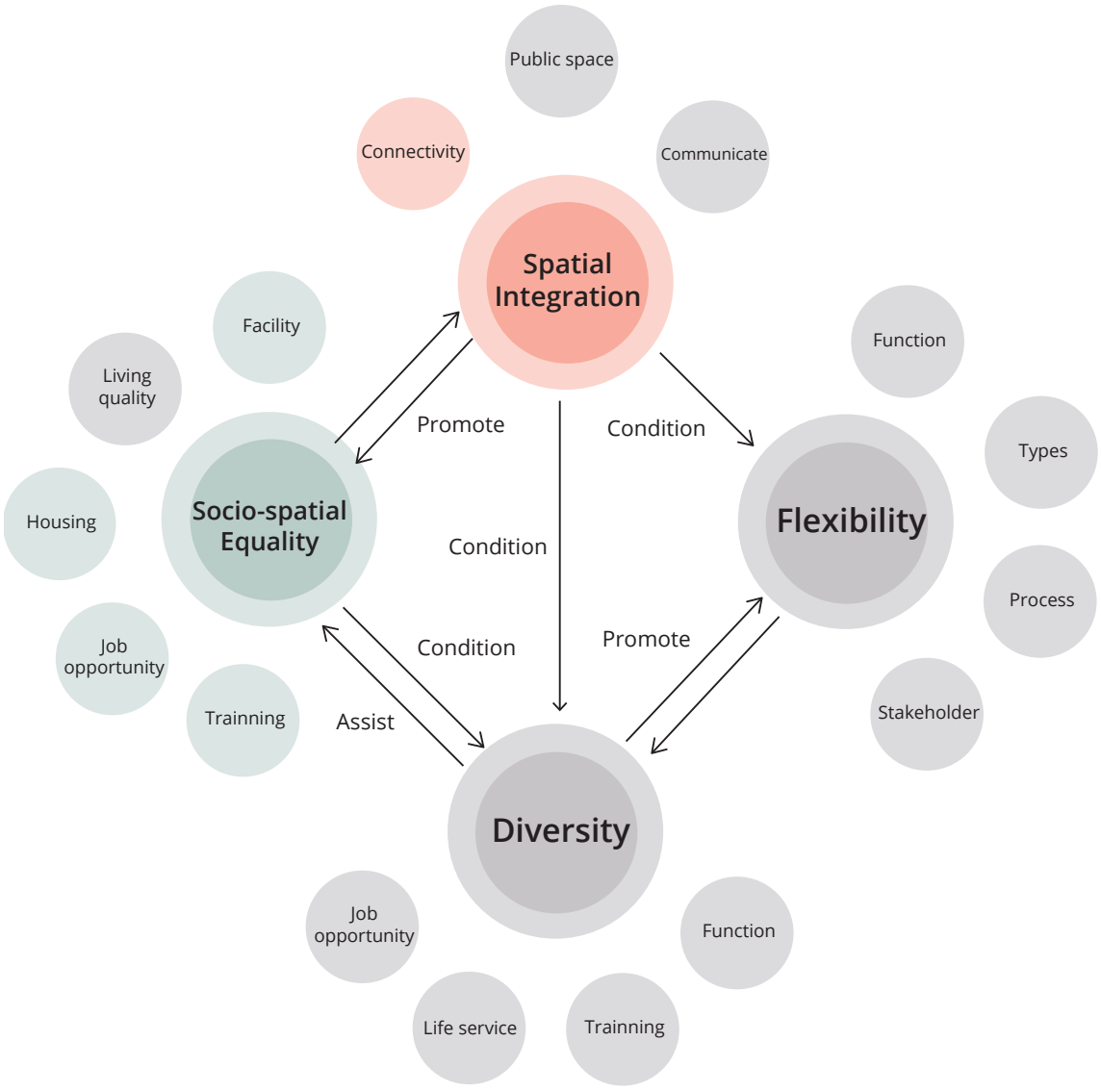


Figure 110 diagram of strategy aspect in city scale, self-drawing

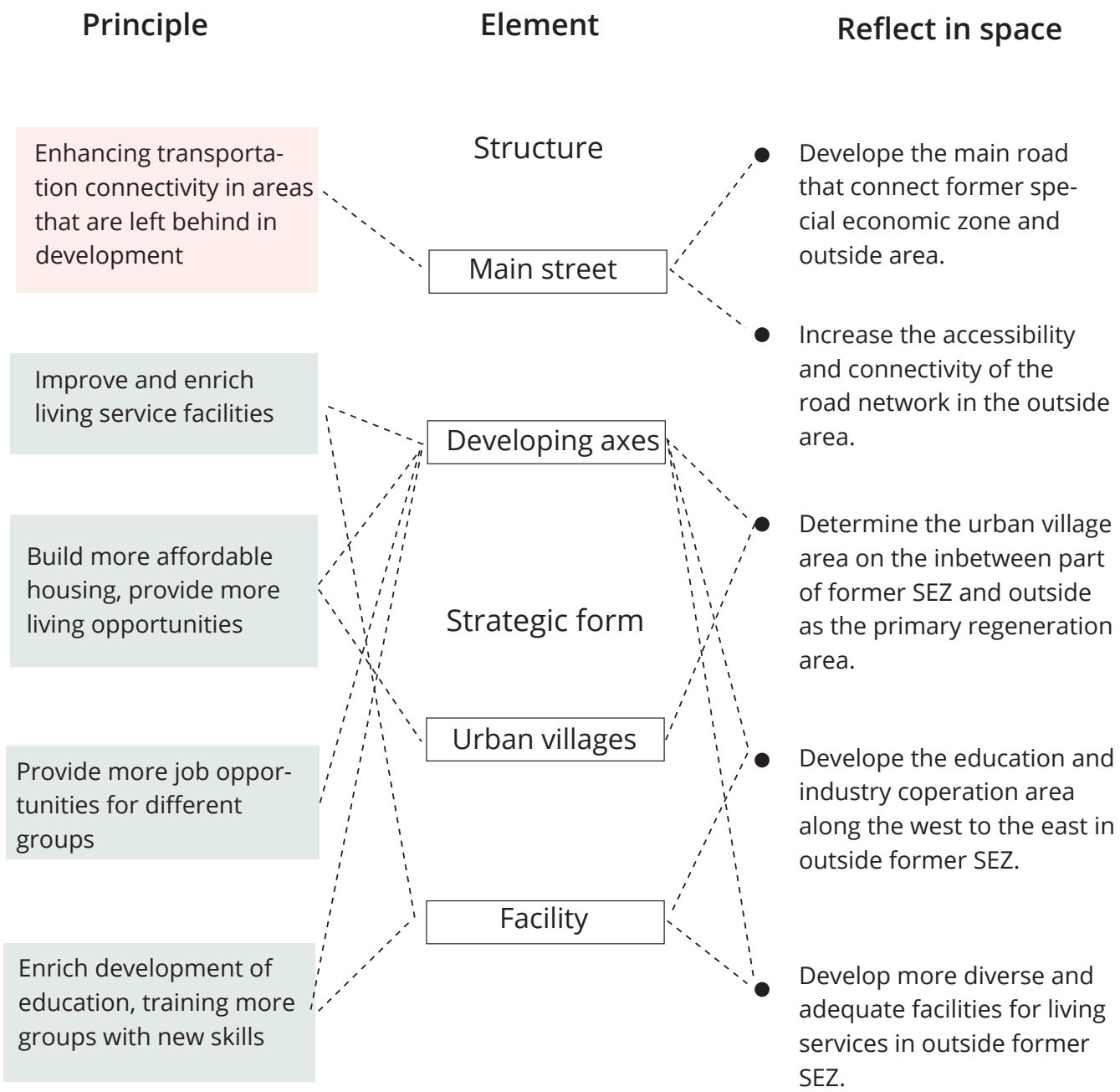
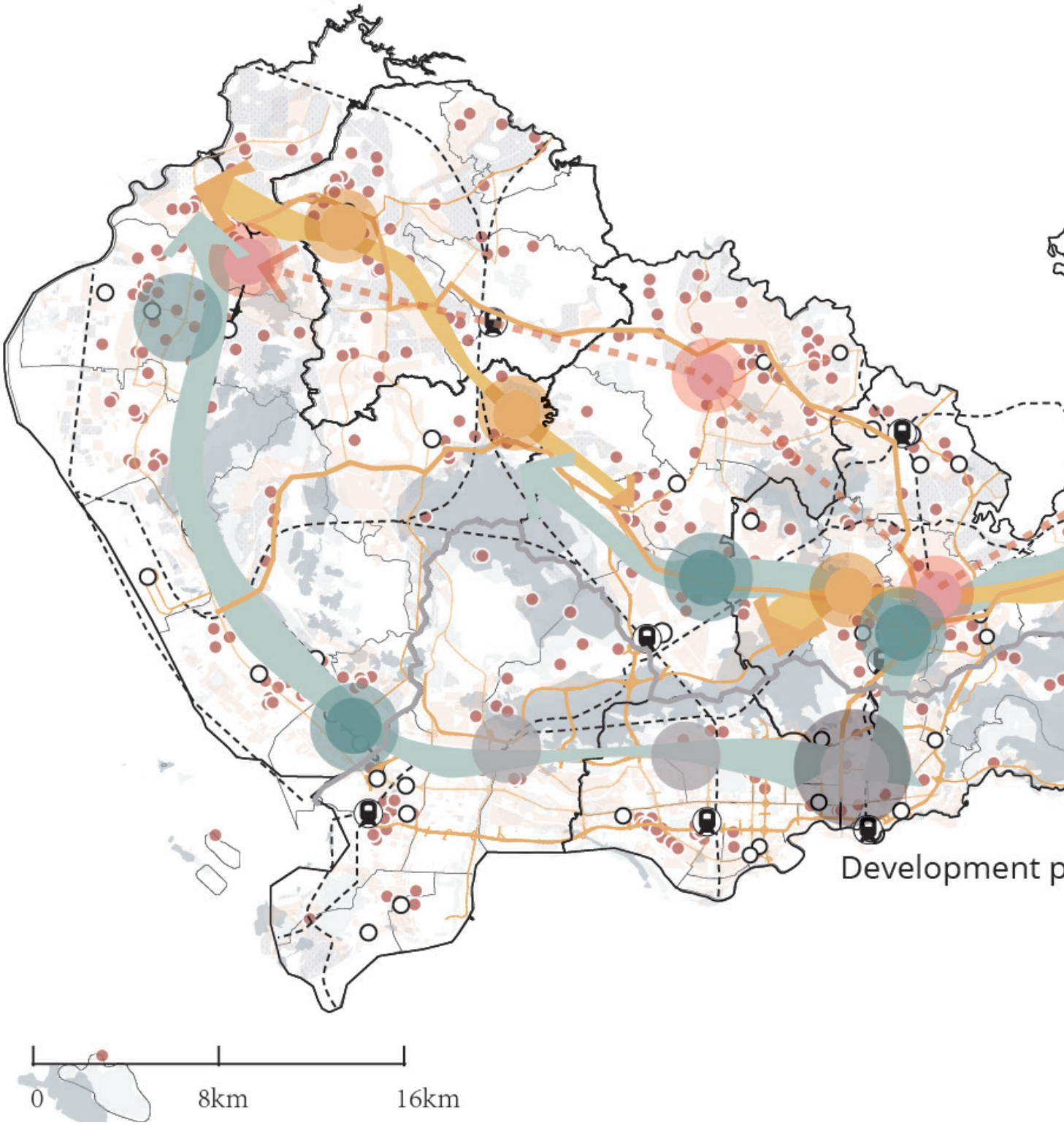


Figure 111 diagram of principles in city scale, self-drawing

Vision



The city-scale vision proposal encompasses several key elements. Firstly, it emphasizes the development of a major transportation axis stretching from Luohu District through Longgang District and connecting to other districts. This initiative aims to enhance transportation connectivity and accessibility, thereby promoting balanced development across different areas and addressing the issue of uneven growth. Secondly, the plan aims to alleviate residential pressures within the former Special Economic Zone

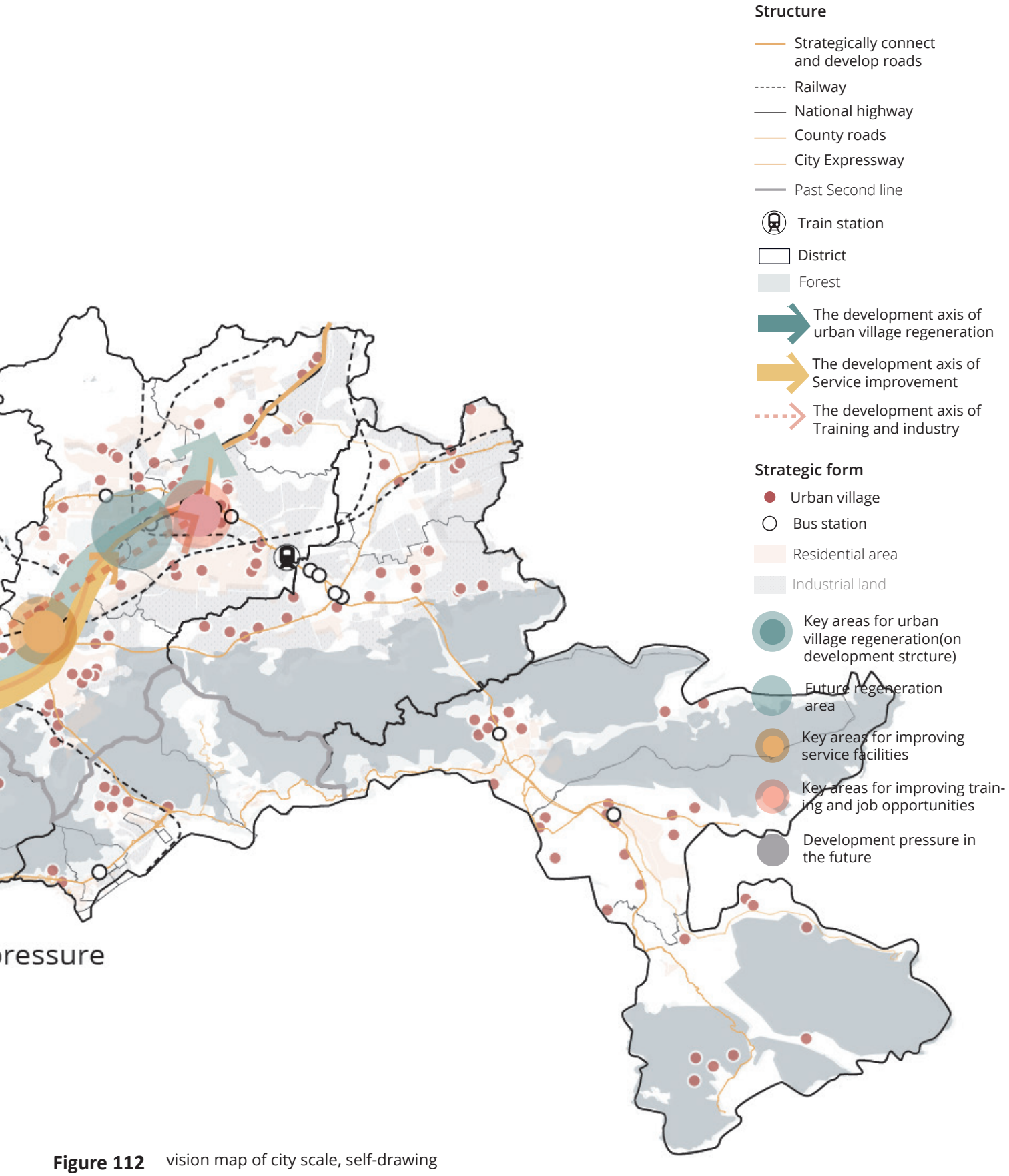


Figure 112 vision map of city scale, self-drawing

by redirecting them outward. This will be achieved through urban regeneration initiatives focused on major urban villages located at strategic development junctions. The objective is to implement micro-regeneration projects at a smaller scale while effectively mitigating residential pressures. Thirdly, Longgang District will be positioned as the central hub for east-west development. This will involve enhancing living service facilities and integrating educational and industrial functions. By doing so, the overall quality of life in the region will be elevated.

Design

Sub district-strategy

At the sub-district scale, the development axis and main development direction of the city are taken into consideration on one hand, while on the other hand, more specific areas are selected for subsequent development and guidance. The focus of this scale is to connect and coordinate the relationship between large and small scales, and to provide space for interacted development across different scales. The emphasis is on identifying areas where synergies can be created and ensuring that development efforts are aligned with the overall vision for the city. By doing so, the sub-district scale can play a critical role in enabling the city to achieve its broader goals and objectives

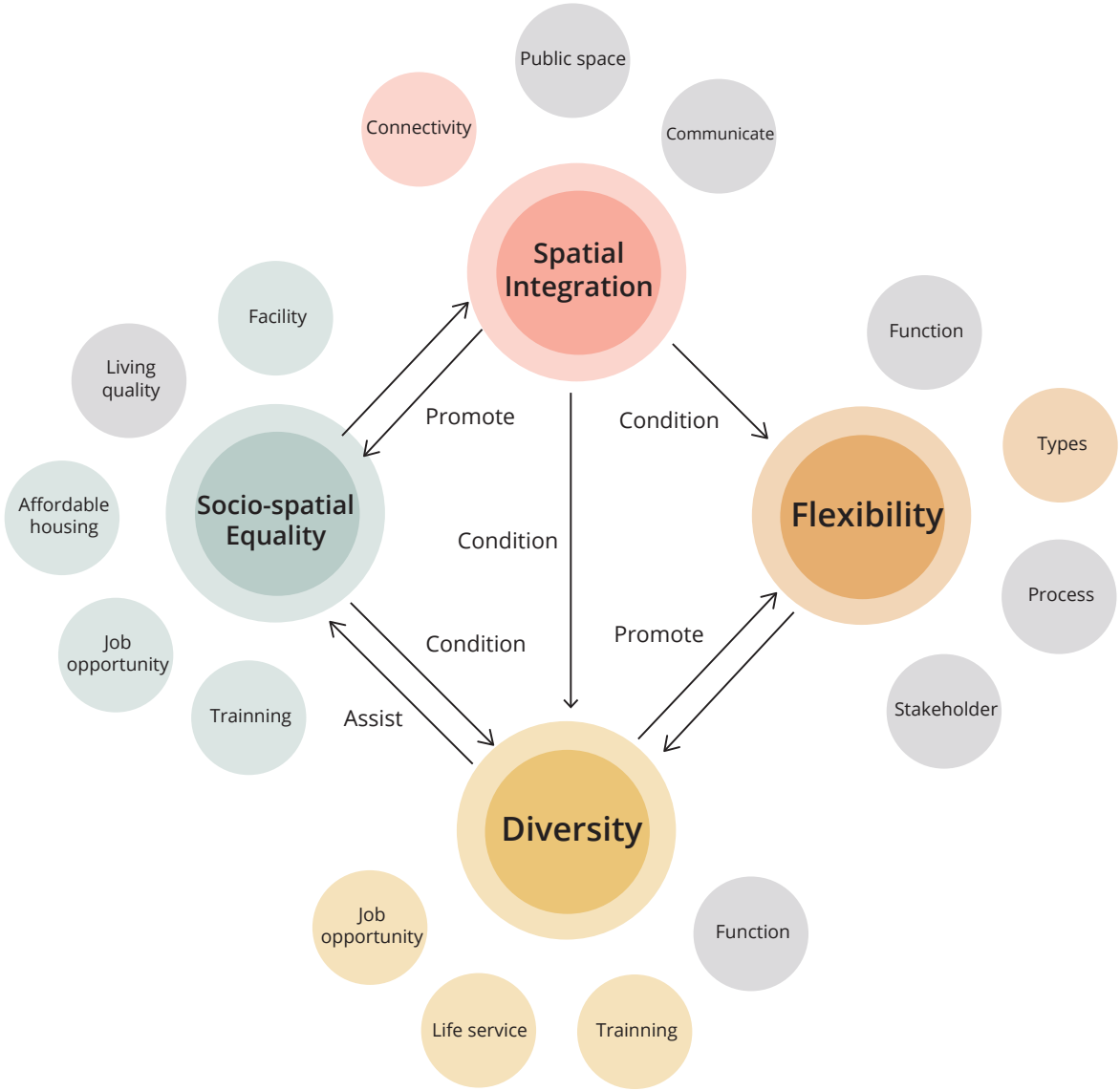


Figure 113 diagram of strategy aspect in sub district scale, self-drawing

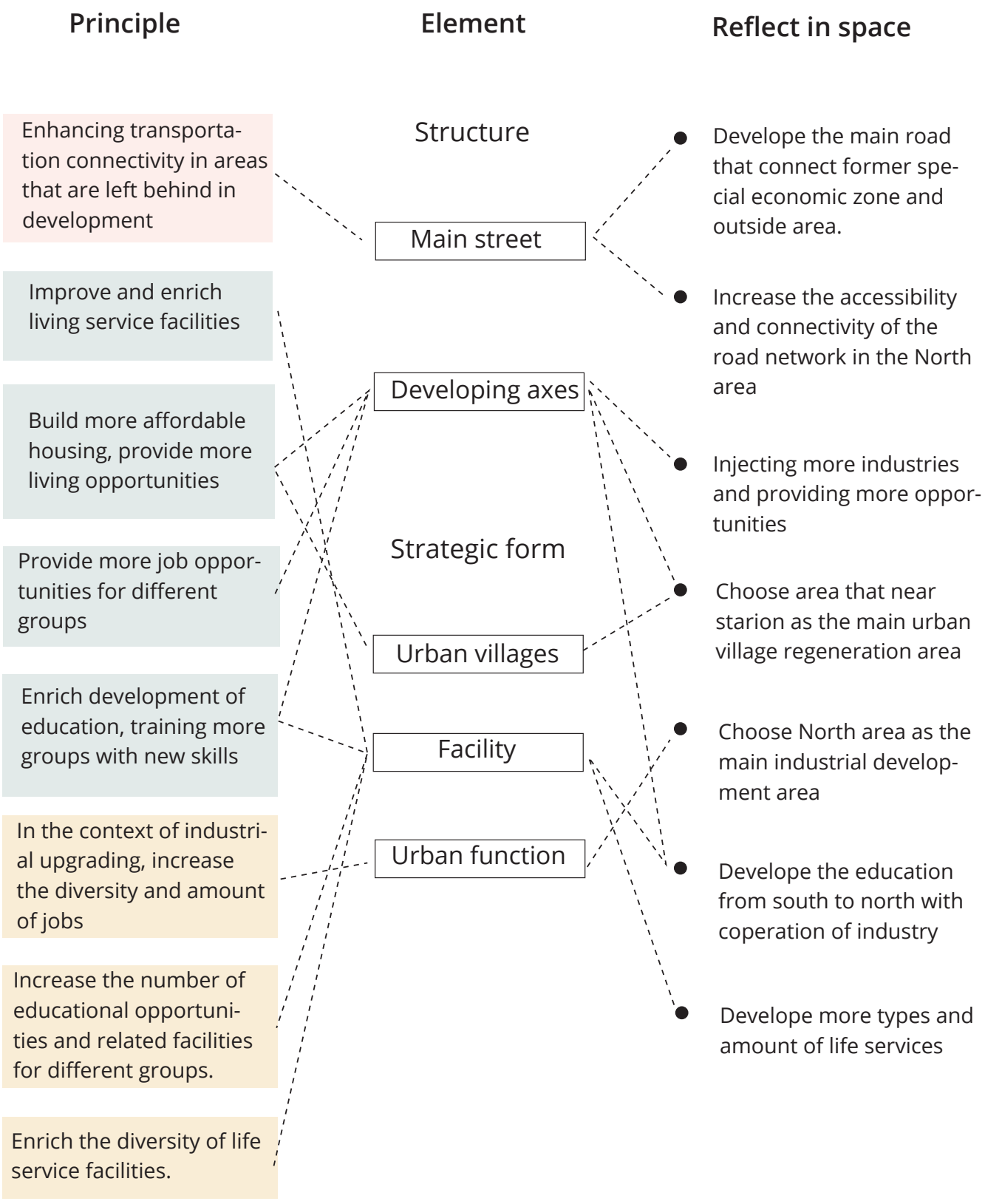


Figure 114 diagram of principles in sub-ditrict scale, self-drawing

Design-sub district
Vision

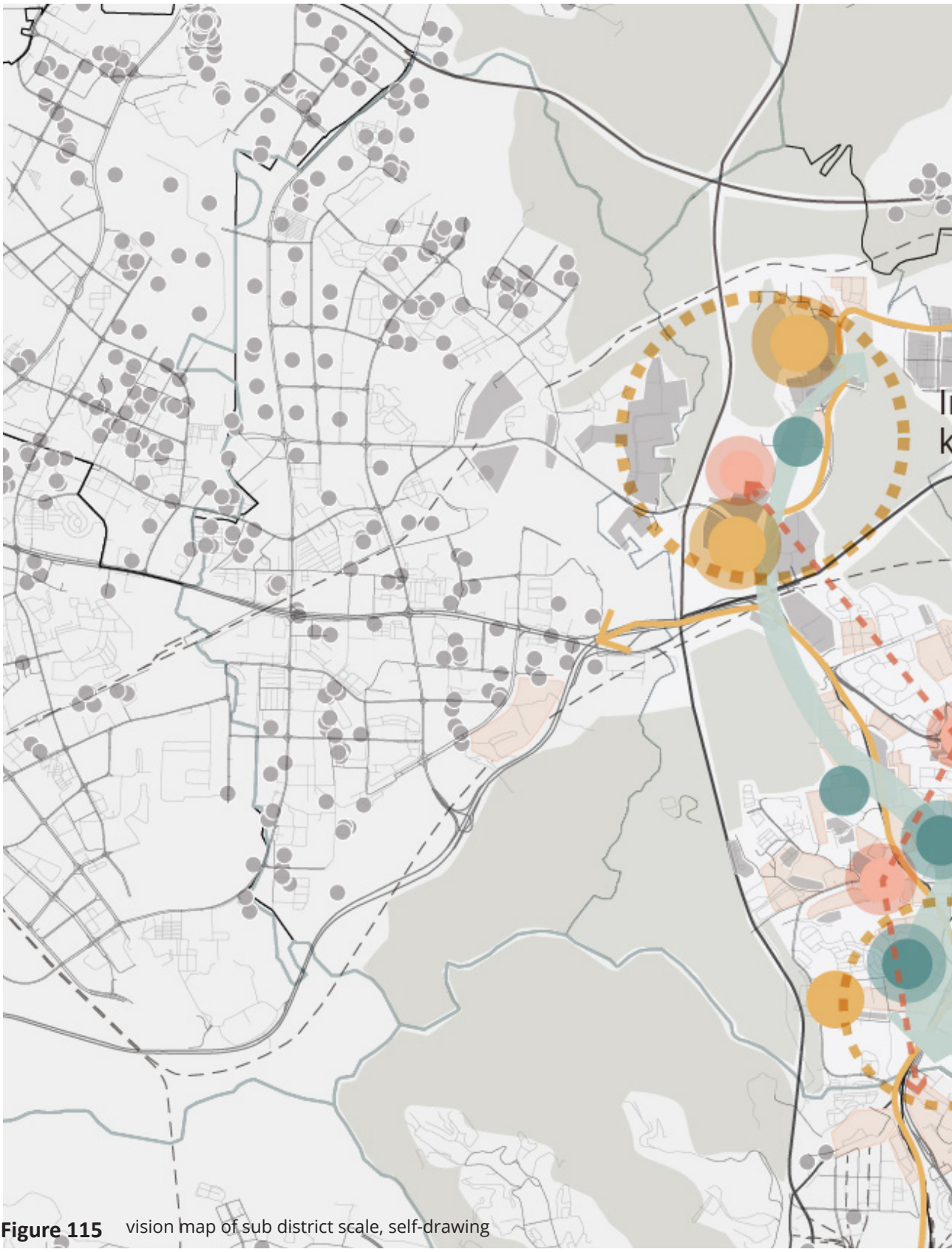
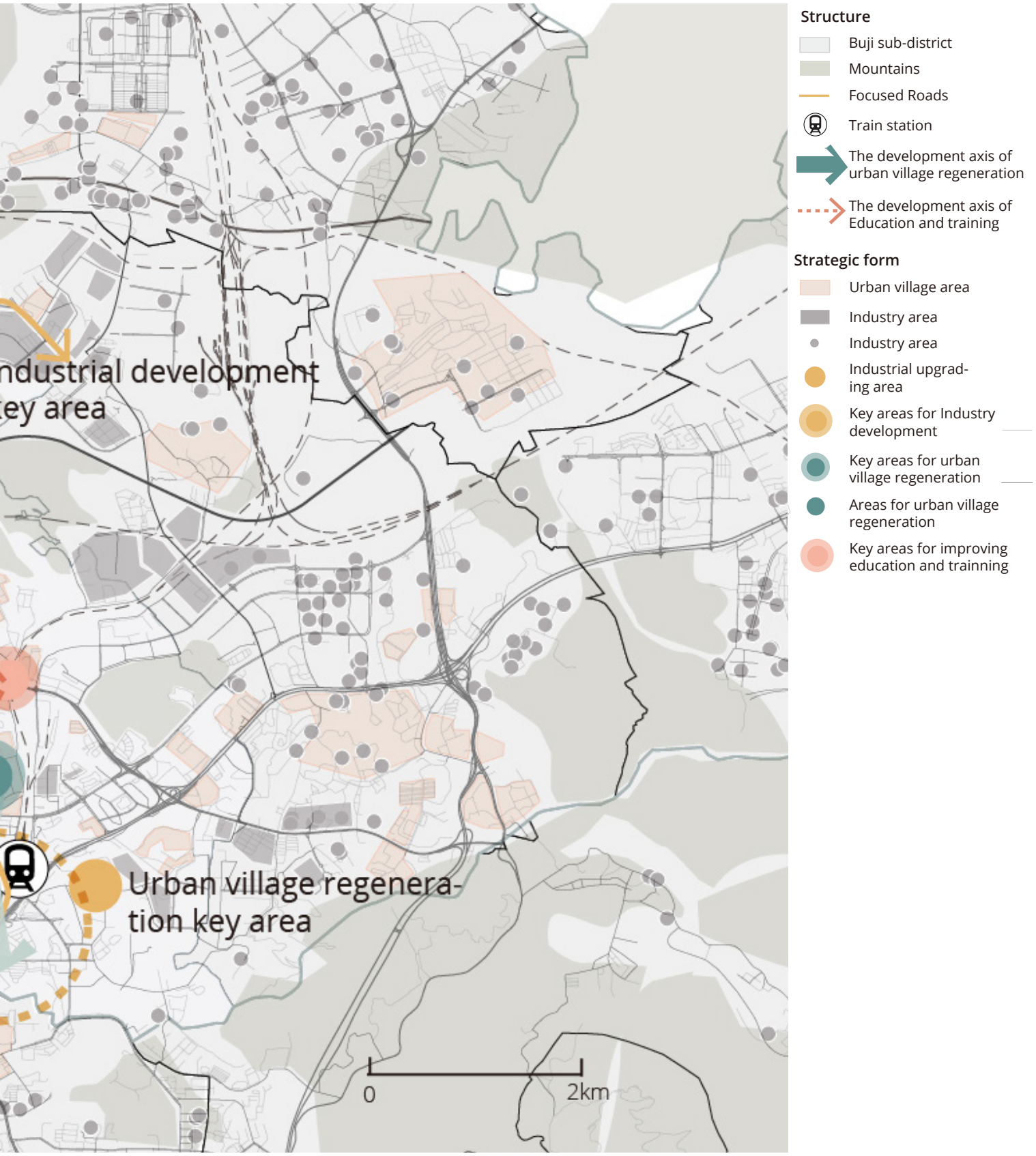


Figure 115 vision map of sub district scale, self-drawing

At the sub-district scale, the primary objective of the vision plan is to coordinate interactions between different scales. The plan achieves this by firstly aligning with the main development direction from the city scale, which involves connecting traffic development in the north and south of Buji district. In the south, where there are more urban villages and better transportation conditions, the plan focuses on exploring opportunities for urban village regeneration. In the



north, which boasts a strong industrial base, the focus is on industrial upgrading and creating more job opportunities. The overall structure of the area consists of two core development areas, one in the north and one in the south, with the development axis connecting the two. By leveraging the strengths of these areas, the vision plan aims to create a more balanced and adaptable development framework that supports the goals of the city

Area-Strategy

At the area scale, the focus is on the integration of smaller scales within a larger structural framework. The development of strategic composition is pursued under the structural guidance of the crossing scale. Specifically, the design of spaces and roads within the urban village is addressed at this scale. Additionally, stakeholder analysis of the various neighborhoods involved in the regeneration process is conducted to ensure their needs are satisfied. Furthermore, there is a concerted effort to explore affordable housing provision models for urban villages. In summary, at the area scale, a comprehensive approach is taken to address the various components of urban regeneration, including design, stakeholder engagement, and affordable housing provision.

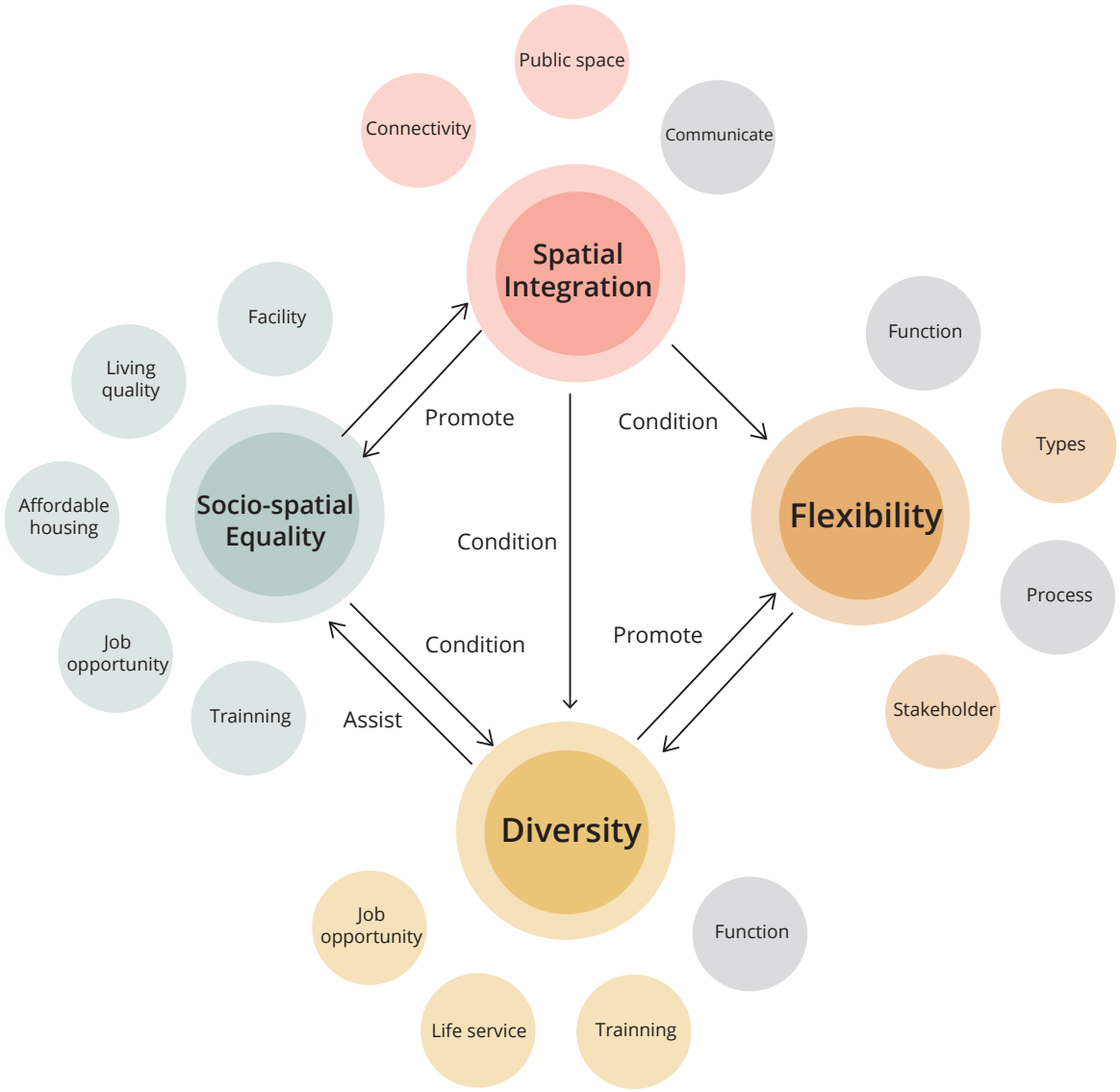


Figure 116 diagram of strategy aspect in area scale, self-drawing

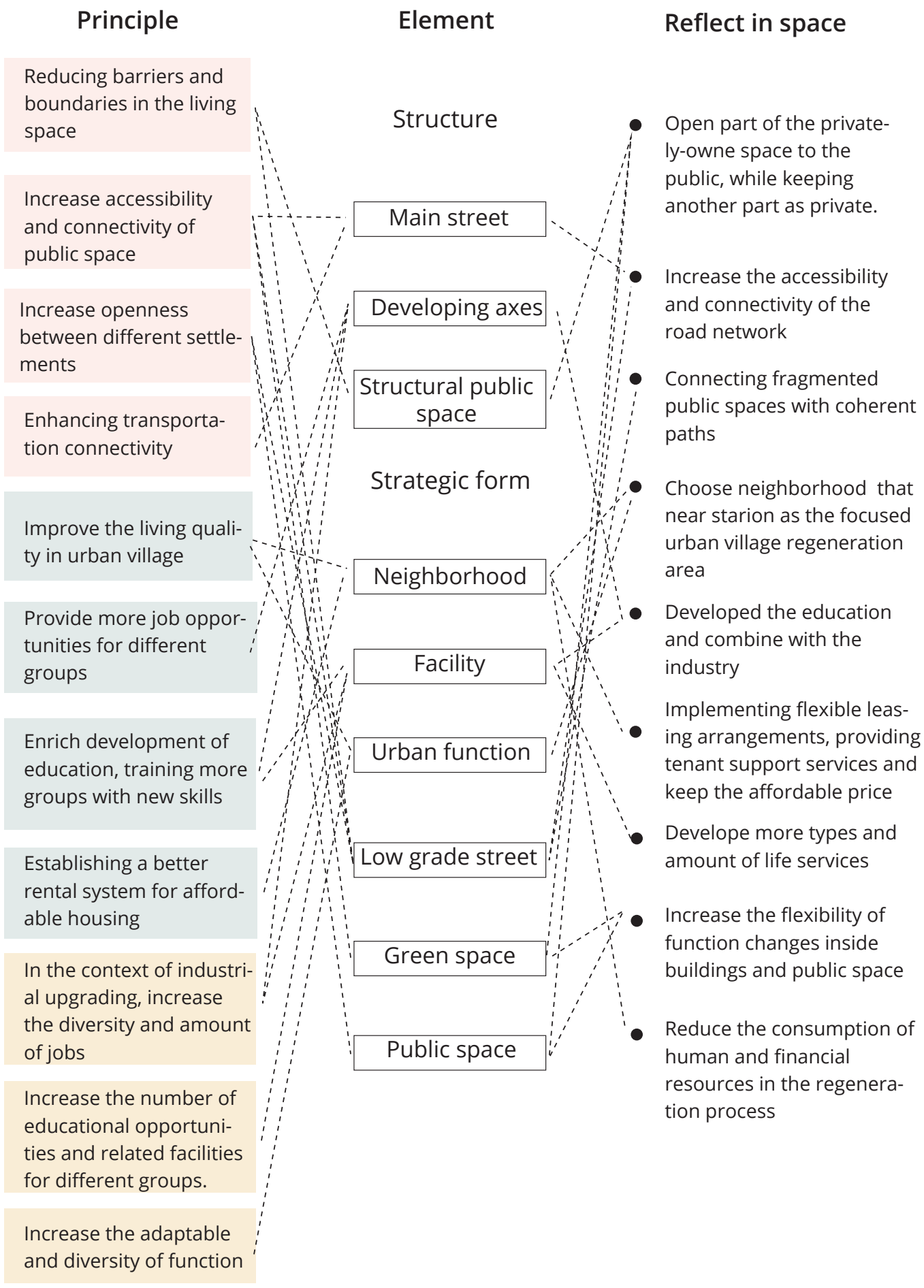


Figure 117 diagram of principles in area scale, self-drawing

Stakeholder-Area

New mode for micro regeneration

In the process of providing affordable housing, the sustainable regeneration practice model of Huanghe Urban Village, combined with the current situation of Buji First Village and its surrounding area, has served as the basis for a new housing provision model under micro-regeneration. This model is intended to be implemented in urban villages across the project's regeneration area.

Unlike traditional demolition and redevelopment, this model considers the unique local conditions and is executed through micro-regeneration efforts. Small companies with public interest and social concerns, or companies under village collectives, are selected as the primary development groups for participation in the micro-regeneration process. Thus mitigating the risk of profit-driven developers neglecting the micro-regeneration. The village collective negotiates with the development group and establishes a continuous rental development proceeds payout to the villagers upon lease realization after future regeneration. This creates a stable subsidy source that enables the villagers to continue to reside in the area for a longer duration.

Throughout the process, experts and planning institutions act as intermediaries to coordinate the interests of the development community, the village community, the government, and the leasing company while also ensuring the inclusion of domestic migrants and their participation in the regeneration process. The government plays a crucial role in coordinating the interests of all parties, promoting developer investment through subsidies, reducing the housing costs of tenants via subsidies, and continuing to guide the area's development.

Overall, this model seeks to achieve inclusiveness for the original and new groups, providing them with more and lower-cost housing options. The government plays a central role in balancing the interests of all stakeholders to achieve this goal.

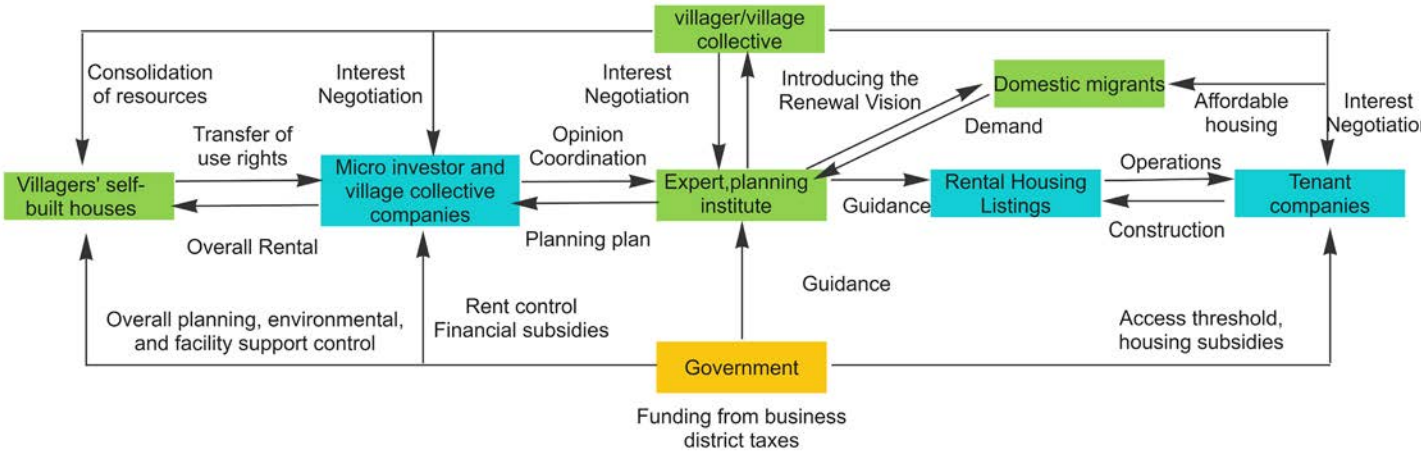


Figure 119 Micro regneration process for housing, adapted from "Sustainable Renewal Practice in Houhu Huanghe Village, Changsha"

Current regeneration power and interest

Ideal regeneration power and interest

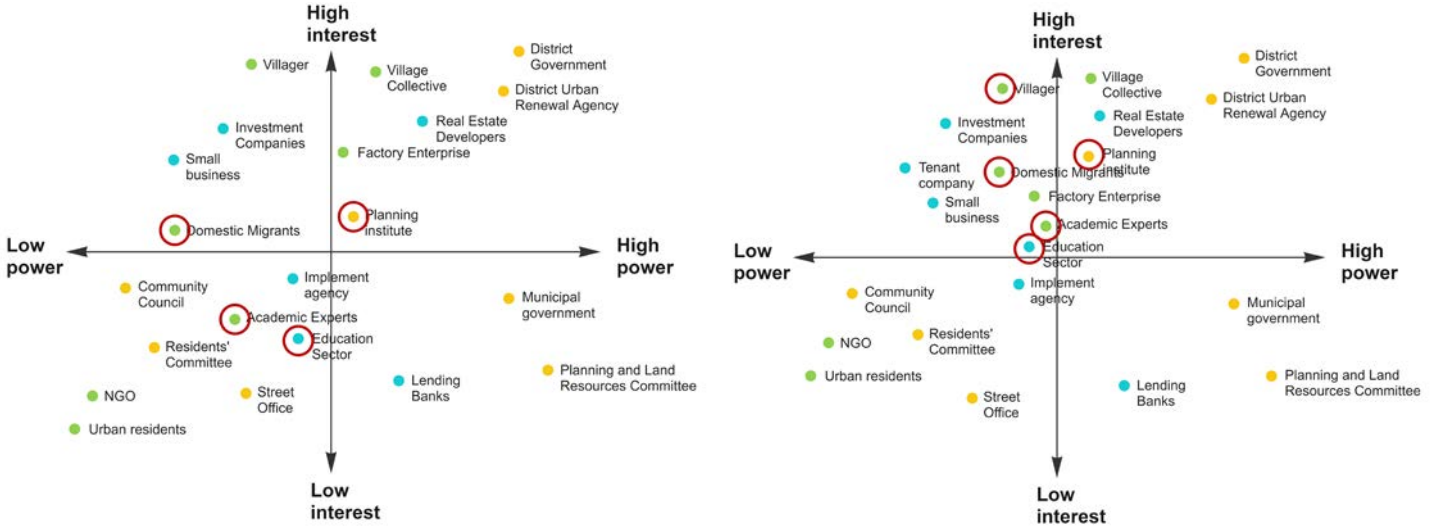


Figure 118 Current and New Stakeholder power and interest in adaptive urban village regeneration, self-drawing

Stakeholder-Area

New mode for micro regeneration

Ideal stakeholder power in the new regeneration mode

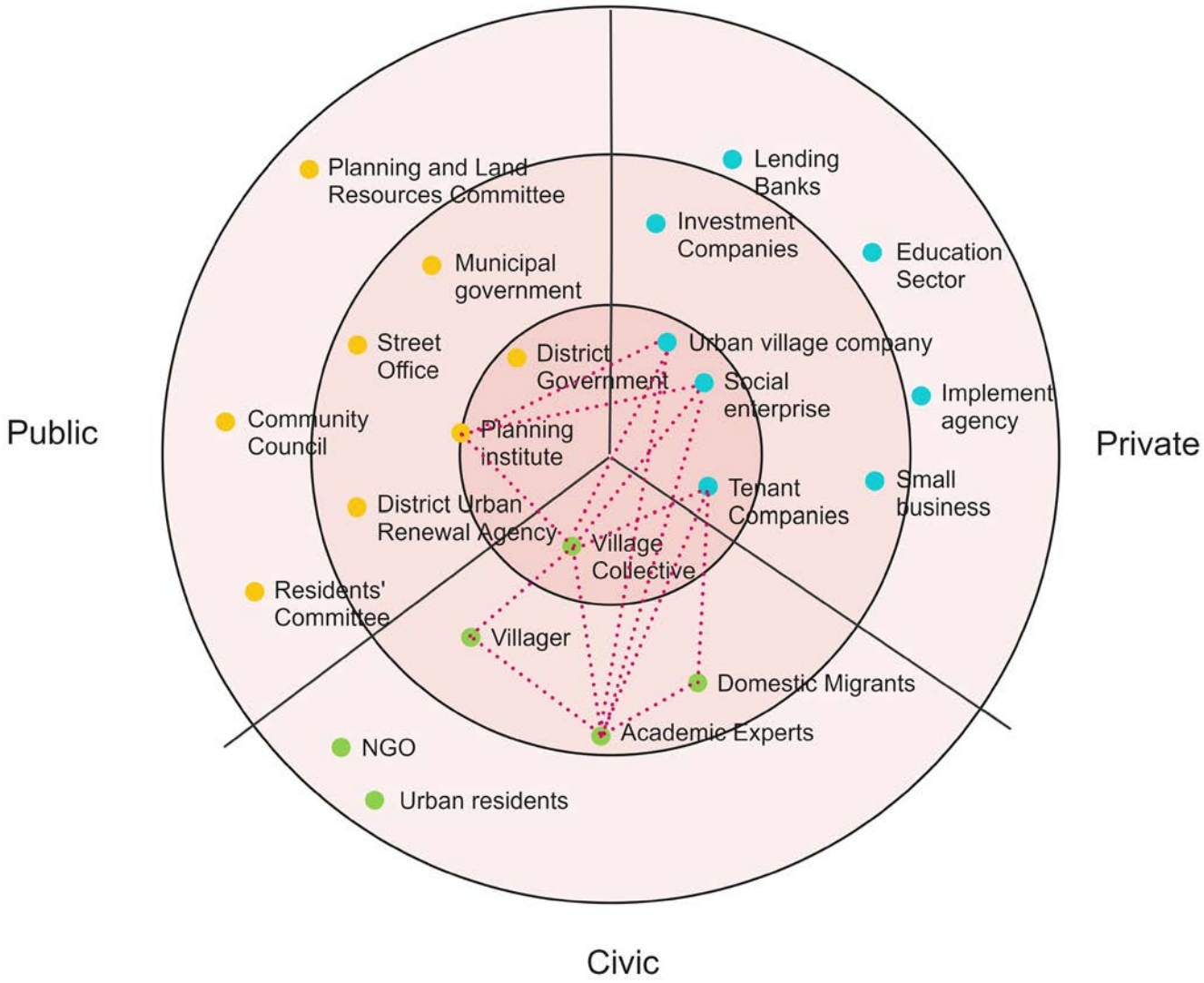


Figure 120 New Stakeholder power in adaptive urban village regeneration, self-drawing

The new stakeholder model of real estate development shifts away from the traditional approach where the real estate company holds the dominant position. Instead, various stakeholders such as the village community, government, small public interest and social companies, and companies under the village collective are involved and work together to coordinate their interests. This collaborative approach also includes the active participation of experts and planning agencies throughout the process. Importantly, the tenants of the villages, which include migrant groups, are also involved in the regeneration process. Overall, this model promotes greater inclusivity and transparency, ensuring that the interests of all stakeholders are represented and considered.

Stakeholder
Area-Buji-Current Mode for other area

Developer-led

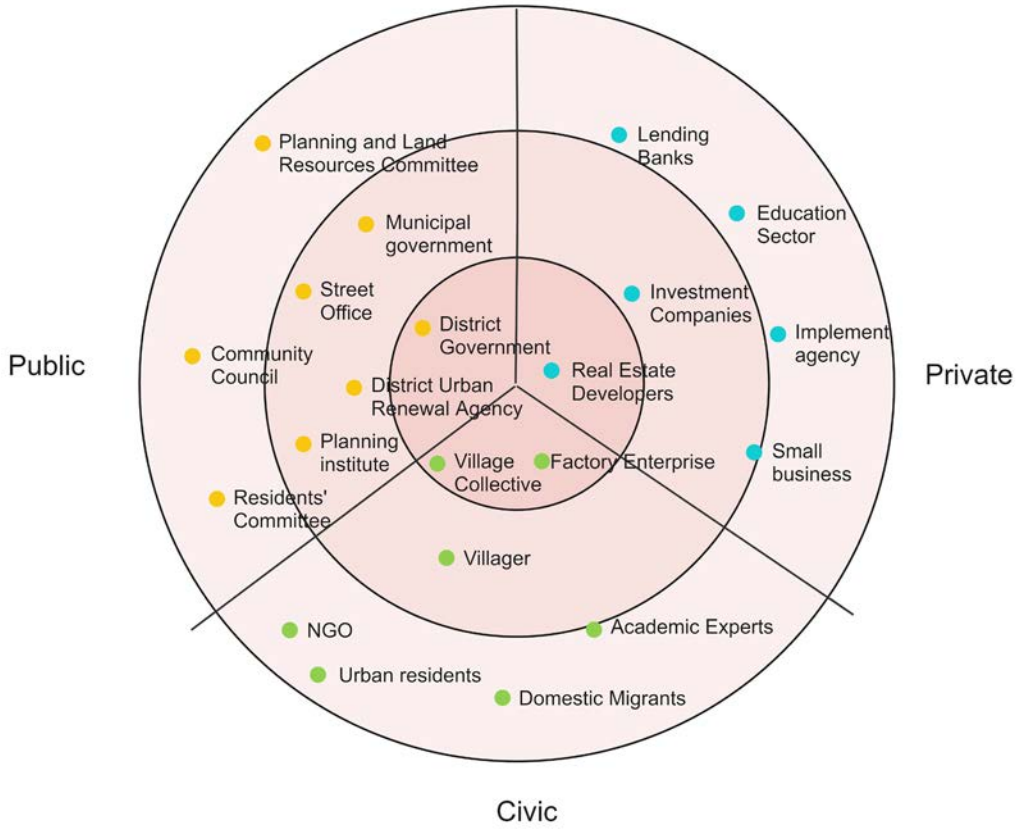


Figure 121 Stakeholder power , self-drawing

Suitable for:

Commercial area regeneration

Industry regeneration

Demolished and rebuilt urban village regeneration

In this case, profit is the active driver of regeneration process. Developers are the main driving power for the regeneration of commercial areas. Industrial companies are the main driving power for the regeneration of old industrial areas.

Government-led

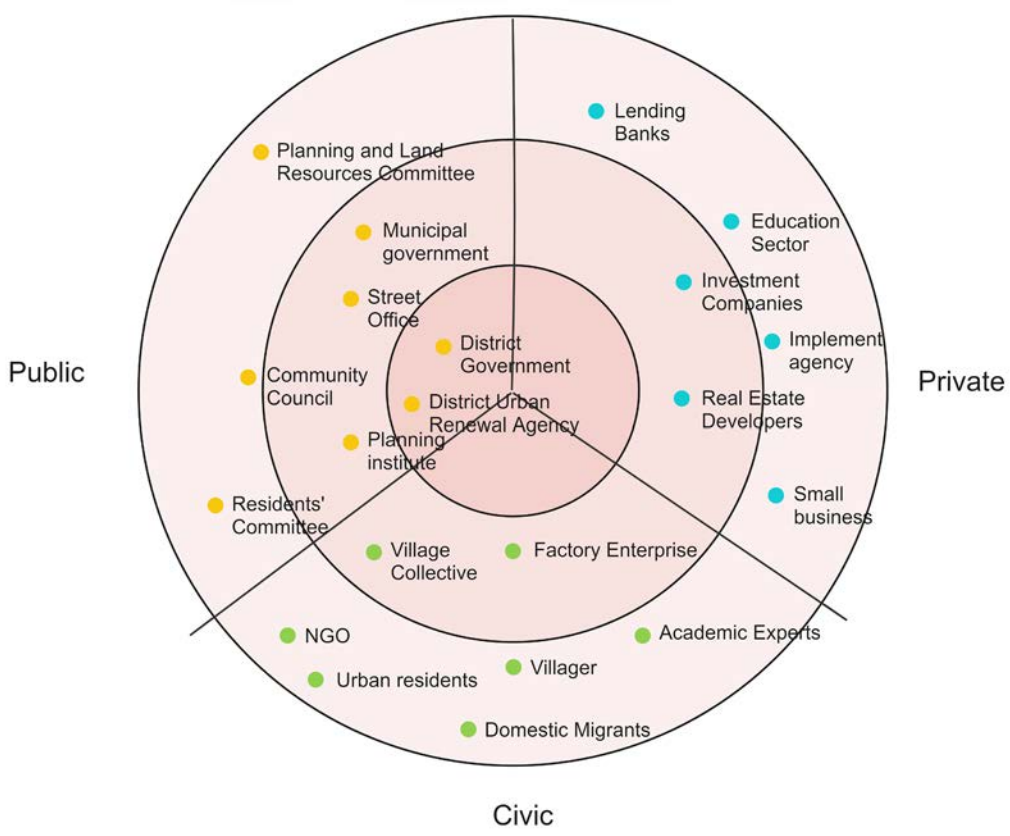


Figure 122 Stakeholder power , self-drawing

Commercial area regeneration

Industry regeneration

In some areas that are in the key development structure of the city, the government plays a more important role in the regeneration process. It leads and drives the entire regeneration process.

Stakeholder-Area
Vision

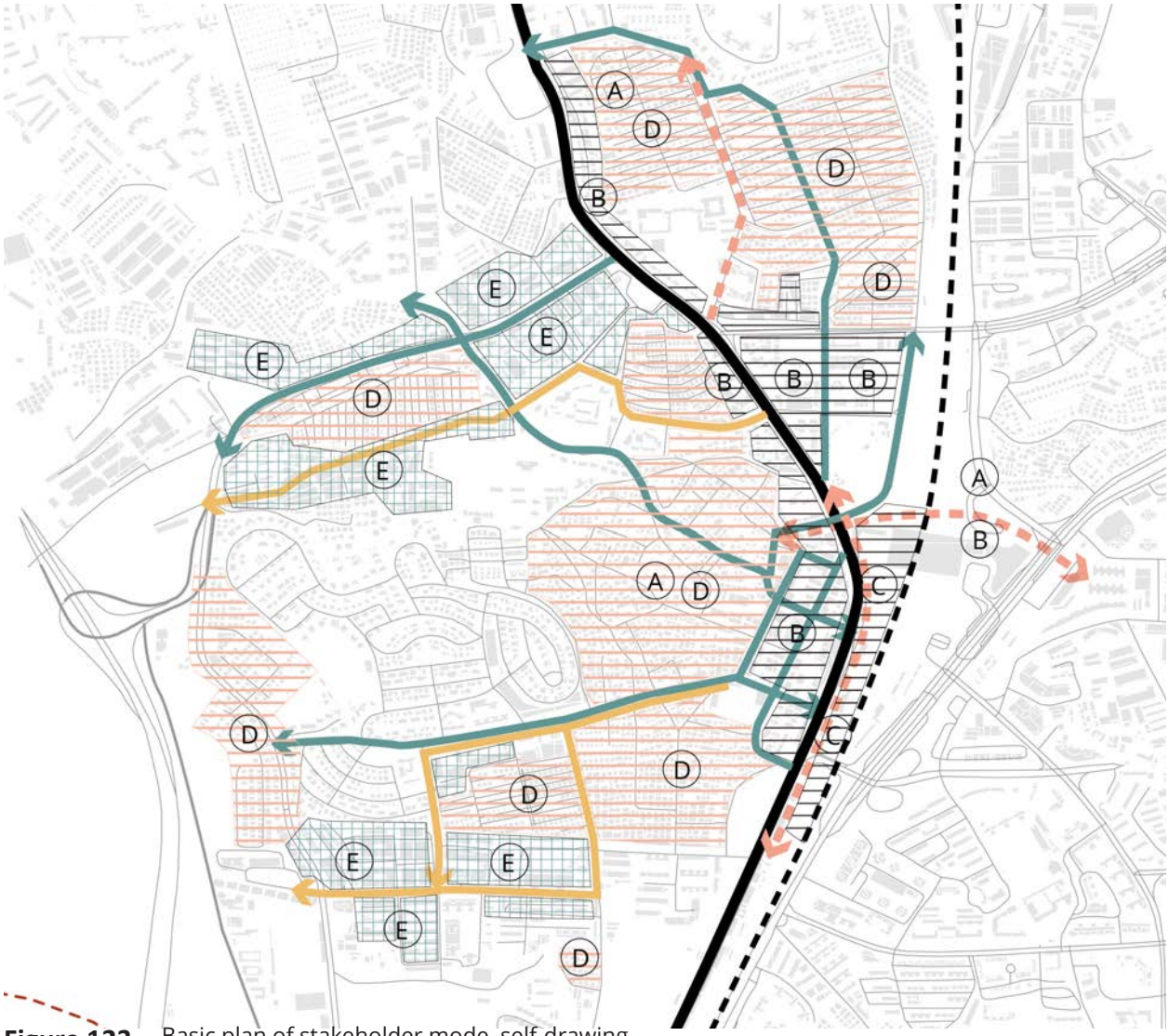


Figure 123 Basic plan of stakeholder mode, self-drawing

At this scale, the main purpose is to guide the direction of cooperation and coordination of interests among different stakeholders. The government functions as a medium to facilitate communication and cooperation between different groups. Moreover, introduce small investors and public interest organizations to facilitate the process of micro-regeneration.

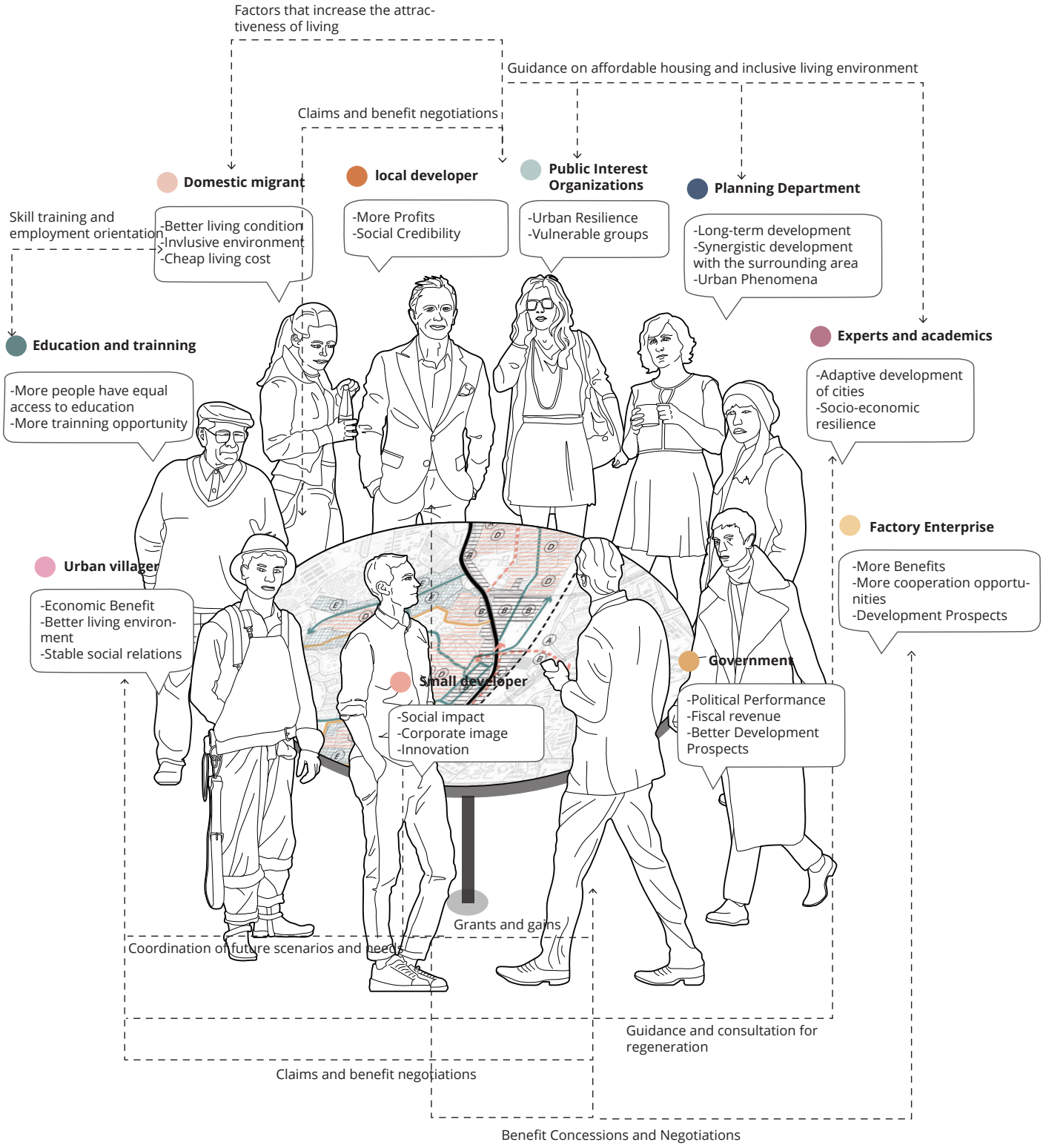


Figure 124 Mutual coordination and discussion among the stakeholders, self-drawing

Vision

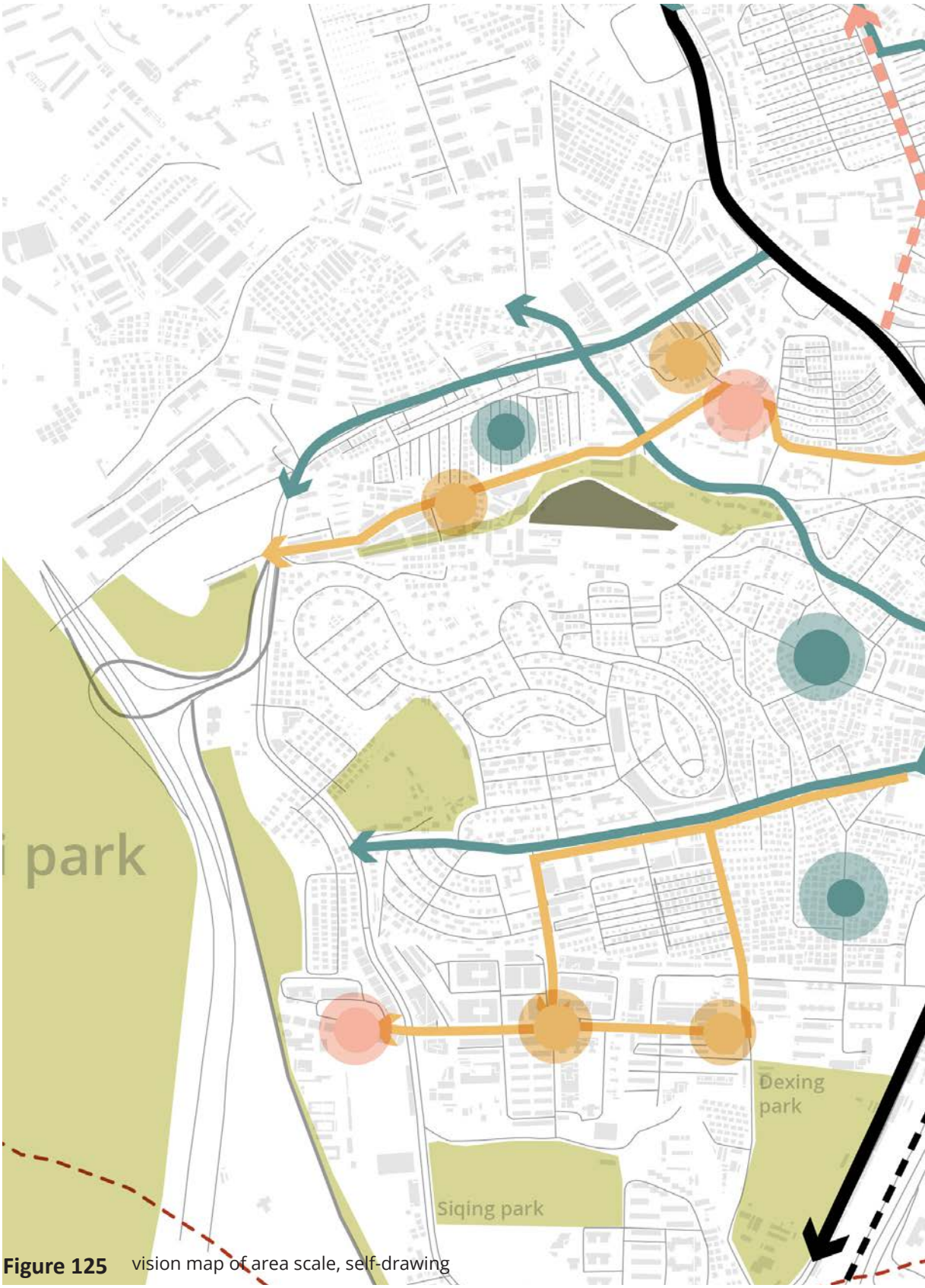
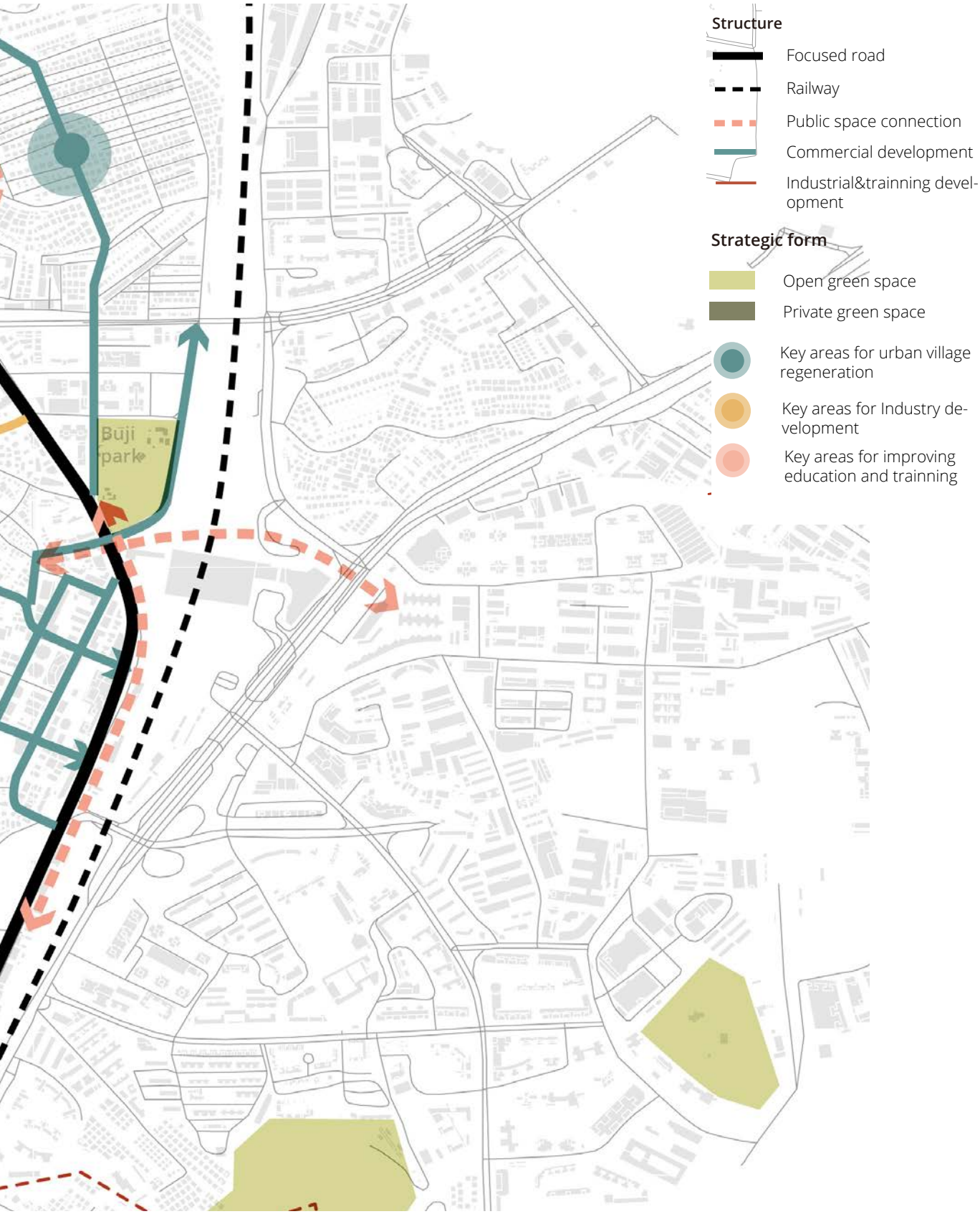


Figure 125 vision map of area scale, self-drawing

The area-scale vision is implemented through strategic spatial interventions. First, identify isolated areas through road connectivity analysis and promote their integration. Enhance accessibility by improving the road network to connect residential areas and public spaces. Key nodes, such as stations, are utilized to attract and direct pedestrian flows. Furthermore, an industrial axis is established, integrating industry and training to drive industrial vitality. This approach combines



the development of urban villages and surrounding neighborhoods, leveraging commercial and industrial growth to activate urban village regeneration. Striking a balance between micro-regeneration and new community development is essential. By adopting this integrated approach, the area vision ensures a cohesive and inclusive urban environment.

Design
Neighborhood-Strategy

The design of the neighborhood scale is mainly reflected in several parts. One is to show the scenario of different situations to show the flexibility of the design for future changes. One is to show the typology that can be applied to the space, thus showing the possibility of future development in a more detailed part. Moreover, to enrich the number and diversity of facilities, living spaces and public spaces.

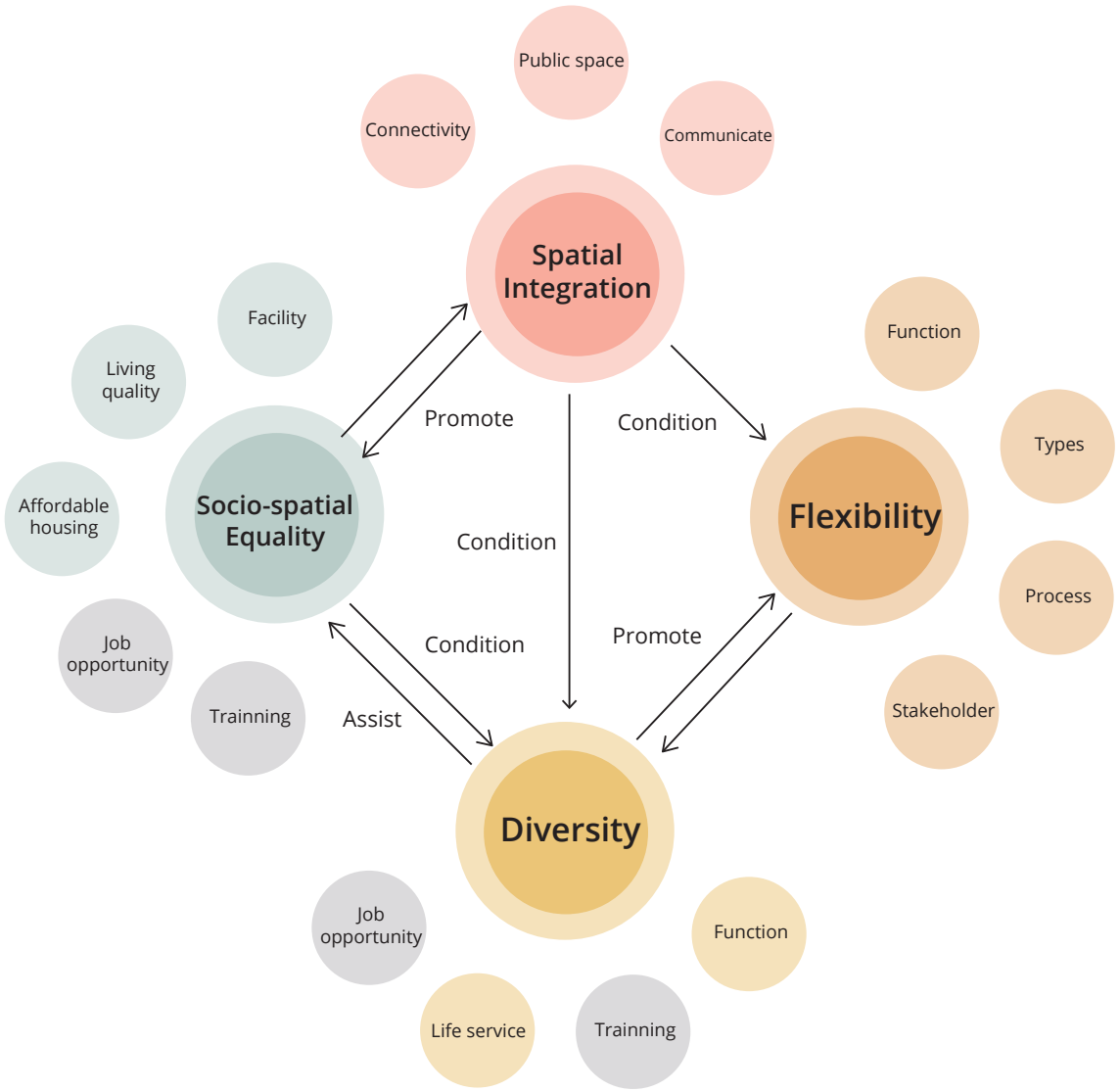


Figure 126 diagram of strategy aspect in neighborhood scale, self-drawing

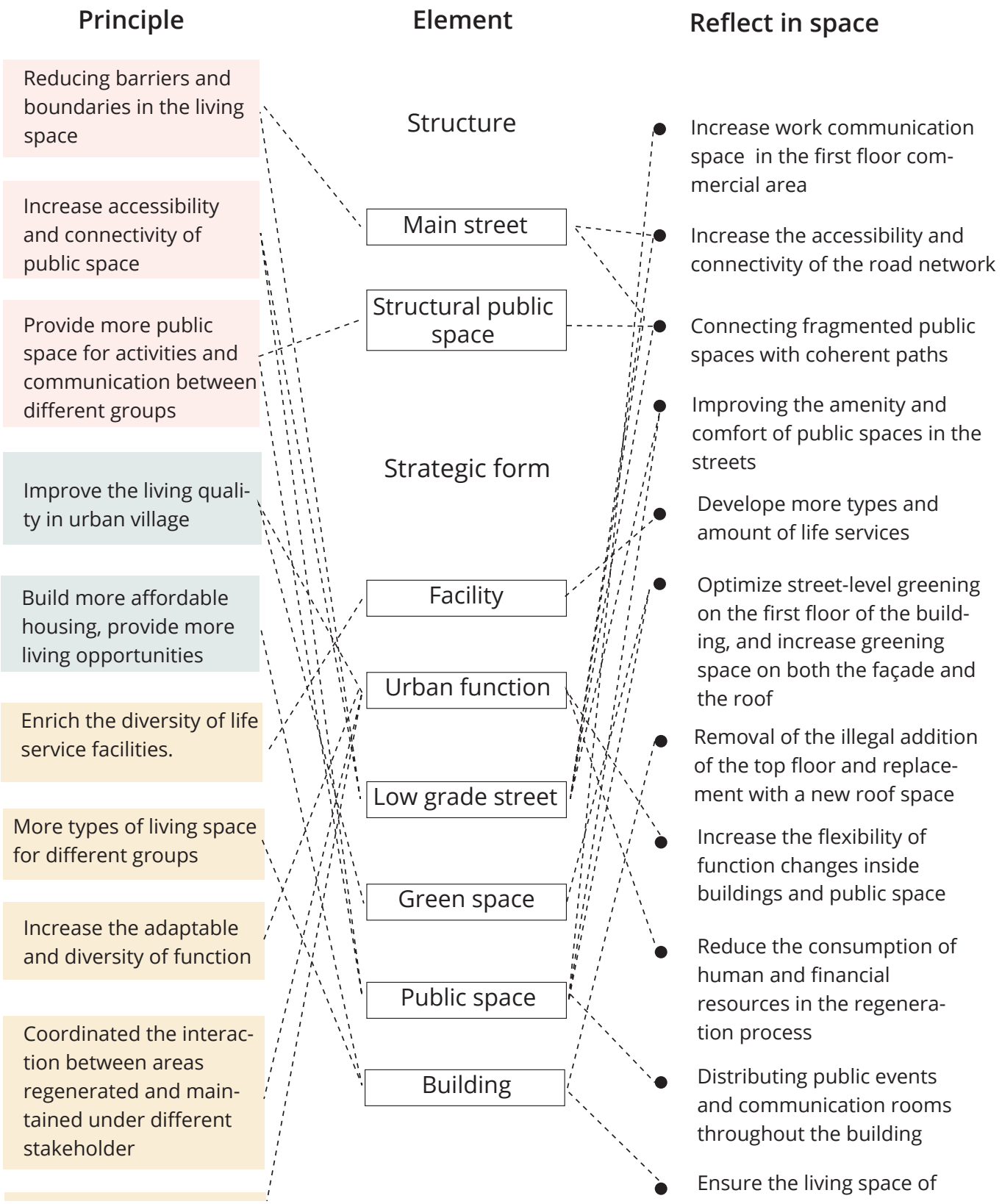


Figure 127 diagram of principles in neighborhoof scale, self-drawing

Basic design and stakeholder mode

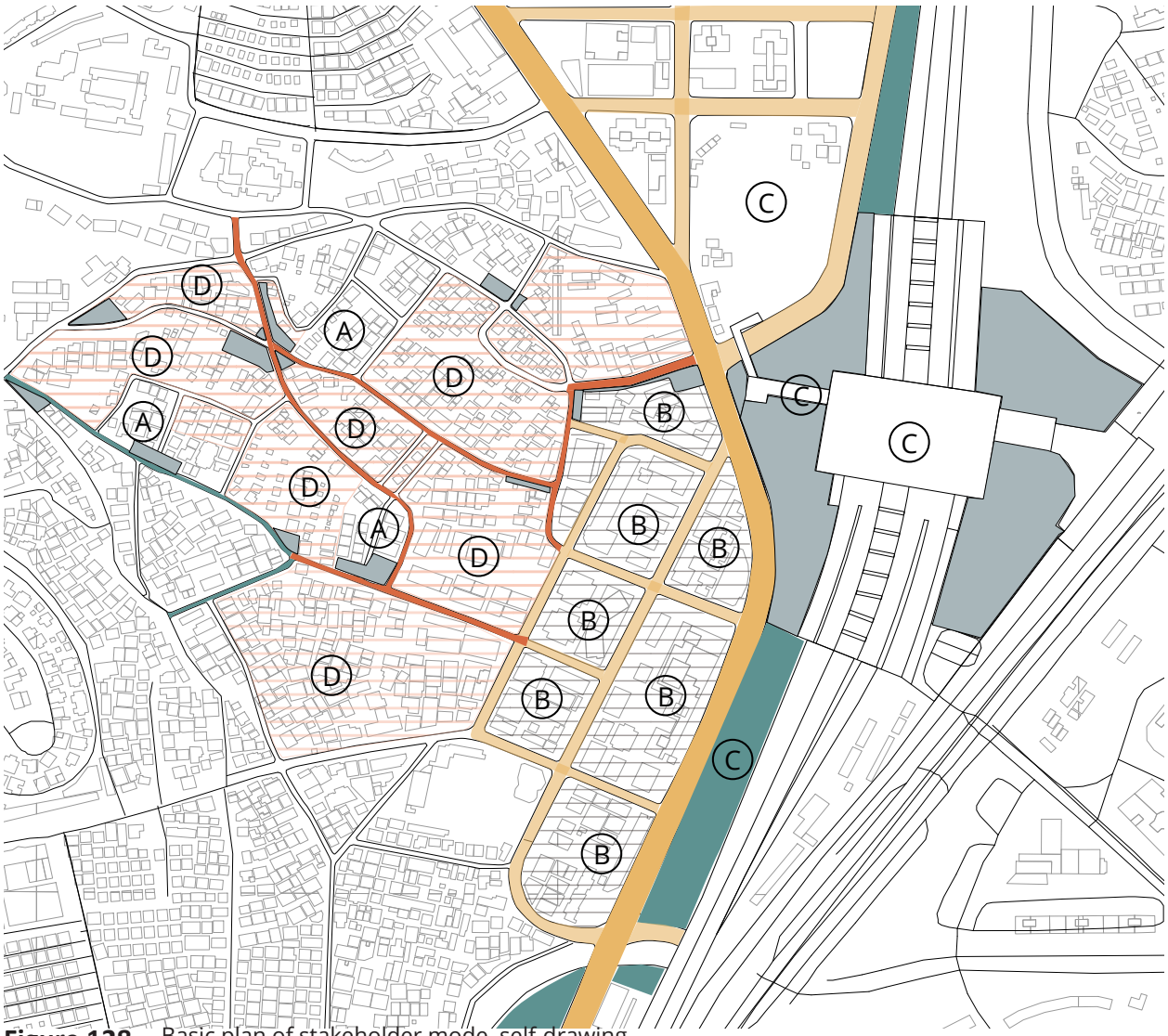


Figure 128 Basic plan of stakeholder mode, self-drawing

At this scale, the base plan is the foundation for future development, highlighting the spatial distribution of different urban regeneration interest stakeholder modes. This provides valuable insight and helps to pre-determine scenarios for the future, allowing for a more detailed and comprehensive development process.

Main mode of stakeholder for neighborhood

- A Cooperation between urban villager,government,developer
- B Developer as main power
- C Government as main power
- D Government&urban villager main power,cooperation with small investors, tenants, rental agent

- Special commercial street in Urban village
- Commercial street
- Main Commercial street on structural developed road
- Space that enhance environmental quality
- Public space
- New community
- Micro regeneration in urban village
- Micro regeneration for commercial area

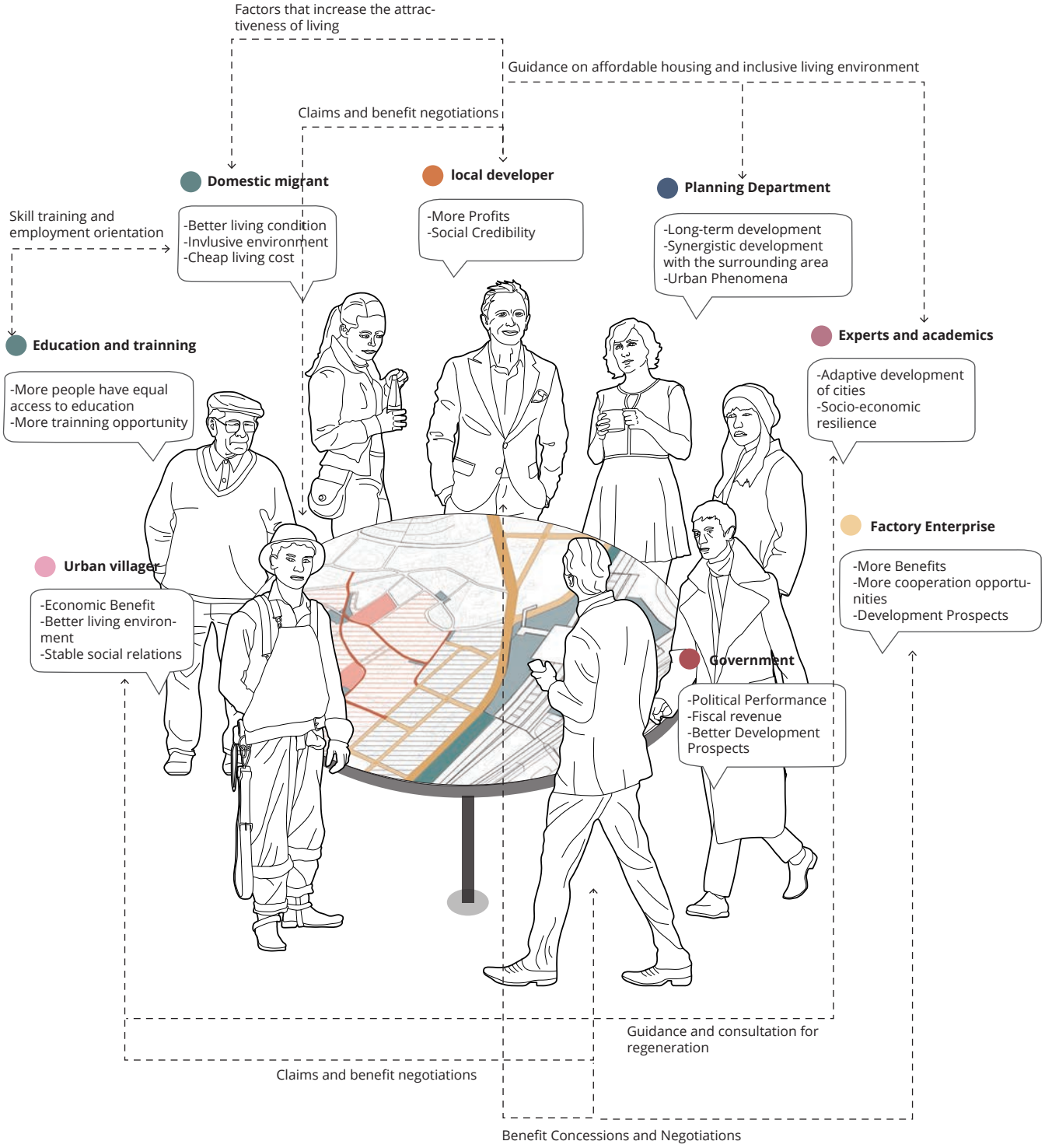


Figure 129 Mutual coordination and discussion among the stakeholders, self-drawing

Typology that applied in space-Street

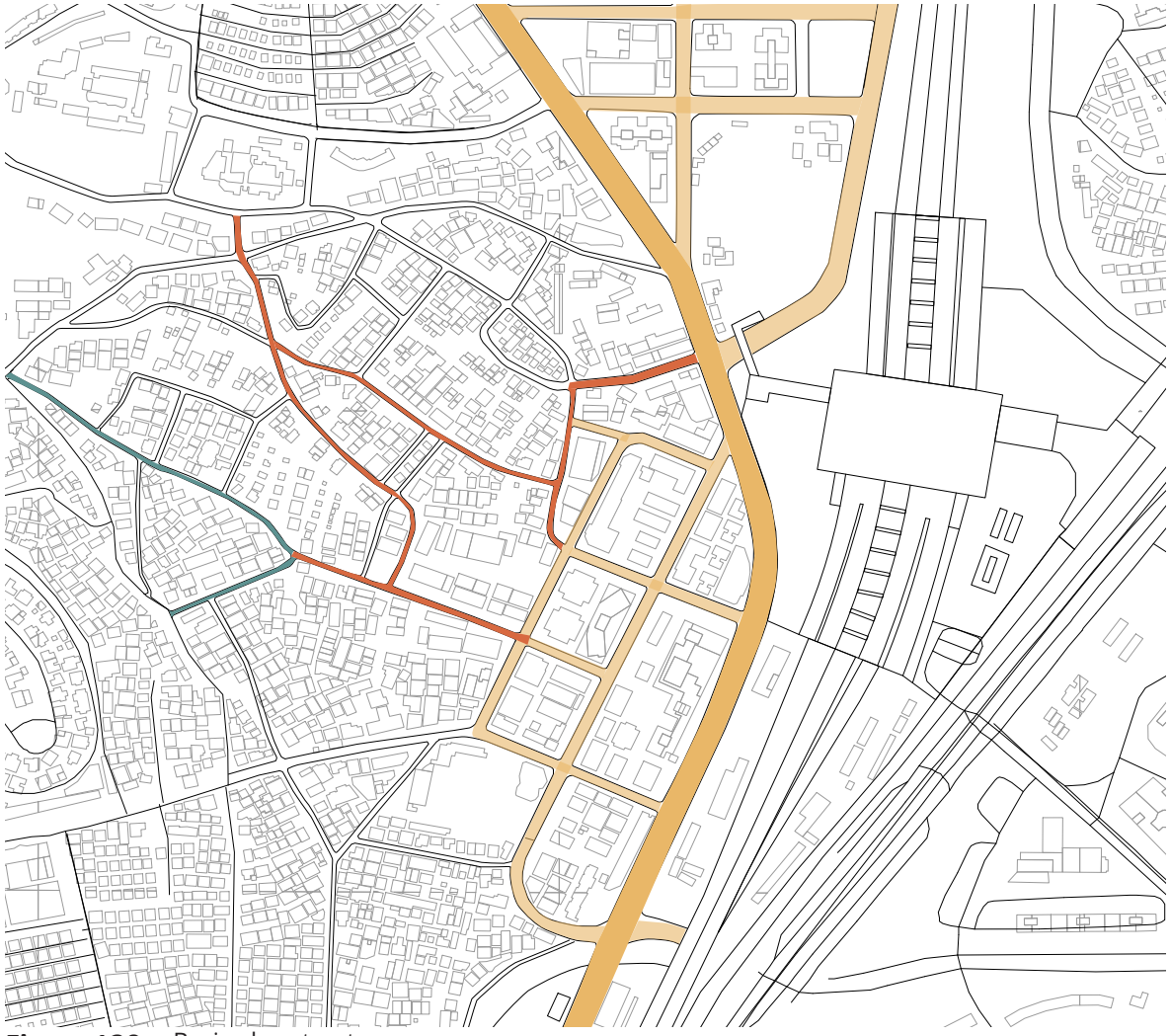


Figure 130 Basic plan street

Special commercial street in Urban village

Commercial street

Main Commercial street on structural developed road

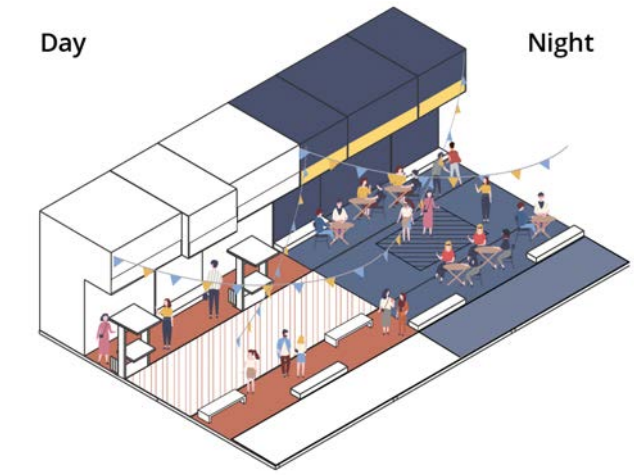
The neighborhood development is guided by the street structure, which plays a crucial role in shaping the area. Streets can be classified into distinct types: commercial streets within urban villages, modern commercial streets, and environmentally friendly streets. Commercial streets within urban villages serve as vibrant hubs for communication and activities, mainly through commercial interactions, promoting inclusiveness among diverse groups. Streets at the junction of urban villages and modern commercial areas aim to foster integration and minimize segregation. Additionally, environmentally friendly streets prioritize enhancing the environmental quality and facilitating interaction among communities.

Design-neighborhood

Street Typology based on Dominant Functions

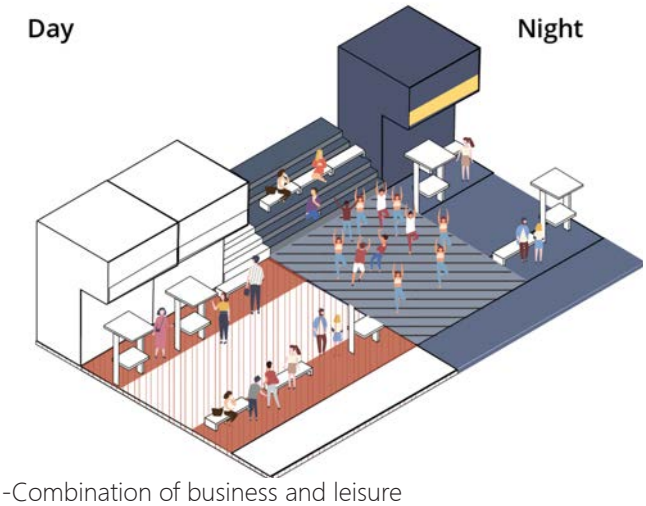
Commercial street in urban village

Special commercial and Food



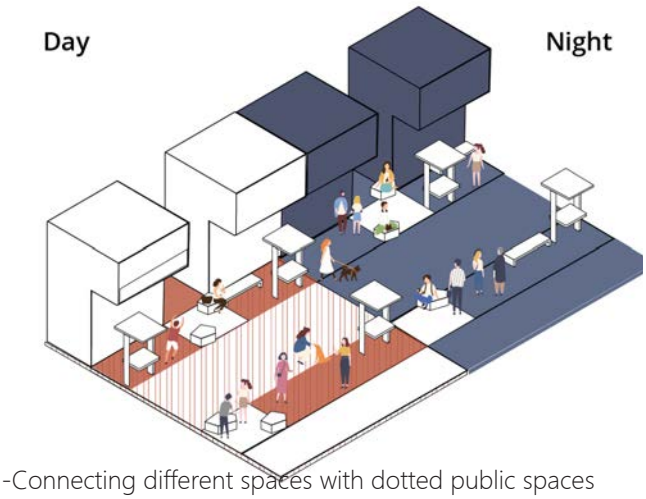
-Inclusive and tolerance space
-Streets are mostly for food, leisure and communication
-Walkable space during the day Staying space at night

Public activity street



-Combination of business and leisure
-Connecting the fragmented streets with public space
-Daytime recreation, evening gathering activities (square dance)

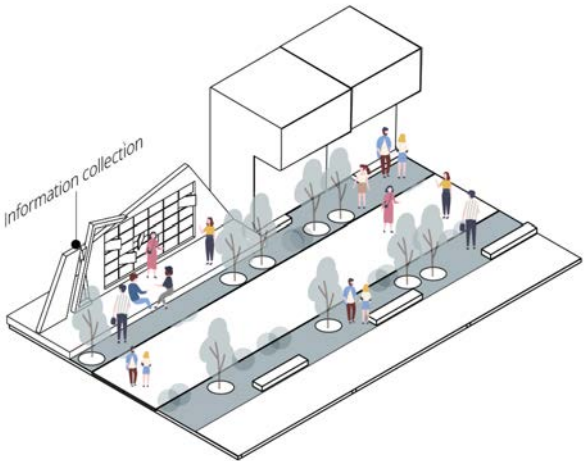
Urban village meet modern commercial area



-Connecting different spaces with dotted public spaces
-Encourage interaction and conmunication
-Daytime recreation, evening gathering activities (square dance)

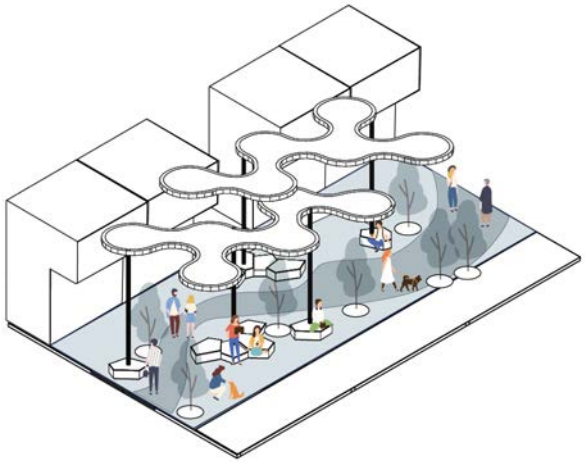
Environmental friendly street

Community-driven streets



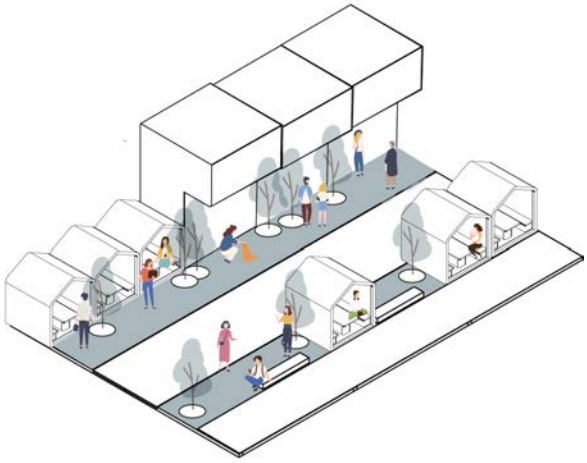
-Resident participation in street design and management
-Enhancement of environmental quality and greenery

Car free street



-Sustainable transportation, encouraging walking to reduce pollution
-Enhancement of environmental quality

Public activity street



-IIntegration of landscape elements with the environment
-Enhancement of environmental quality

Figure 131 Street typology

Typology that applied in space-building

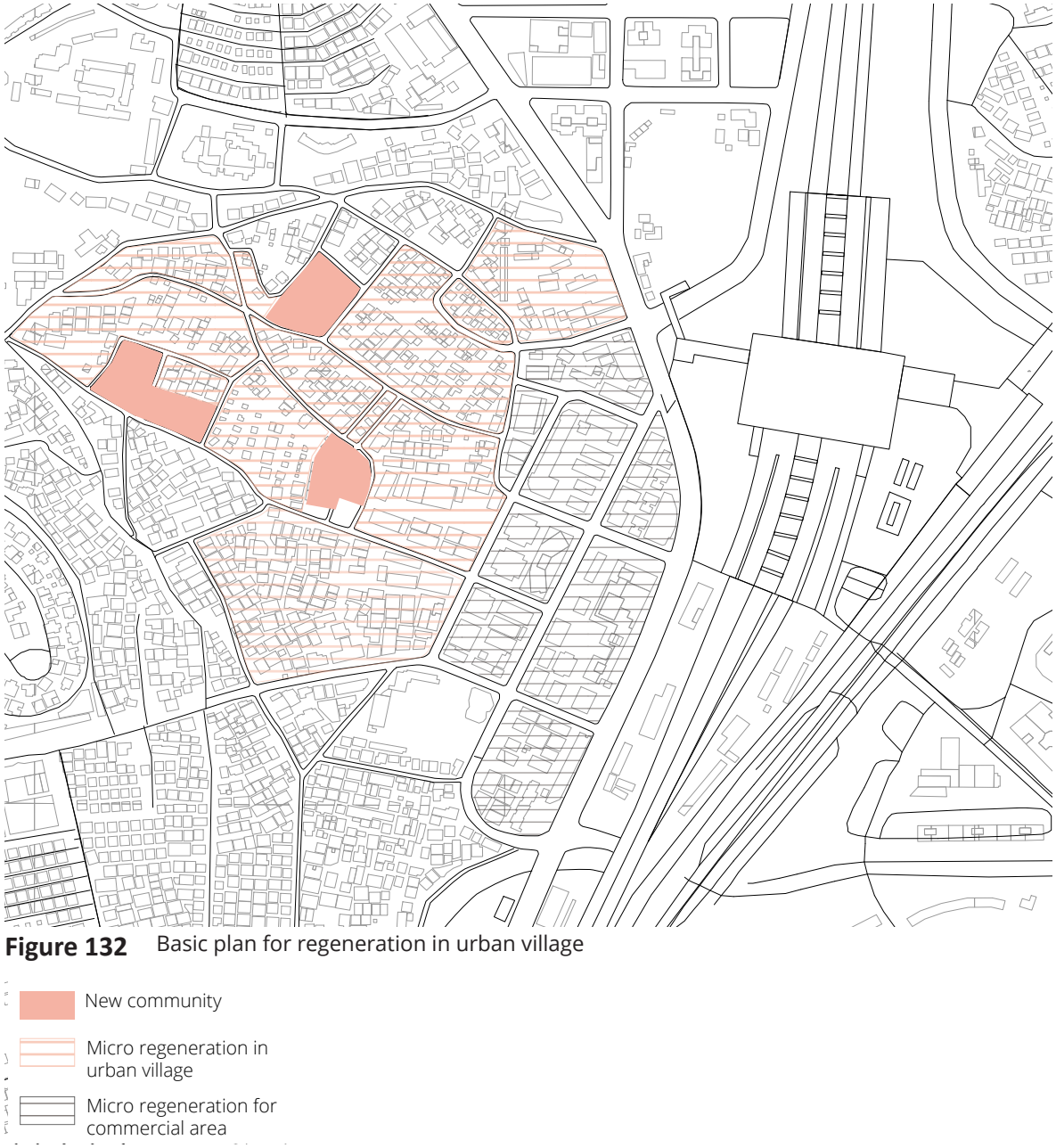


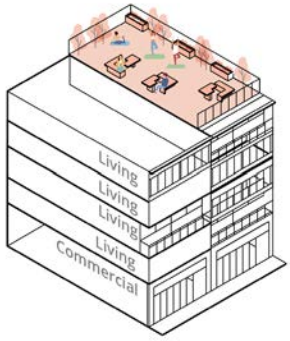
Figure 132 Basic plan for regeneration in urban village

The micro-regeneration process of buildings aims to enhance flexibility while minimizing time and financial costs. This is achieved through optimizing roofs and facades and activating ground-floor commercial and communication spaces. By focusing on these aspects, residential buildings within urban villages become more inclusive and appealing. An improved rental system in urban villages can also provide affordable housing options for low-income groups., which will offer more service for migrants and keep the affordable price. Furthermore, encouraging the participation of different groups in the residential regeneration process allows for customization and updates to their living spaces.

Building Typology based on Transformation potiental

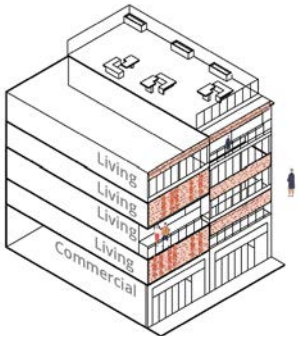
Illlegal construction building

Green roof



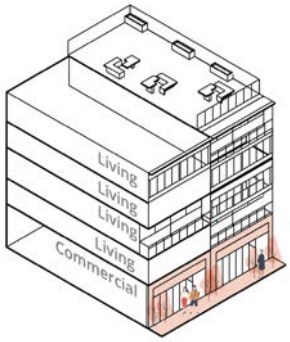
-Removal of the illegal addition of the top floor and have a new roof
-Reduce consumption during regeneration
-New rental system

Facade revitalization



- increase greening space on the façade
-More open and interactive balconies

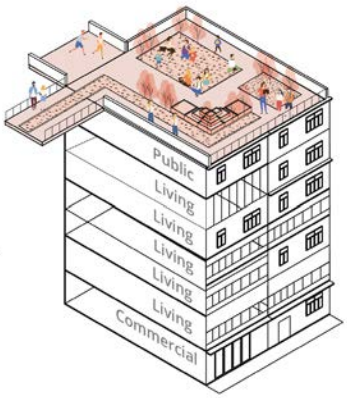
Activate Ground floor



-Optimize street-level greening on the first floor of the building
-Develope the commercial on ground floor

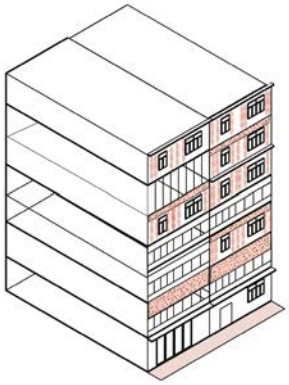
Vacant building

Greenery improved



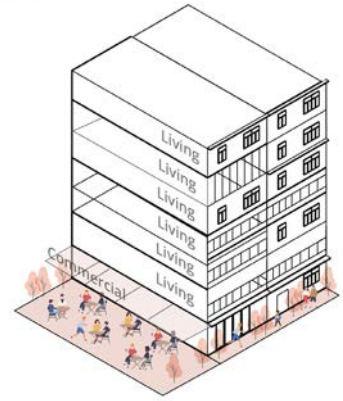
-Improve the quality of the roof and connect to other buildings
-Reduce consumption during regeneration
-New rental system

Facade revitalization



- increase greening space on the façade

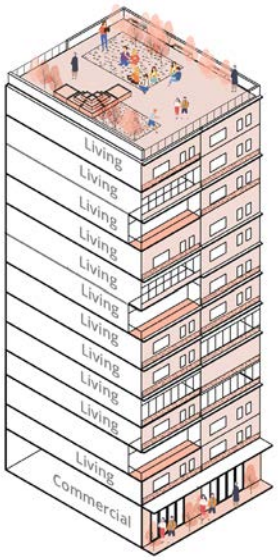
Activate Ground floor



-Optimize street-level greening on the first floor of the building
-Develope the commercial and leisure on ground floor

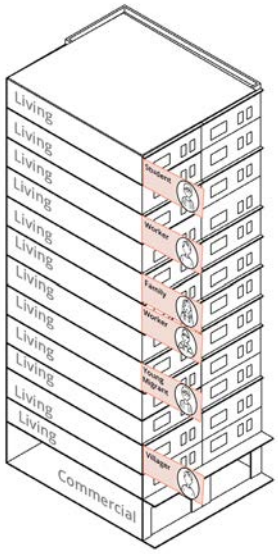
High-rise building

Quality improved



-Increase communication space in the first floor commercial area
-Increase the quality of buildings from roof, facade and building quality
-Reduce consumption during regeneration

Customized living



-Ensure the living space of the original migrant during the regeneration process
-Different groups participate in customizing their own living space
-New rental system

Figure 133 Building typology

Typology that applied in space-Public space

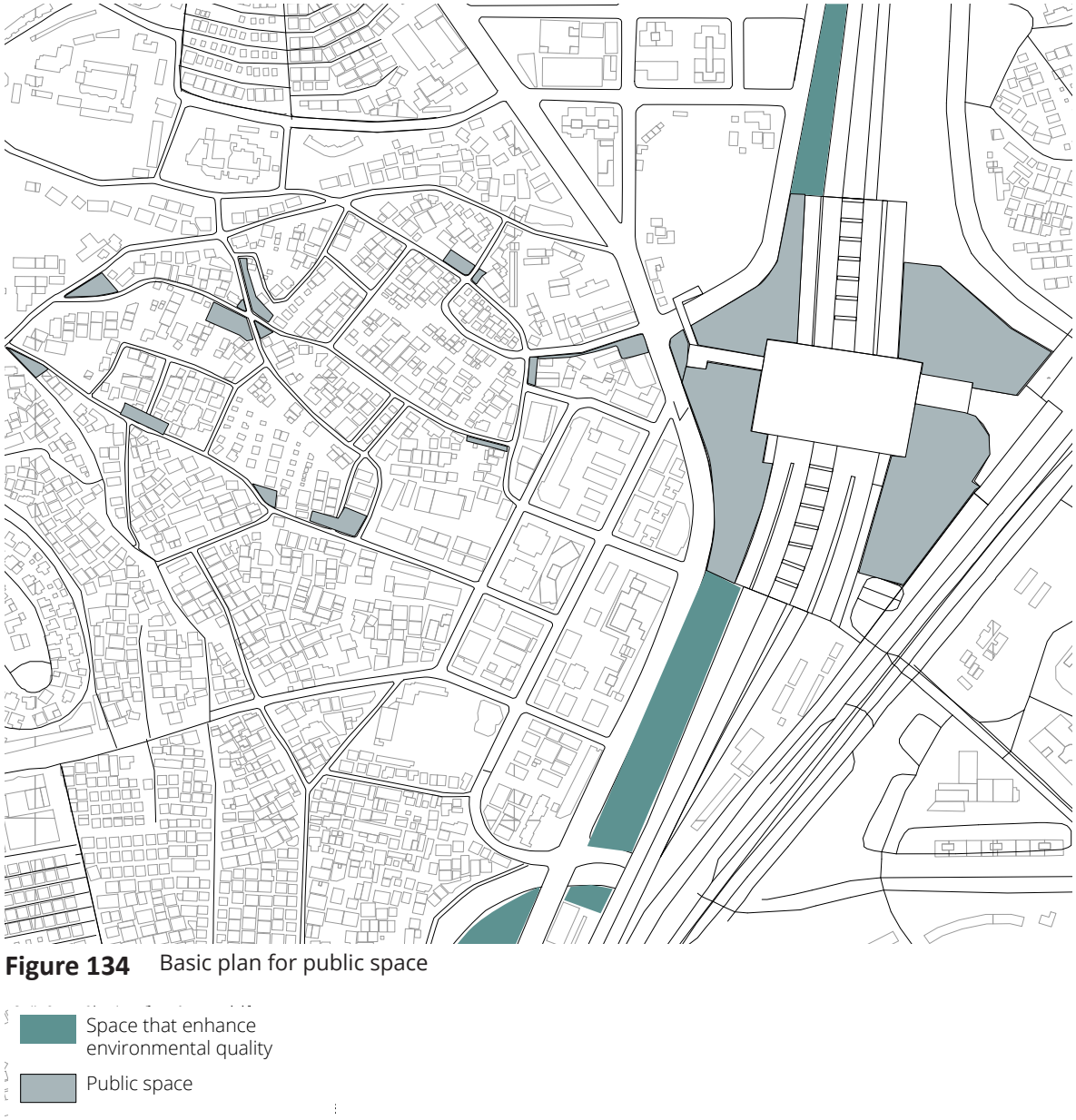


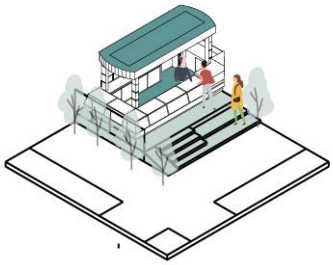
Figure 134 Basic plan for public space

Public spaces play a vital role in facilitating communication and bridging fragmented areas. By strategically utilizing these spaces as connectors between segregated areas, the neighborhood can foster effective communication and cultivate a shared sense of identity among diverse groups. Furthermore, enriching these public spaces with diverse life services enables them to cater to many future needs. This approach prioritizes the flexibility of these spaces, allowing them to accommodate various functions and promote adaptability and flexibility within the community.

Public space typology based on location and function

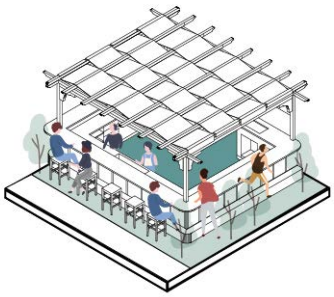
Service space

Street Offices



-Create a mobile street service point
-Enhance communication between government and residents

Leisure



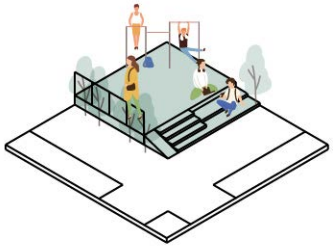
- Create some places for different groups to communicate together
-Disperse these spatial points within the spatial domain

Sports place

- Increase the number and diversity of sports place
-Promote exchange activities for different groups

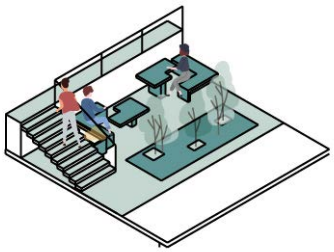
Public place in urban village

Corner place



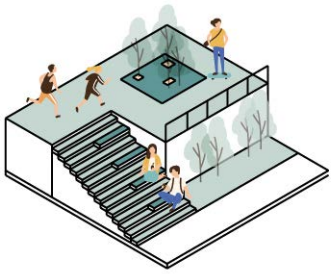
- Improve the amenity and comfort of corner space
-Make it open for public

Height difference



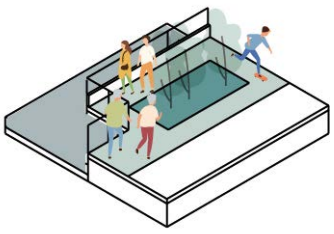
- Improve the amenity and comfort of corner space
-Make it open for public

Former private



- Open the private space to the public
- Connect different areas with public space

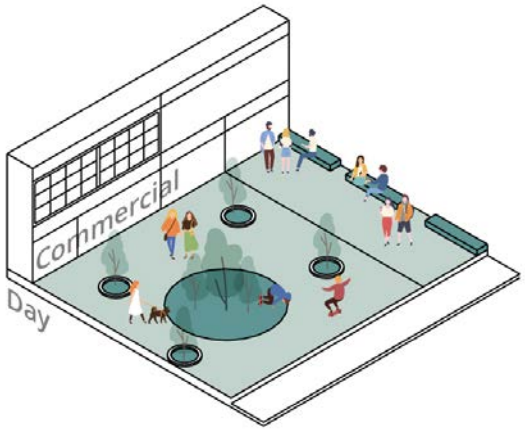
Near river



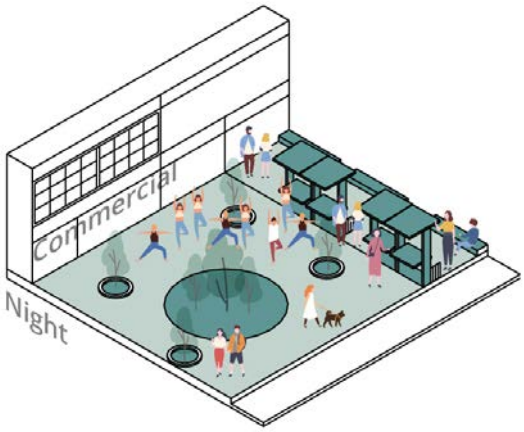
- Improve the quality of public space near the river
-Open the green space to the publc

Public place in commercial area

In front of commercial building



- Enhance the attractiveness and quality of public space around commercial areas
- Converting some above-ground parking



- During the daytime, the main focus is on mobile functions, while in the evening, there is a greater emphasis on aggregated public functions

Near station

- Improving the circulation and accessibility of public space around transportation stations and enhancing spatial quality

Figure 135 Public space typology

Design-neighborhood

Detailed plan

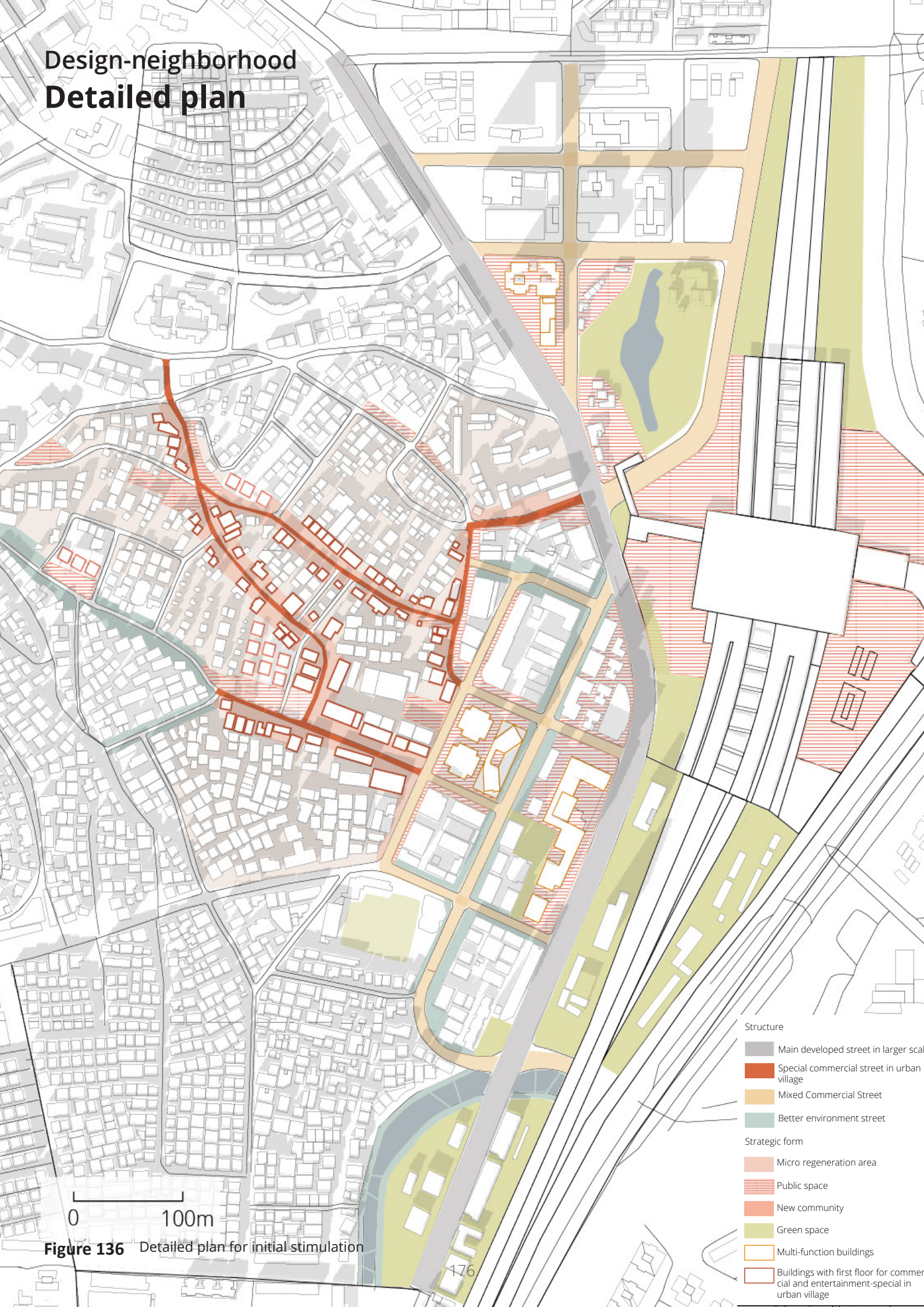


Figure 136 Detailed plan for initial stimulation

-Trajectory that need to insist and guide during the regeneration process

-Guide to ensure that the regeneration mode of most urban villages area is micro regeneration
-Realize the synergistic development of commercial and cultural spaces, residential space in urban villages with commercial spaces around subway stations
-Reduce the exclusion of the original groups after the regeneration.
-Achieve adaptation to major developmental structures at larger scales

-Strategic composition that can be adaptable

-The amount of demolish-rebuilt community can be flexible according to the cooperation between different regeneration modes and developing stages, but the main part is still micro-regeneration
-The distribution and quantity of streets with better environmental quality can be flexible according to the developing stage.
-The amount and distribution of public space and green space can be flexible, but the neighbourhood needs to keep accessibility and connectivity.
-The diversity of urban function can be flexible but need to meet the basic needs of daily 15-minute activities.

Design-neighborhood
Co-creation scenario

Outcome plan in first stage

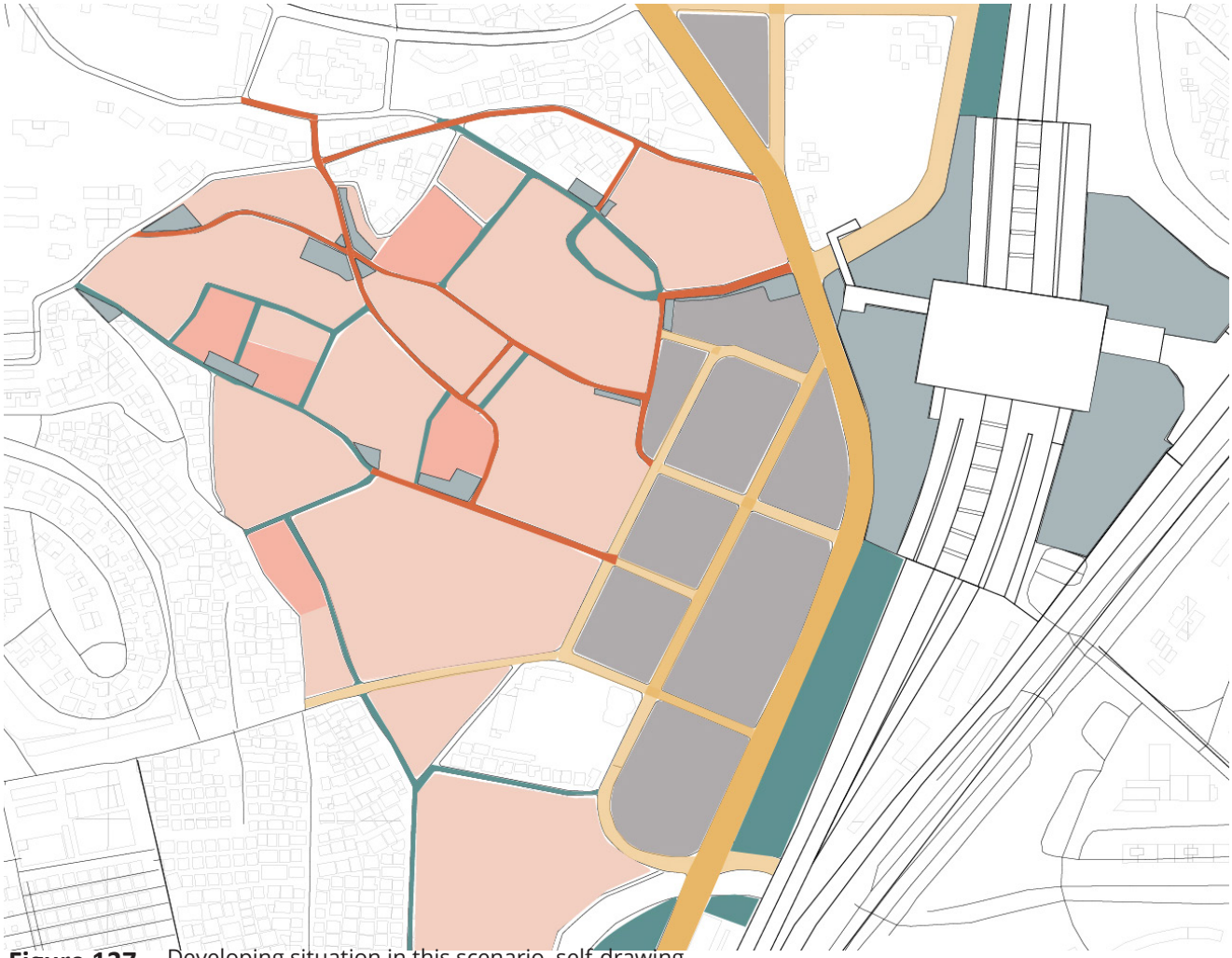


Figure 137 Developing situation in this scenario, self-drawing

In this context, joint stock companies of the urban village, small investors, and social enterprises have taken the initiative to participate and promote the micro-regeneration of urban villages. The few newly built communities are well integrated into the surroundings and are open and friendly to different groups. Different groups have been able to express their views and opinions, and the village is gradually developing into an inclusive and environmentally friendly community. Moreover, the special commercial street in the village has attracted many populations outside the urban village, further promoting the development of the surrounding commercial district. The government receives more tax revenue in the process, which in turn improves the quantity and quality of public services.

Outcome stakeholder mode in first mode

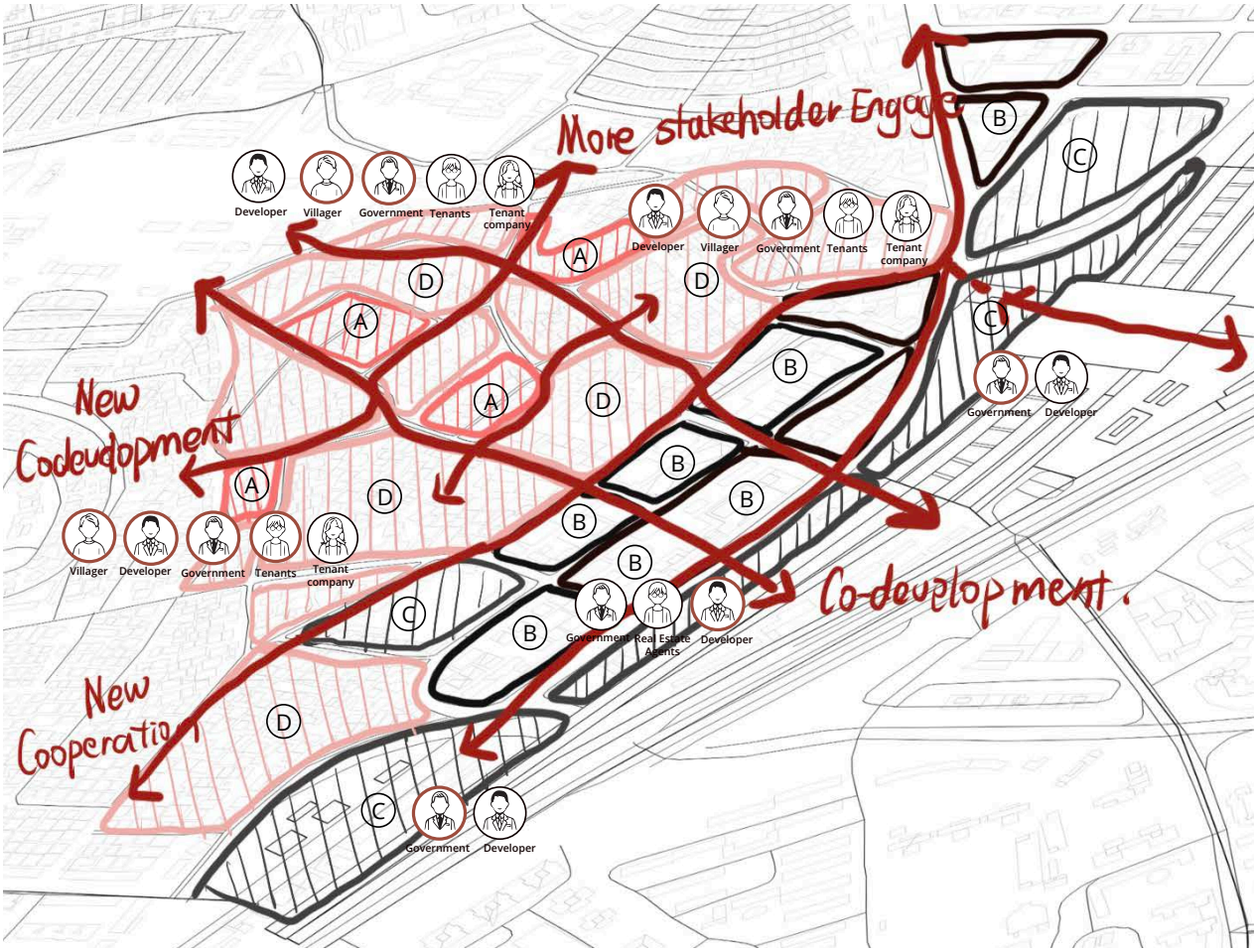


Figure 138 Stakeholder mode relationship in this scenario, self-drawing

Main mode of stakeholder for neighborhood

- (A) Cooperation between urban villager,government,developer
- (B) Developer as main power
- (C) Government as main power
- (D) Government&urban villager main power,cooperation with small investors, tenants, rental agent

In various areas, different primary stakeholders actively promote and coordinate with each other, forming a positive cycle of development. More stakeholders are proactively joining the regeneration process, creating a network of collaborative development relationships within the entire neighborhood area.

Co-creation scenario

Phase

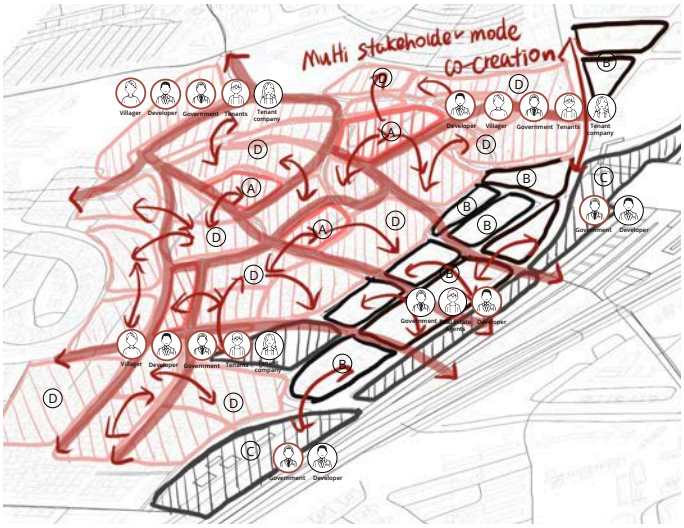


Figure 139 Stakeholder mode in space

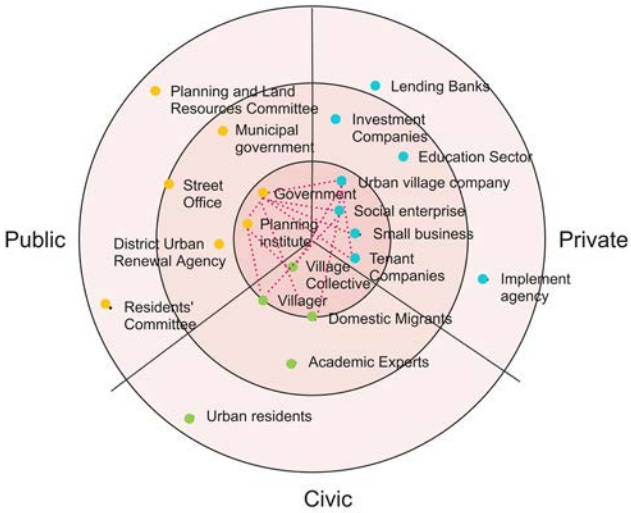


Figure 140 Stakeholder power

In this context, it is important to further develop and strengthen the structure of commercial streets while promoting the micro-regeneration process of the urban villages surrounding the main development structure. The government plays a vital role in driving and facilitating different stakeholders' active participation in co-creating urban villages' micro-regeneration. This collaborative process leads to an overall improvement in the environment and living standards, fostering inclusiveness in the neighborhood. Simultaneously, infrastructure, public services, and living conditions are gradually improved within the urban villages to enhance their livability and convenience. Additionally, a comprehensive approach is necessary, focusing on the integrated cultural, social, and environmental development of the community, ensuring that the regeneration of urban villages is an integrated and adaptable process.

Stakeholder:
In this scenario, different stakeholders demonstrate a strong level of participation, with the government acting as a mediator to facilitate collaboration among stakeholders. Increasingly, social welfare organizations, investors, and migrants are willing to actively engage and contribute to the entire process of micro-regeneration. At the same time, the growing involvement of social welfare organizations, investors bring valuable resources, funding, and expertise to support the development and improvement of the urban village.

Figure 141 Different phases and spatial outcome of the scenario

Apart from the rapid development of the village's specific business, the infrastructure is improved to achieve greater inclusiveness and co-create a more livable urban village. The objective is to foster a sense of belonging among different groups and continue the concept of "landing in the city," enhancing the overall quality of life and promoting integration. As part of this approach, the environmental construction is tailored to the specific needs and preferences of the community, ensuring that the urban village is a place where people of all backgrounds feel welcome and valued. Overall, this adaptive approach to urban regeneration ensures that the village is able to thrive and evolve sustainably and inclusively.

Design-Neighborhood

Mutual benefit scenario

Outcome plan in initial stage

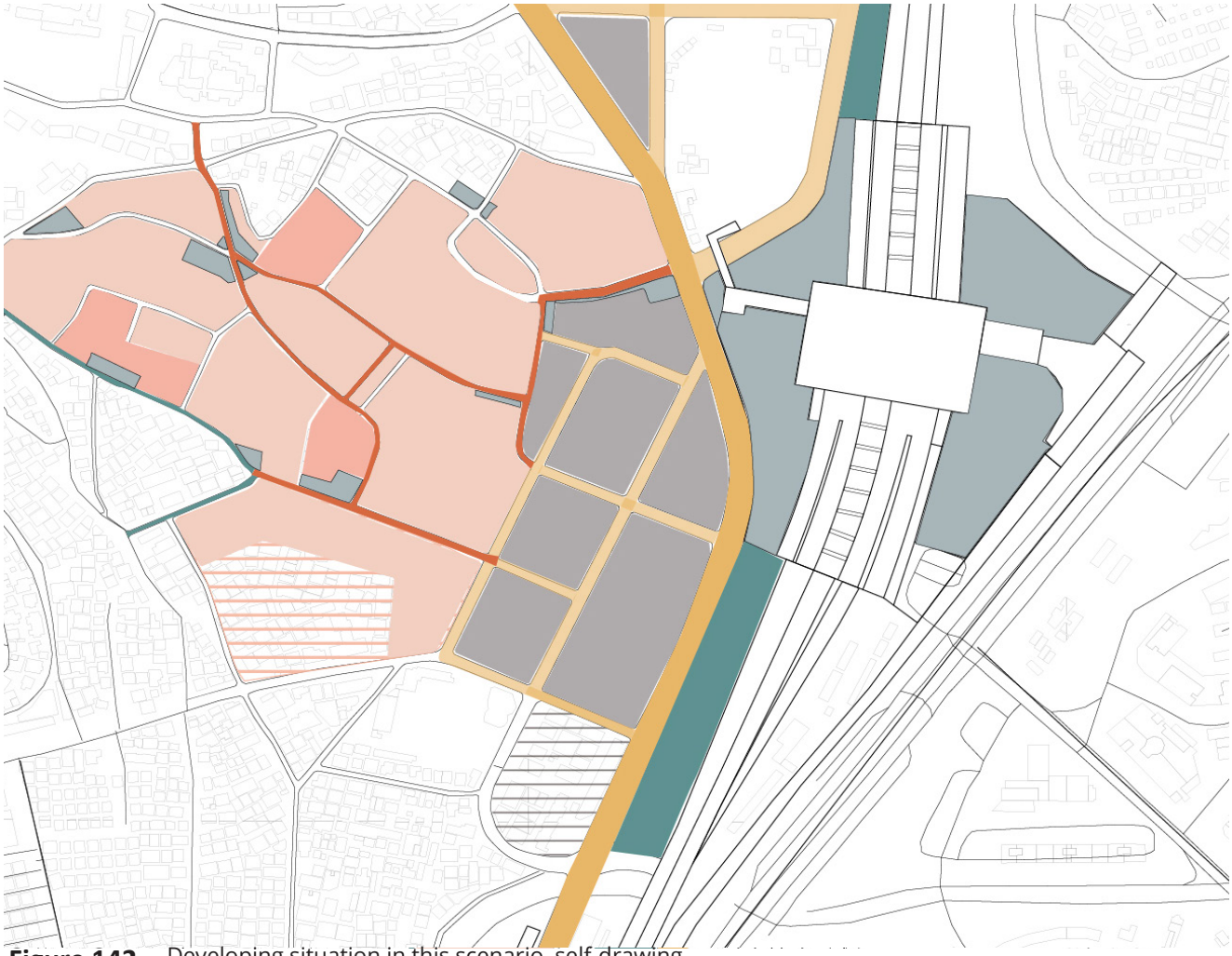


Figure 142 Developing situation in this scenario, self-drawing

In this scenario, the expected basic development structure is realized. The commercial growth within the urban village not only improves the vitality of urban villages but also stimulates commercial development around the station. Simultaneously, the commercial progress around the station acts as a driving force for the urban village's development. The government has played an active role in facilitating and guiding this process. In this case, the overall area is dominated by micro-regeneration. While there have been some demolition and redevelopment areas, these interventions have been carefully planned and designed to ensure they are integrated with the surrounding environment.

Outcome stakeholder mode in first mode

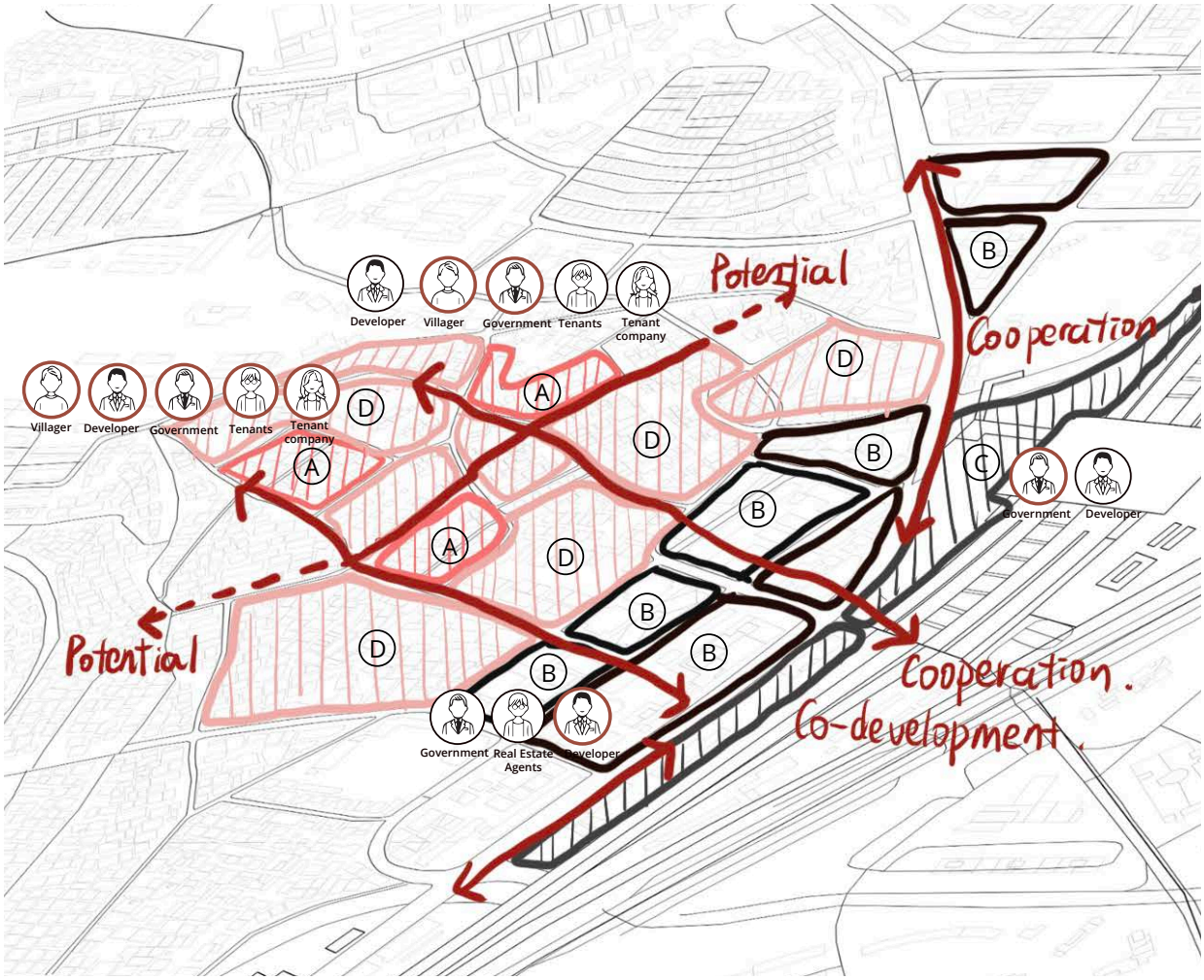


Figure 143 Stakeholder mode relationship in this scenario, self-drawing

Main mode of stakeholder for neighborhood

- (A) Cooperation between urban villager,government,developer
- (B) Developer as main power
- (C) Government as main power
- (D) Government&urban villager main power,cooperation with small investors, tenants, rental agent

In this model, the stakeholders have established improved cooperation, driving the development of their respective areas while also mutually promoting each other. However, there is still space that can be developed. Attractiveness for new investors exists within the urban village, but this attraction needs to be further increased. Tenants have started participating in the micro-regeneration process but are not yet very vocal.

Mutual benefit scenario

Phase

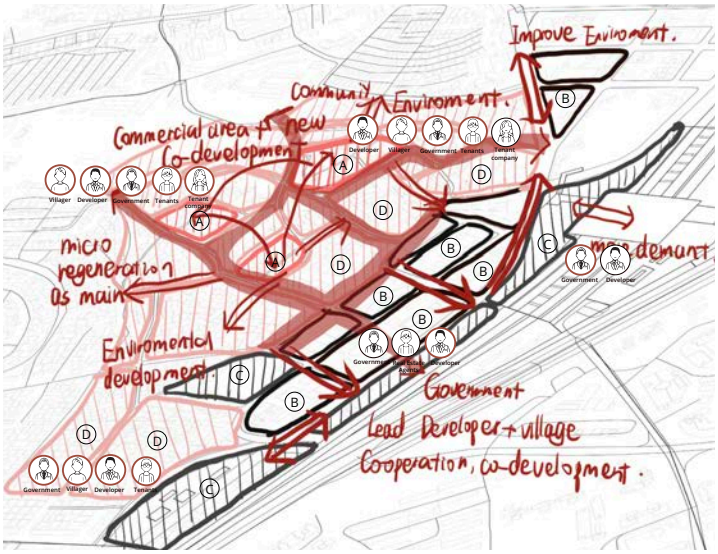


Figure 144 Stakeholder mode in space

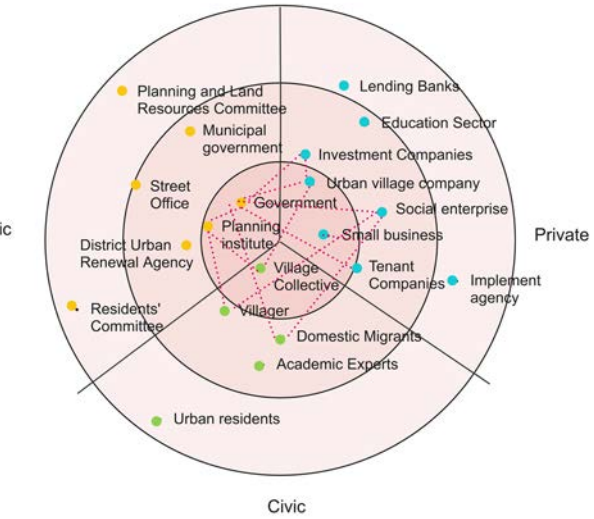


Figure 145 Stakeholder power

Further develop the commercial sector while preserving a significant focus on micro-regeneration in various areas. It is essential to establish and foster a culture of inclusiveness within the urban village during the process of micro-regeneration, attracting small investors and social welfare organizations. This will help reduce the time and financial resources required for the regeneration process. Additionally, it is crucial to enhance the level of participation from different groups and improve the overall environmental quality.

Stakeholder:
As the main power, the government takes the lead in promoting the development of commercial streets in urban villages and enhancing the environment to attract more population flow. Other stakeholders actively participate in these efforts. Investors increase their investments in areas with better development conditions, while both villagers and migrants actively engage in the regeneration process under the guidance of the government and planning institutions.

Figure 146 Different phases and spatial outcome of the scenario

The regenerated urban village emerges as an integrated and inclusive public community, fostering a vibrant atmosphere that accommodates diverse groups. Additionally, the commercial roads and the ongoing urban village micro-regeneration efforts complement each other, collectively driving the overall development. These regenerated communities effectively meet the demands of urban micro-regeneration within the area, enhancing the livability of the environment. Overall, the urban village regeneration exemplifies multi-faceted coordination, with different areas mutually reinforcing and progressing in unison.

Design-Neighborhood

Profit-oriented scenario

Outcome plan in initial stage

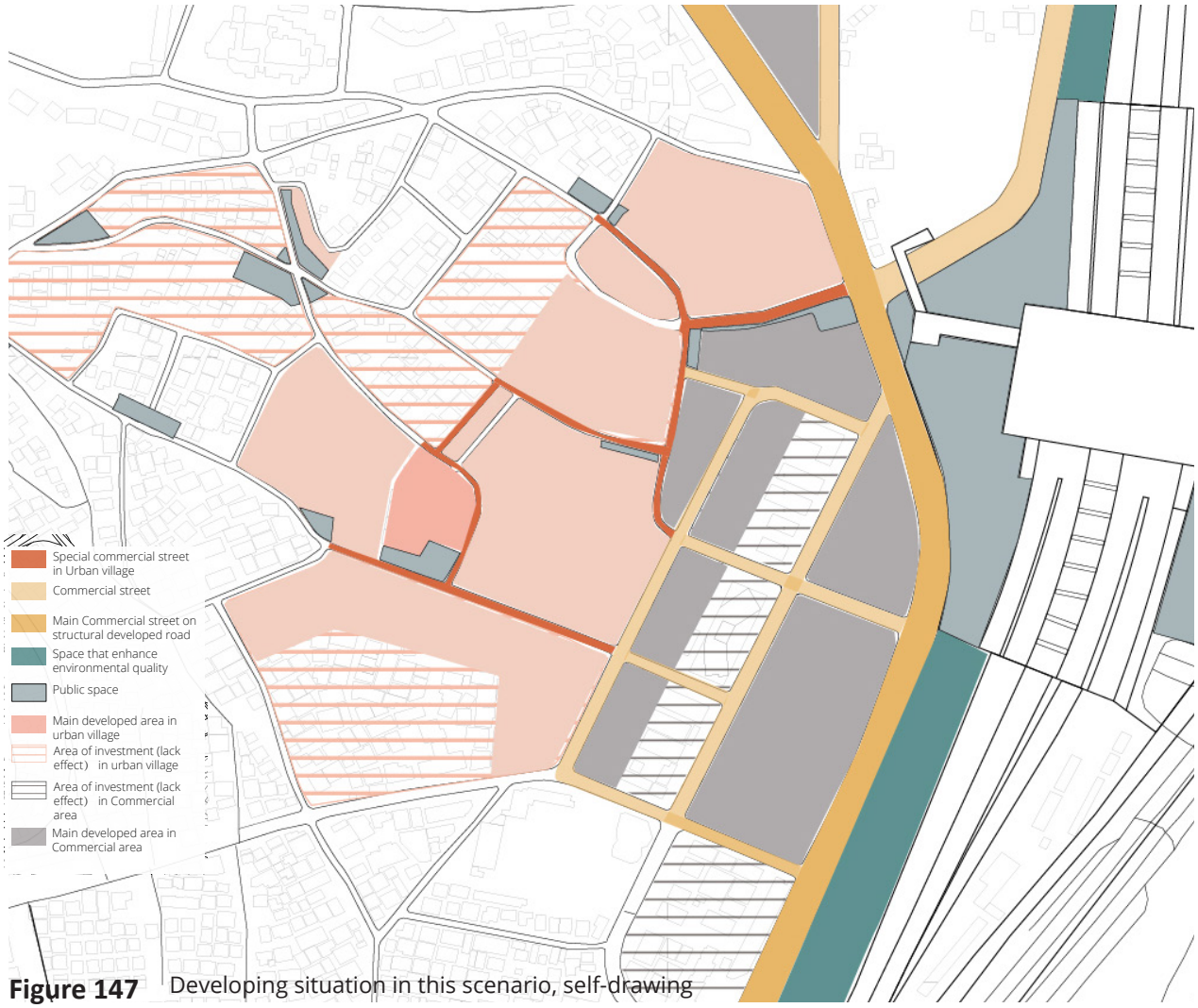


Figure 147 Developing situation in this scenario, self-drawing

Special commercial street in Urban village
Commercial street
Main Commercial street on structural developed road
Space that enhance environmental quality
Public space
Main developed area in urban village
Area of investment (lack effect) in urban village
Area of investment (lack effect) in Commercial area
Main developed area in Commercial area

In this scenario, the commercial area near the station is experiencing faster development, with increased investments from developers. Additionally, the area between the modern commercial district and the urban village has attracted more investors. The government has utilized tax subsidies to support internal development; however, the inner part of the urban village has been less appealing compared to the area connected to the modern commercial district. As a result, the overall development of the urban village has faced challenges in achieving integration.

Outcome stakeholder mode in first mode

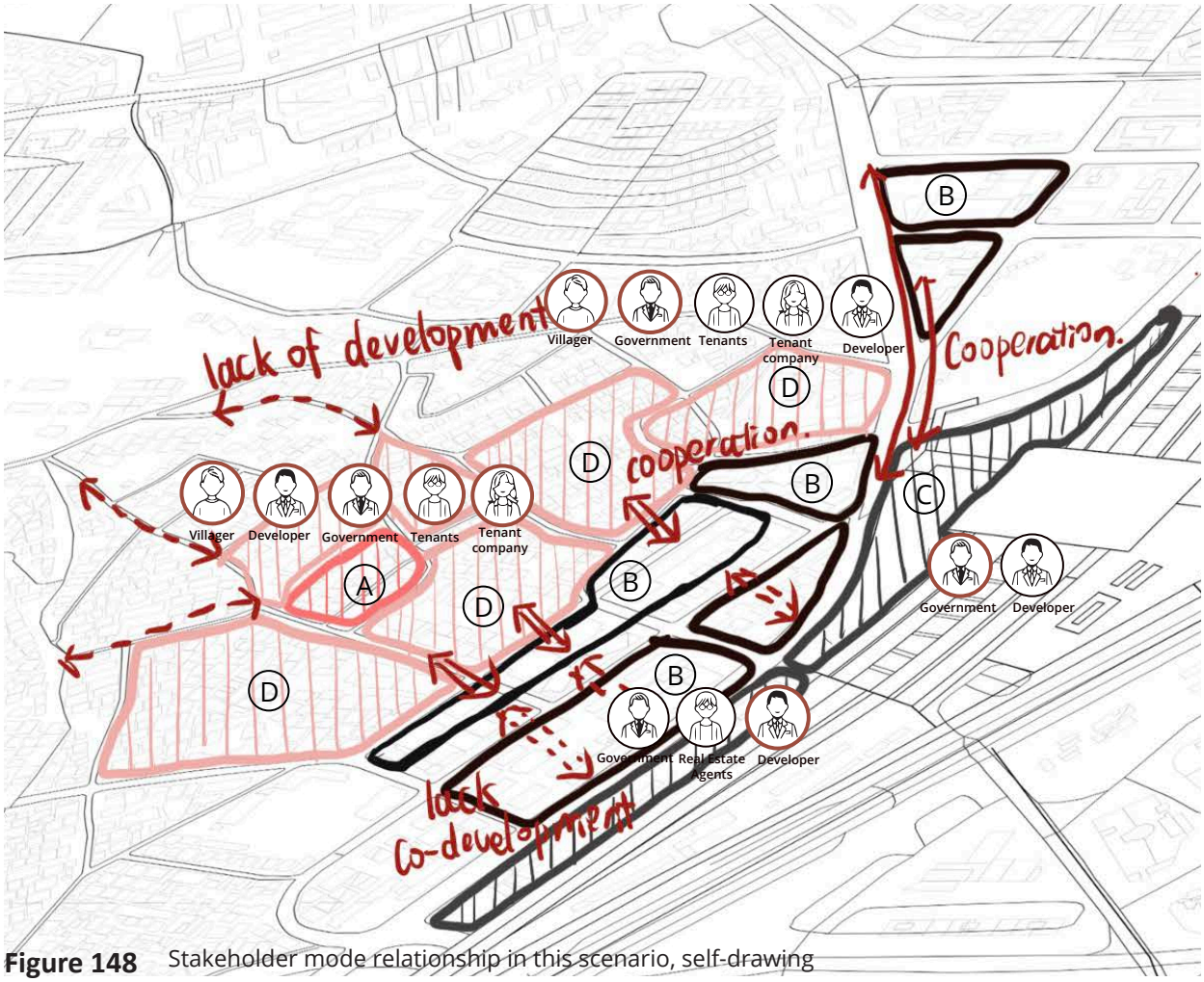


Figure 148 Stakeholder mode relationship in this scenario, self-drawing

Main mode of stakeholder for neighborhood

- (A) Cooperation between urban villager,government,developer
- (B) Developer as main power
- (C) Government as main power
- (D) Government&urban villager main power,cooperation with small investors, tenants, rental agent

In this situation, the primary collaboration and driving force between different stakeholders are focused on the areas between the urban village and the commercial district surrounding the station. This area has attracted more investors and is relatively easier for the government to promote development. However, there has been a significant lack of development and attractiveness in both the inner parts of the urban village and the commercial district.

Design-Neighborhood

Profit-oriented scenario

Phase1

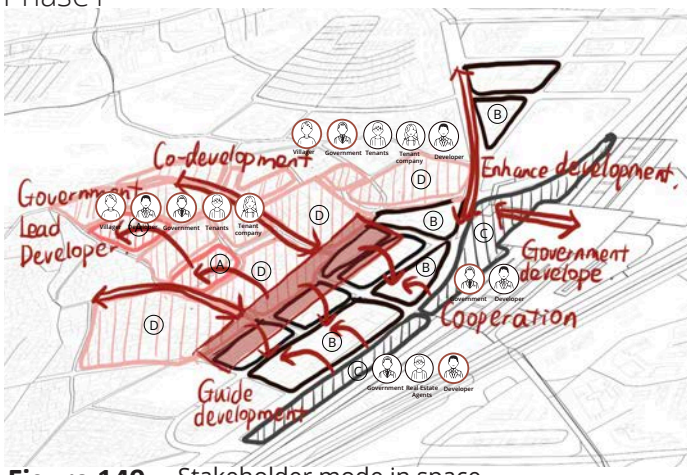


Figure 149 Stakeholder mode in space

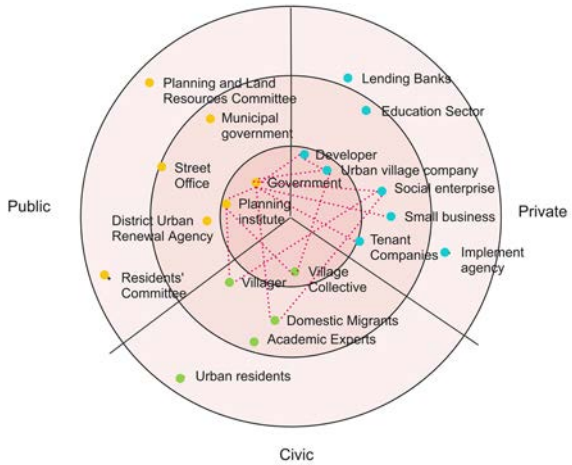


Figure 150 Stakeholder power

Utilizing the more developed junction as the centre, the urban village's internal development is activated by establishing commercial streets and building new communities. Concurrently, priority is given to providing housing solutions for the original residents, ensuring inclusiveness.

Stakeholder:
During this phase, the government and developers are the main power. Developers benefit from constructing new communities while also being responsible for improving the quality of the surrounding environment and facilities. Simultaneously, the government actively engages villagers in the micro-regeneration of the urban village.

Final phase

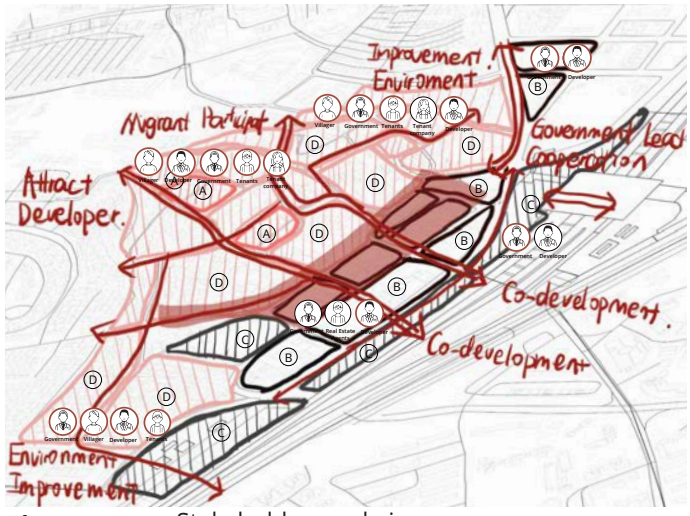


Figure 151 Stakeholder mode in space

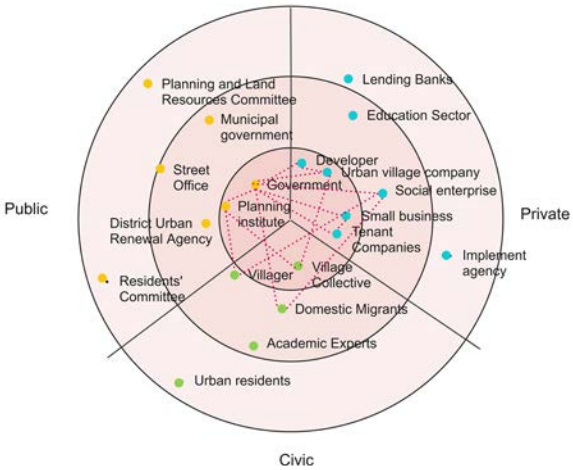


Figure 152 Stakeholder power

The main development structure goes through the entire urban village, with ongoing construction of commercial streets and new communities. However, the current emphasis has shifted towards the micro-regeneration process near the main development structure.

Stakeholder:
The main power of stakeholders is still the developers and the government. However, small investors, social welfare organizations, villagers and migrant groups are gradually becoming more involved in the micro-regeneration of urban villages.

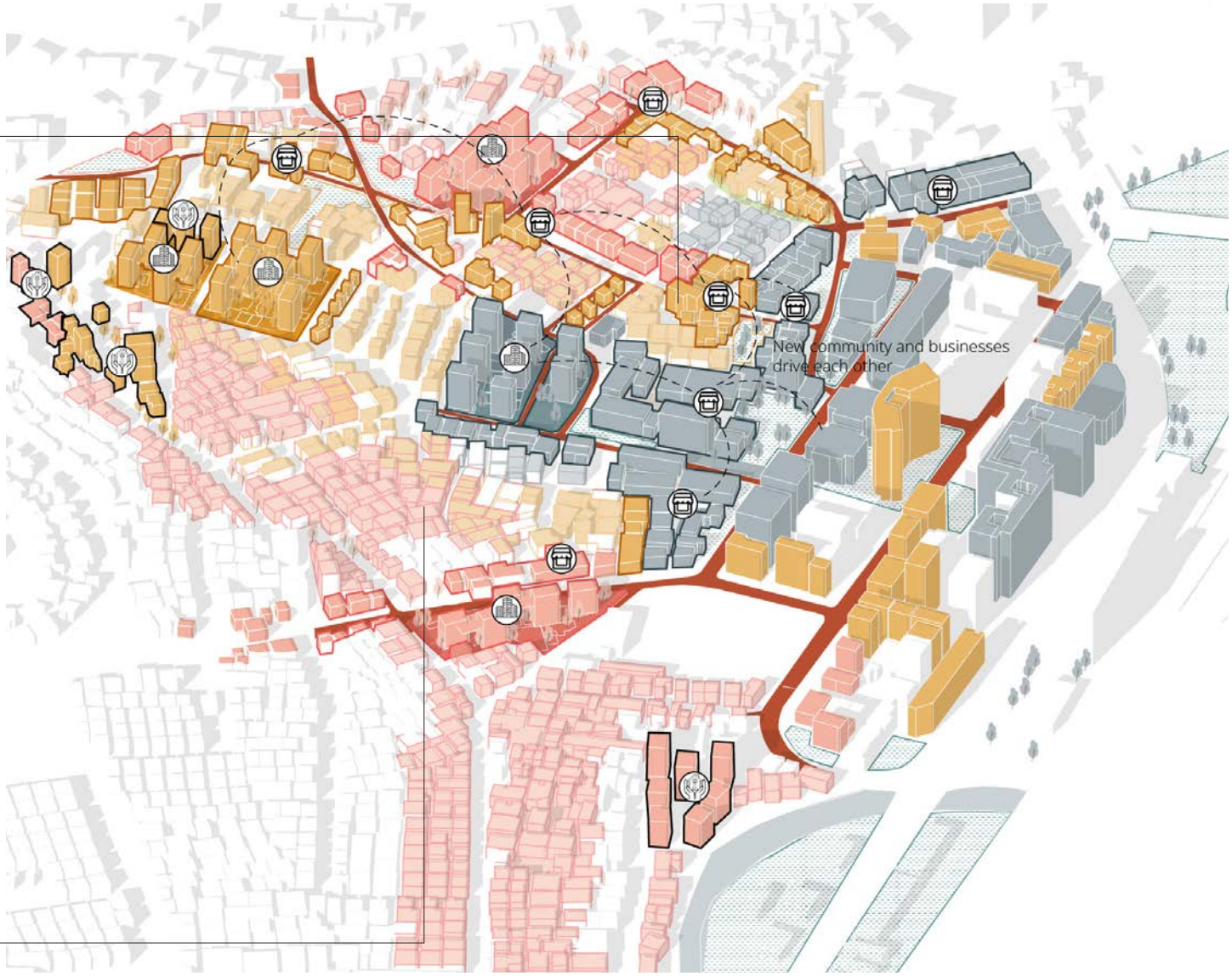


Figure 153 Different phases and spatial outcome of the scenario

In this case, the central focus of the overall structure resides at the junction between the urban village and the modern commercial area, with development branching out into the inner areas of the urban village. Urban village micro-regeneration takes center stage through the establishment of commercial streets and new communities. As the process unfolds, the primary emphasis gradually shifts towards urban village micro-regeneration. Consequently, the development becomes increasingly driven by commercial activities at the junction while fostering inclusivity as it extends outward.

Design-neighborhood
Lack of cooperation scenario

Outcome plan in initial stage

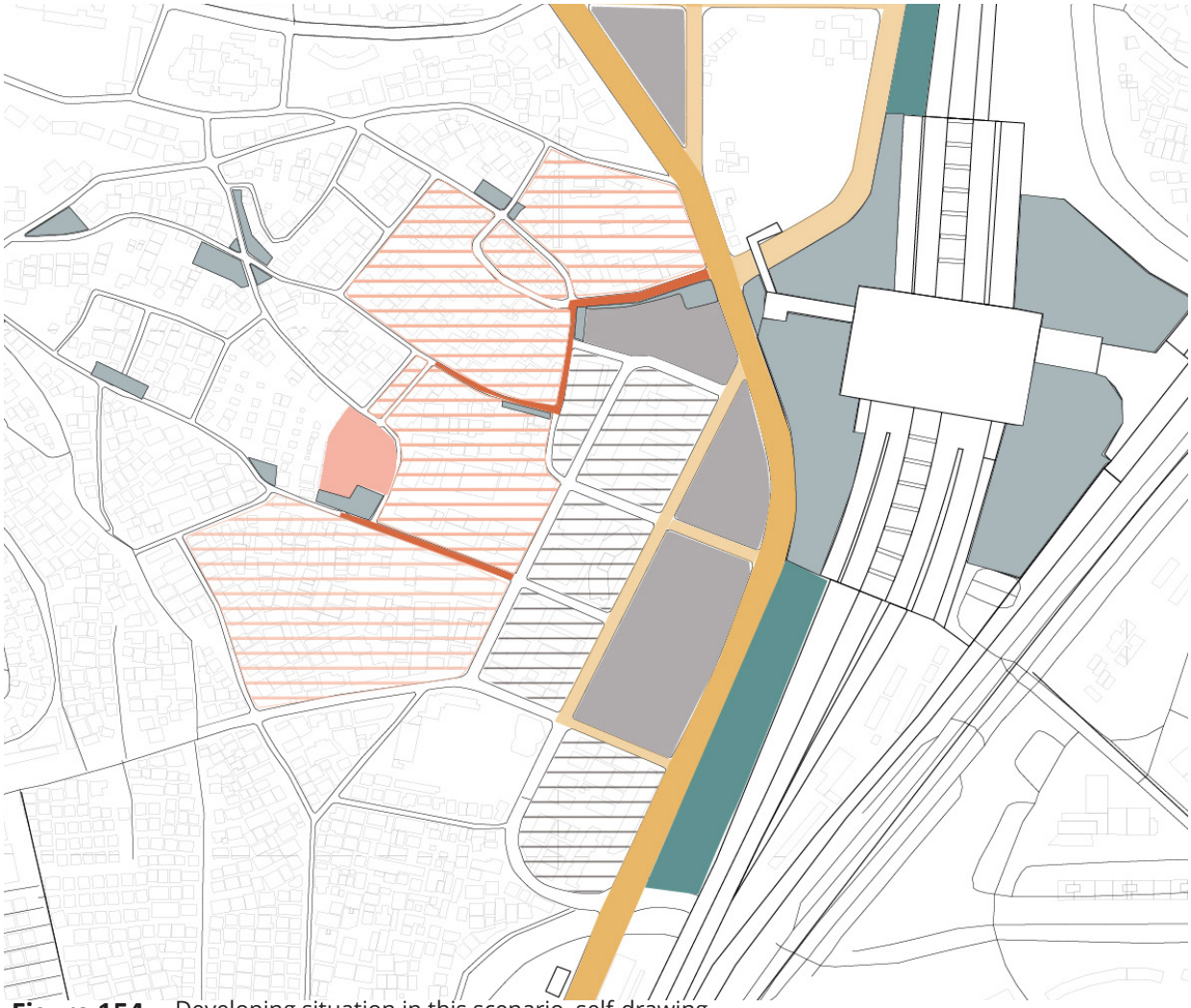
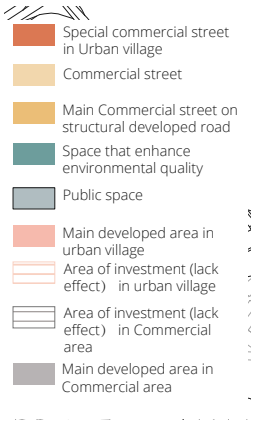


Figure 154 Developing situation in this scenario, self-drawing



The urban village micro-regeneration area has not developed. The government invested money to subsidize but could not promote the commercial development within the urban village. And the development of the modern commercial area around the metro station has stalled. The government is not able to sustainably obtain tax and other funds to subsidize the development within the urban villages. In this situation, new investors are not willing to join and former investors are not willing to continue to invest.

Outcome stakeholder mode in first mode

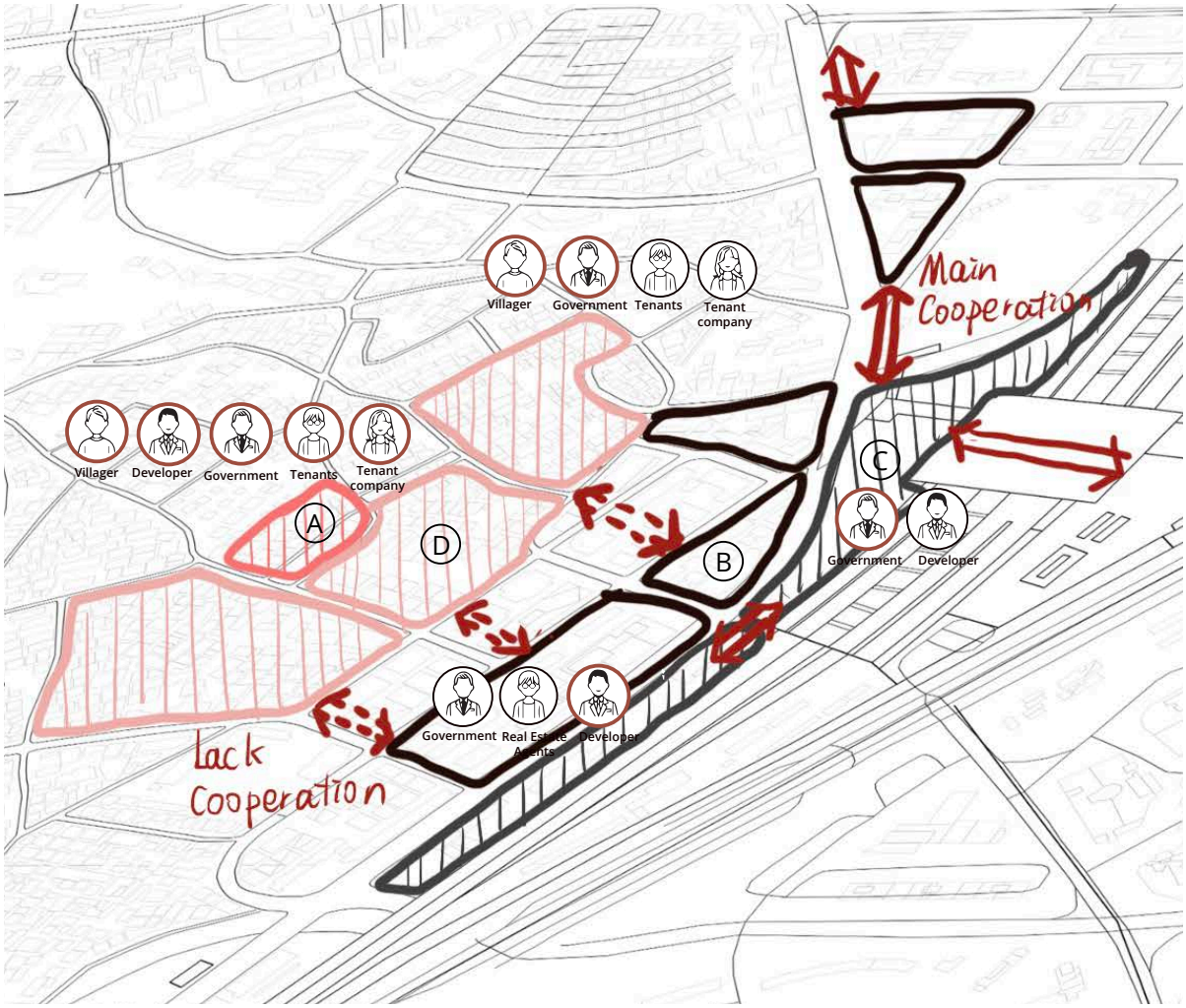


Figure 155 Stakeholder mode relationship in this scenario, self-drawing

Main mode of stakeholder for neighborhood

- (A) Cooperation between urban villager,government,developer
- (B) Developer as main power
- (C) Government as main power
- (D) Government&urban villager main power,cooperation with small investors, tenants, rental agent

In the stakeholder model, there is a lack of mutual promotion and collaboration between the different interest groups. The overall situation is stagnant. Developers and external investors have shown limited interest in the development of this area, while the government remains the main driving power in promoting its progress. However, there needs to be more coordination between the key stakeholders involved in the regeneration of the urban village and the commercial area surrounding the station.

Design-neighborhood

Lack of cooperation scenario

Phase1

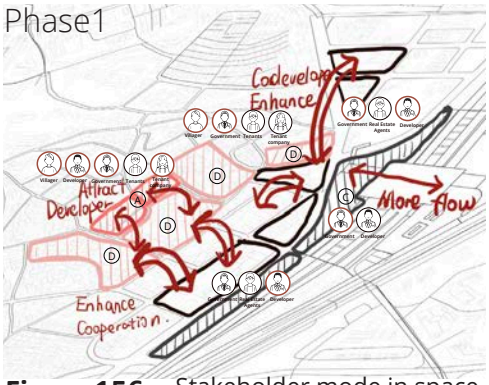


Figure 156 Stakeholder mode in space

Stakeholder:

During this phase, the government plays a crucial role as the main driving force, employing strategies such as commercial development and the establishment of new communities to attract developers. Additionally, active engagement with the villagers is pursued to ensure their participation in the regeneration process.

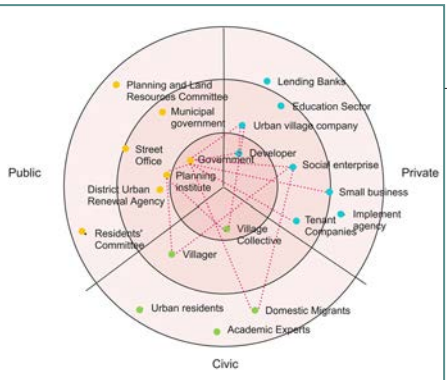


Figure 157 Stakeholder power

The focus is to promote the development of new communities and commercial streets, stimulating the overall progress of the area while maintaining a strong emphasis on providing suitable resettlement housing.

Phase2

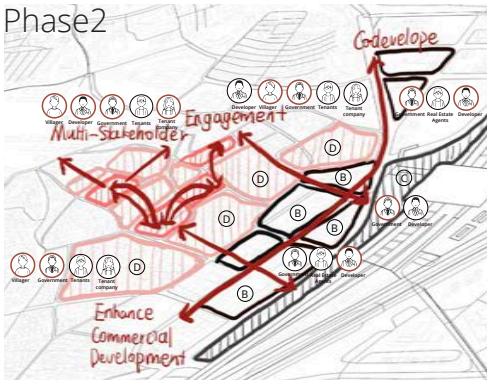


Figure 158 Stakeholder mode in space

Stakeholder:

During this phase, although the government remains a significant driving force, there is an increased participation from small investors and villagers in the regeneration process.

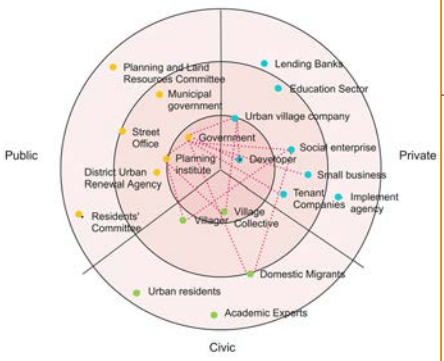


Figure 159 Stakeholder power

By promoting the development of new communities, the surrounding areas are stimulated, while simultaneously shifting the focus towards micro-regeneration.

Final phase

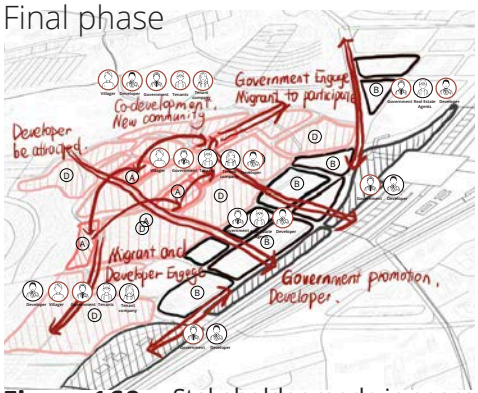


Figure 160 Stakeholder mode in space

Stakeholder:

The government, small investors, and villagers have implemented a multi-stakeholder approach to urban village regeneration. Throughout the process, there has been a gradual increase in consideration towards the migrants.

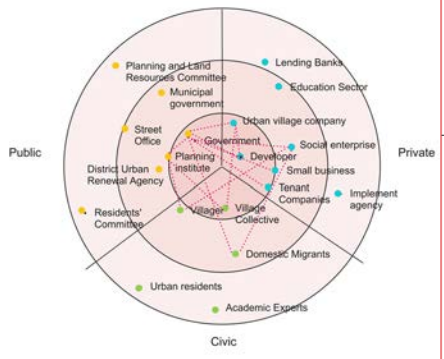


Figure 161 Stakeholder power

The main focus of the regeneration is primarily on micro-regeneration, with multiple stakeholders actively participating in the process. However, at the same time, the establishment of new communities is still necessary to sustain and drive the micro-regeneration process.

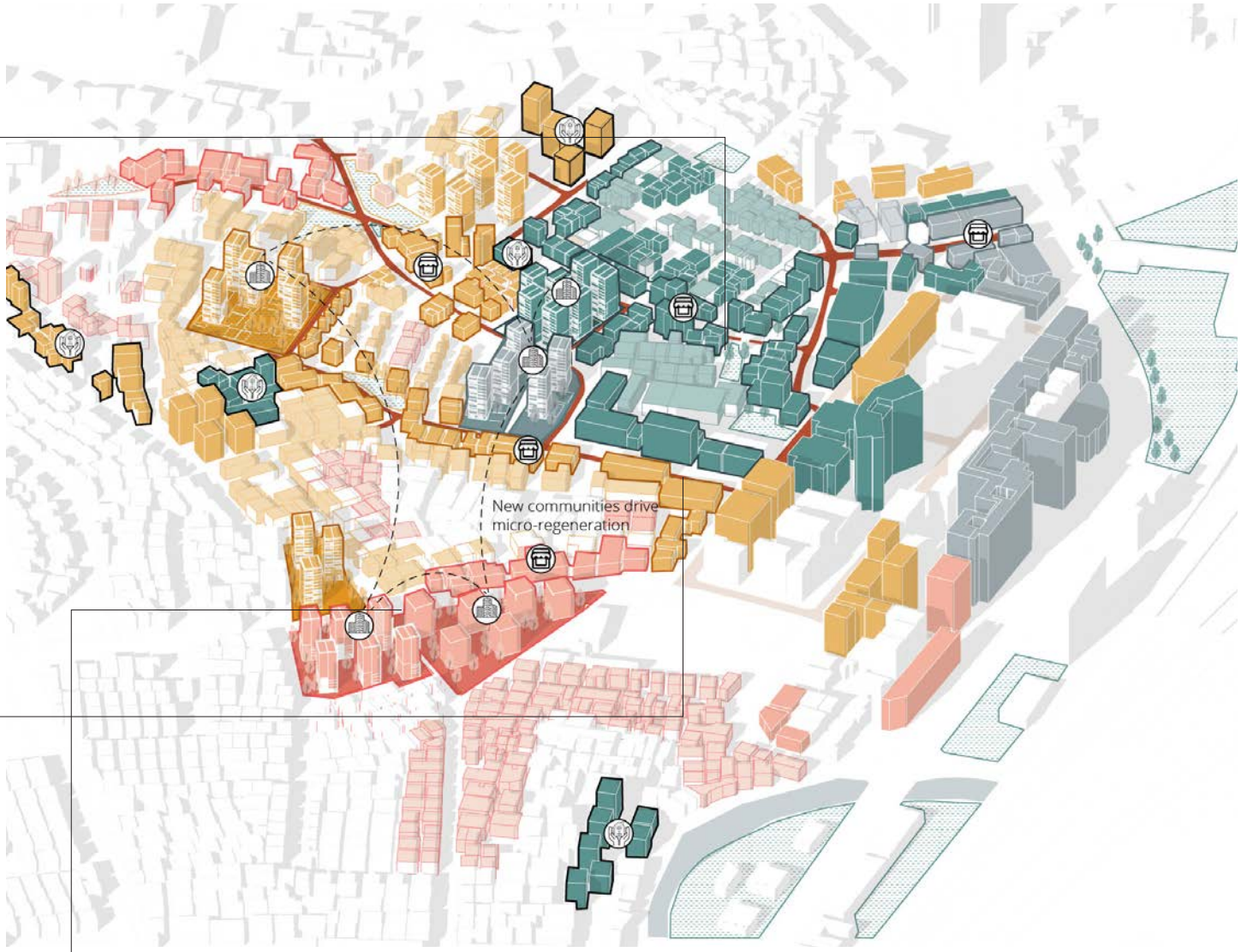
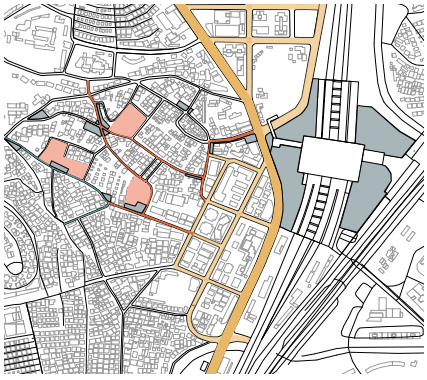


Figure 162 Different phases and spatial outcome of the scenario

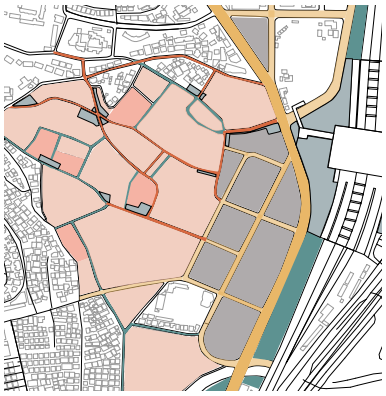
Ultimately, the development strategy for the area involves a careful balance of demolition, redevelopment, and micro-regeneration. While some areas may need to be sacrificed to ensure continuous development, the overall approach prioritizes inclusivity and sustainability.To achieve this, careful consideration is given to selecting areas for demolition and redevelopment. High-vacancy areas are targeted for micro-regeneration and rehousing, while new affordable housing is built to ensure that the needs of all community members are met. This approach reflects the importance of balancing economic and social goals and the need to ensure that the development process benefits everyone in the community. By embracing this approach, the area can continue to evolve and thrive in an inclusive and adaptable way over the long term.

Design-neighborhood
Adaptive map

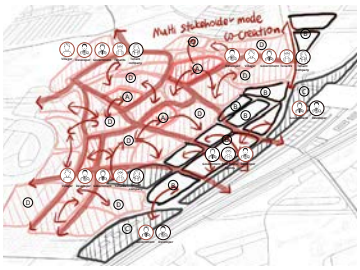
Initial activation



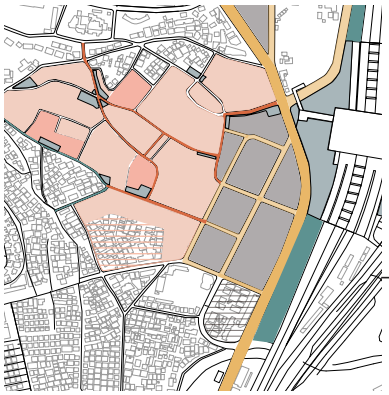
Co-creation scenario



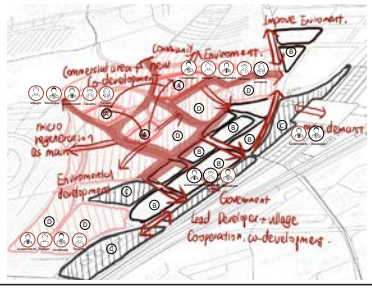
Stakeholder mode during the process



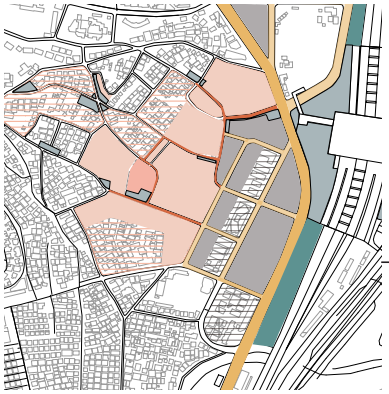
Mutual benefit scenario



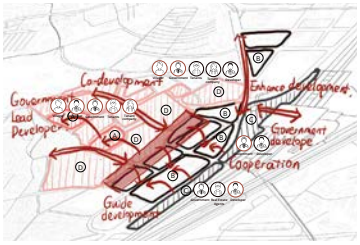
Stakeholder mode during the process



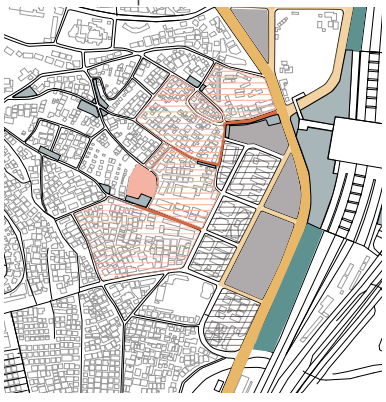
Profit-oriented scenario



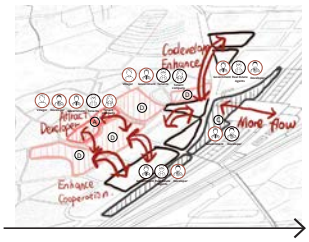
Stakeholder mode during the process

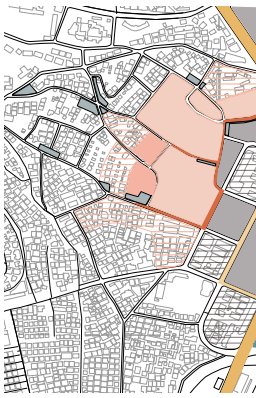


Lack of cooperation

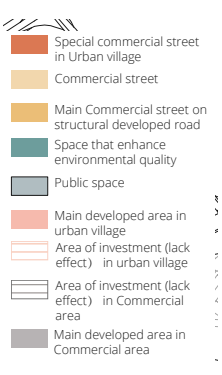


Stakeholder mode



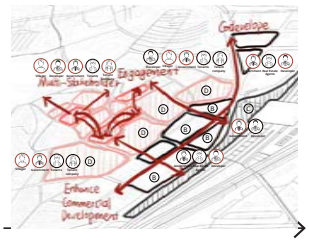


Legend



Stakeholder mode during the process

Stakeholder mode



Stakeholder mode

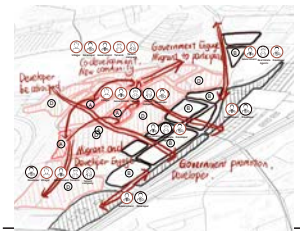
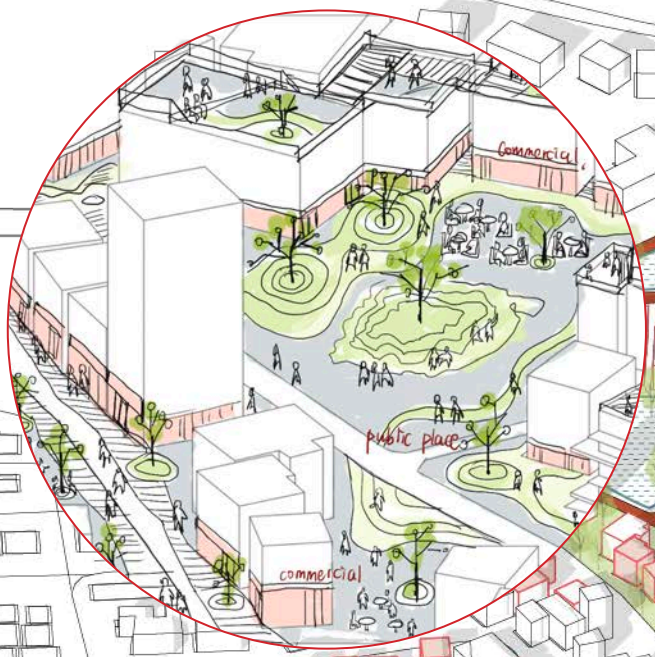
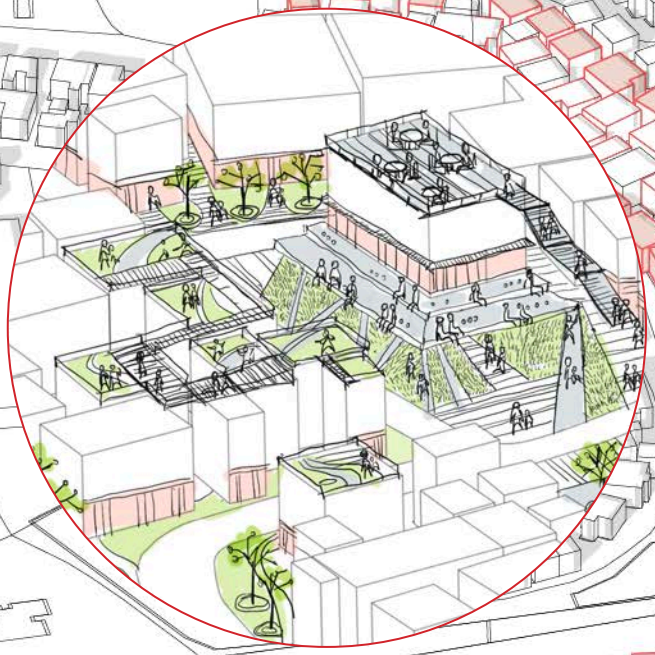


Figure 163 Stakeholder mode relationship and plan in different scenarios, self-drawing

Design

Final Ideal Vision





Government Villager Planner Tenent Investor Dom

estic migrant

Figure 164 Ideal vision of urban village

Design

Final Ideal Vision

Figure 165 Collage of outcome in ideal vision

CONCLUSION & REFLECTION

In this section, the author primarily focuses on the thinking, understanding, and conclusion regarding adaptive regeneration in urban villages after the entire project design process. The author explores the value of the project and examines how the strategy and design address the overarching question and sub-questions posed throughout the project.

Figure 166 Photo of people in Buji urban village, by "ziyiweiyoudatouzheng"

Conclusion

Summary of the design process

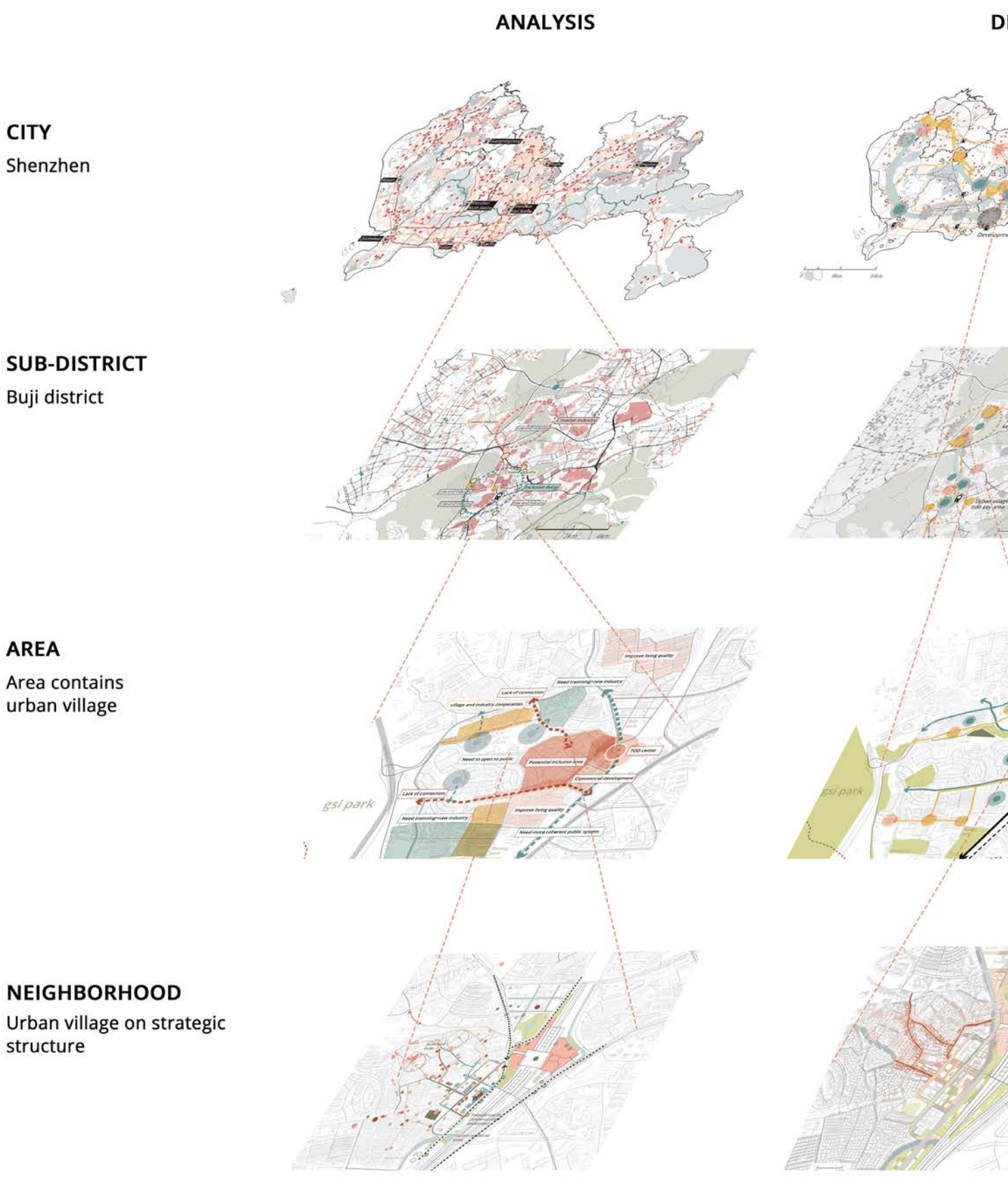
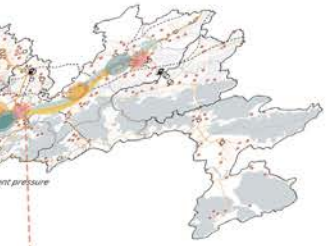


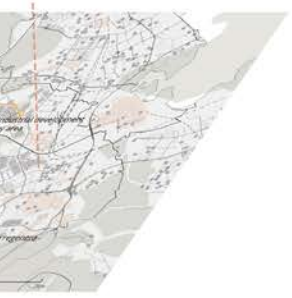
Figure 167 Overlap of different scales conclusion map, selft-drawing

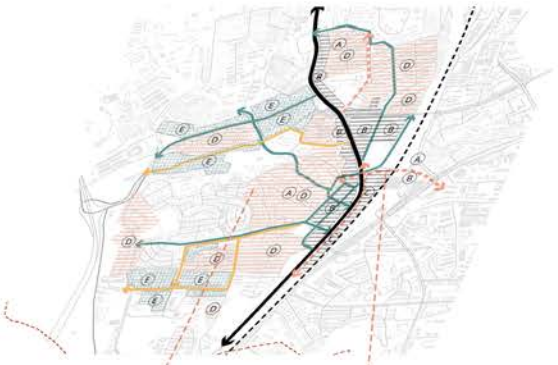
ESIGN

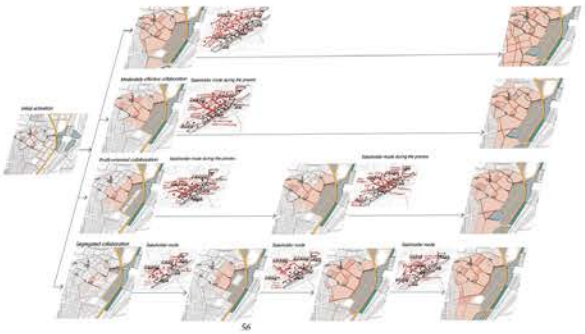
STAKEHOLDER

SCENARIO









Conclusion

Design and strategy in response to conceptual aim

The design of the neighborhood scale is divided into fthe scenarios according to the realization of micro-regeneration in the urban village, the structure of the overall development and the cooperation between different stakeholders.

On the neighborhood scale, fthe possible scenarios have been predicted. The first scenario is a smoother-than-expected cooperation situation, where the development patterns of the different areas contribute to each other's development. Most of the overall micro-regeneration is achieved, and the few new settlements are well integrated with the surrounding urban village environment. The second scenario aligns with initial expectations, gradually achieving micro-regeneration within the urban village and progressively amplifying the voice of migrant groups throughout the process. The third scenario anticipates different stakeholders prioritizing their interests, focusing development efforts on areas that offer greater benefits. Micro-regeneration within the urban village is contingent upon attaining substantial gains. The fourth scenario is that this vision of mutual promotion cannot be realized, and each area remains a fragmented development. The micro-regeneration development of the urban village area can only be promoted through some compromise of demolition and redevelopment.

Considering these fthe outcomes, it is essential to recognize that there is no absolute judgment of good or bad. The predetermined scenarios serve as a balancing guide, reflecting the urban planning designer's awareness of development demands and the need to balance various interests. The process is more meaningful because it shows that urban planning is not only about predetermining the possibilities of future development but also about learning how to use design and strategy to guide the trajectory of urban development. This is also the author's most profound experience of adaptation regeneration.

In the end, the different situations and the interaction between different scales all reßect the realization of the conceptual aim.

First, the integration of the road network, the strengthening of road connectivity, and the use of public space to reduce the separation between different areas all reßect consideration for integration. The integration at larger scales reßects the strengthening of regional connectivity and balanced development. At smaller scales, it is reßected in the increased connectivity and attractiveness of different spaces, which provides a spatial basis for the reduction of group segregation.

In terms of equality, the initial focus lies on achieving balanced urban development and spatial equity. This entails improving transportation infrastructure, enhancing access to essential services, and creating job opportunities in areas that have been historically marginalized. Additionally, efforts are made to provide affordable housing, employment opportunities, and training programs specifically targeting low-income individuals and domestic migrants. By addressing these disparities, the aim of fostering social equality can be achieved.

In terms of diversity, the approach involves offering a wide range of facilities, employment opportunities, and educational options to cater to the needs of diverse groups. In addition, this project provides a variety of living and leisure spaces and services on a smaller scale to meet different needs for future development. To a certain extent, the micro-regeneration of the urban village is achieved, and different living spaces are also preserved, reducing the homogeneity of space types.

At the level of flexibility, firstly, the coordination and interaction between different areas reflect the flexibility of cross-scale cooperation, and diversity creates the conditions for the realization of flexibility. On a smaller scale, the ßexibility of space is enhanced through the adaptation of spatial functions, and this sequential development of regeneration is achieved through a coordinated and progressive stakeholder cooperation model, which allows for flexible changes according to future development needs. By emphasizing and insisting

on micro-regeneration, this regeneration process can also reduce the time and money consumed, thus shortening the regeneration cycle and achieving more ßexible changes.employment opportunities, and educational options to cater to the needs of diverse groups. In addition, this project provide a variety of living and leisure spaces and services on a smaller scale to meet different needs for future development. To a certain extent, the micro-regeneration of the urban village is achieved, and different types of living spaces are also preserved, reducing the homogeneity of space types.

At the level of flexibility, firstly, the coordination and interaction between different areas reßects the ßexibility of cross-scale synergy, and diversity creates the conditions for the realization of ßexibility . On a smaller scale, the ßexibility of space is enhanced through the adaptation of spatial functions, and this sequential development of regeneration is achieved through a coordinated and progressive stakeholder cooperation model, which allows for ßexible changes according to future development needs. By emphasizing and insisting on micro-regeneration, we can also reduce the time and money consumed in the renewal process, thus shortening the regeneration cycle and achieving more ßexible changes.

Reflection about project

1. After the completion of the whole project, what do you think is the main manifestation of ythe adaptive regeneration?

The adaptive regeneration is mainly reflected in several aspects.

The first is the interaction and adaptation between multiple scales, where the spatial elements between different scales guide and adapt to each other. This results in a more flexible cross-scale collaboration. The structural aspect is crucial in coordinating the development directions of diverse scales, guiding their individual progress. Simultaneously, the strategic composition adjusts and adapts according to the structure's development and guidance, ensuring a cohesive and coordinated design.

Secondly, the strategic composition is made more flexible through the implementation of design and strategy, achieved through three main components. Firstly, diversification of the strategic composition is essential, enabling spaces and facilities to respond effectively to diverse future development directions. This diversity is primarily manifested in urban functions and the living spaces within urban villages. The second part focuses on achieving progressive regeneration of urban villages by aligning with various stakeholder modes and spatial considerations for regeneration. In this way, different stakeholders can still discuss and coordinate with each other throughout the regeneration process and adjust the next development direction of the urban village and the surrounding area. Thus, the adaptability to future development changes is enhanced. Increase the resilience of the urban village. Thirdly, the focus is on creating conditions for regeneration rather than resorting to demolition. Micro-regeneration becomes the primary mode of regeneration within the urban village, preserving its inclusive and tolerant atmosphere. This micro-regeneration is facilitated through the coordination of diverse stakeholders and development modes throughout the regeneration process, optimizing time and resource consumption. By shortening the consumption, the project achieves flexibility in future development.

By considering these aspects, the adaptive regeneration approach implemented ensures a ßexible and well-structured urban design and planning process that effectively responds to evolving needs and fosters resilient development.

Reflection about project

2. What is the relation between ythe graduation project topic, ythe master track Urbanism, and ythe master programme ?

The project specifically focuses on addressing the challenges posed by rapid urbanization, which is a prevalent issue in complex cities. The author aims to tackle these challenges at various scales through research and innovative design. By actively participating in the studio that specializes in "planning complex cities," The authorhave gained a thorough understanding of the contextual challenges associated with urban complexity. This experience has equipped the author with the knowledge and expertise to effectively employ planning and design strategies in order to address these urban problems. This aligns seamlessly with the track of Urbanism, which encompasses the diverse disciplines of urban planning and design. By pursuing this track, the author's goal is to develop a comprehensive perspective on urban development and acquire the necessary skills to contribute towards cities' sustainable growth and resilience.

3. How did ythe research influence ythe design/recommendations and how did the design/recommendations influence ythe research?

Through research, the author has focused on the topics of rapid urbanization, uneven development, urban villages, and urban village regeneration, which has led to a deeper understanding of the dilemmas and current conditions faced by urban village regeneration. This research process helped the author to sort out and reßect on the issues most concerned about and to clarify the focused aspect in the analysis and design to guide designs and strategies. At the same time, the author further deepened the understanding of the research context through experimentation and exploration of design and strategy in practice. Specifically, the author began to think about the importance of functional diversity and ßexibility within urban villages and how to maintain their inclusive environment, which made the author more aware of the drawbacks associated with the regeneration model of complete demolition and redevelopment. At the same time,the author also became aware of the need for resilient development within urban villages.

4. How do you assess the value of ythe way of working (ythe approach, ythe used methods, used methodology)?

The primary value of the project lies in the innovative design and strategic framework of adaptive regeneration. This exploration is characterized by a deep understanding of multi-scale interactions and flexible collaborations. It encompasses the consideration of structural urban elements and the strategic composition that adapts and evolves in response to the structure. Furthermore, it integrates stakeholder models with spatial design at the area and neighborhood scale, ensuring a progressive regeneration process.

5. How do you assess the academic and social value, scope and implication of ythe graduation project, including ethical aspects?

The graduation project's focus on social value is also important to understanding socio-spatial resilience. When driving urban village development through urban regeneration, the main concern is whether this regeneration will segregate the existing communities. Can urban villages achieve development while maintaining the inclusiveness and tolerance of the original space? In this project, the author firmly believes that spatial integration is one prerequisite for addressing segregation. However, in order for the tenants of these urban villages to be truly accepted by their surroundings, they need to have the ability to adapt to future changes and find different job opportunities. Therefore, the concept of socio-spatial resilience aims to address the disparity between domestic migrant living areas in urban villages and the surrounding areas by improving the quality of their spatial environment. Additionally, it emphasizes the social dimension, empowering them to achieve sustainable development, progress, and genuine acceptance within their surroundings. These are also the goals that micro-regeneration aims to achieve.

6. How do you assess the value of the transferability of ythe project results?

The author believes that the transferability of the project results is mainly reßected in the fact that this adaptable urban village regeneration model can be applied to spaces that are under signiÞcant development pressure but also seek to maintain some of the original characteristics within the urban village. This model can provide inspiration and guidance for similar situations to address the challenges of urbanization and achieve resilient development. This transferable urban village regeneration model not only promotes overall urban development but also preserves and enhances the uniqueness and social value of the urban village, creating better living environments for residents. Therefore, the author believes that the project has broad application potential for urban planning and regeneration practices in similar scenarios and can provide valuable insights for future urban development.

APPENDIX

Figure 168 Photo of people in Buji urban village, by "ziyiweiyoudatouzheng"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Appendix
Questionnaire for mental map

1. Employees working in industrial areas

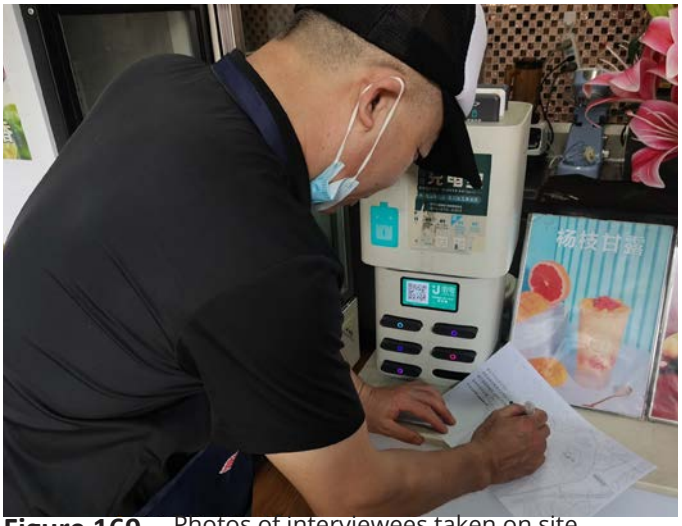

Figure 169 Photos of interviewees taken on site

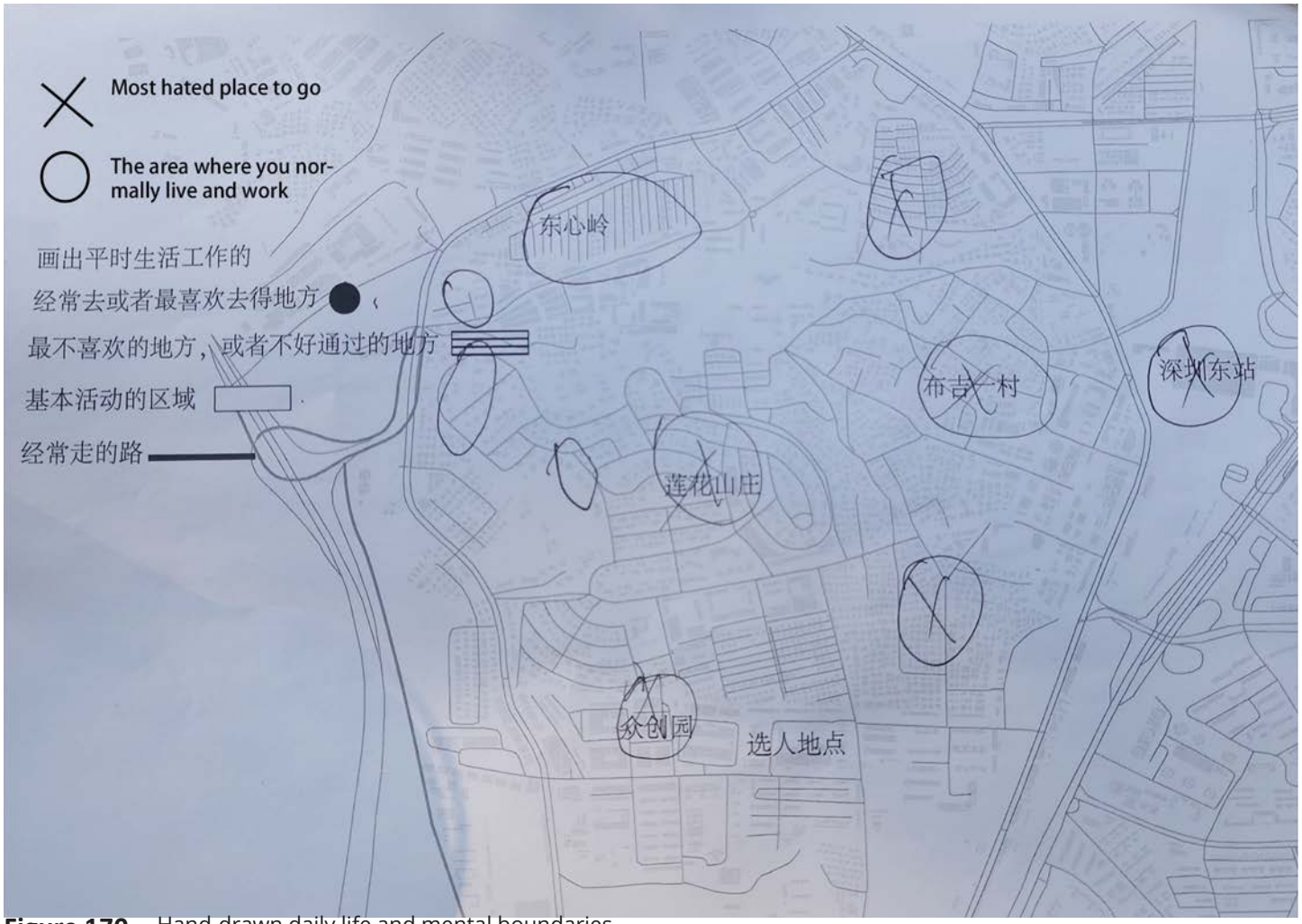

Figure 170 Hand-drawn daily life and mental boundaries

2.Domestic migrant who work in the ground floor shop of urban village

Figure 171 Photos of interviewees taken on site

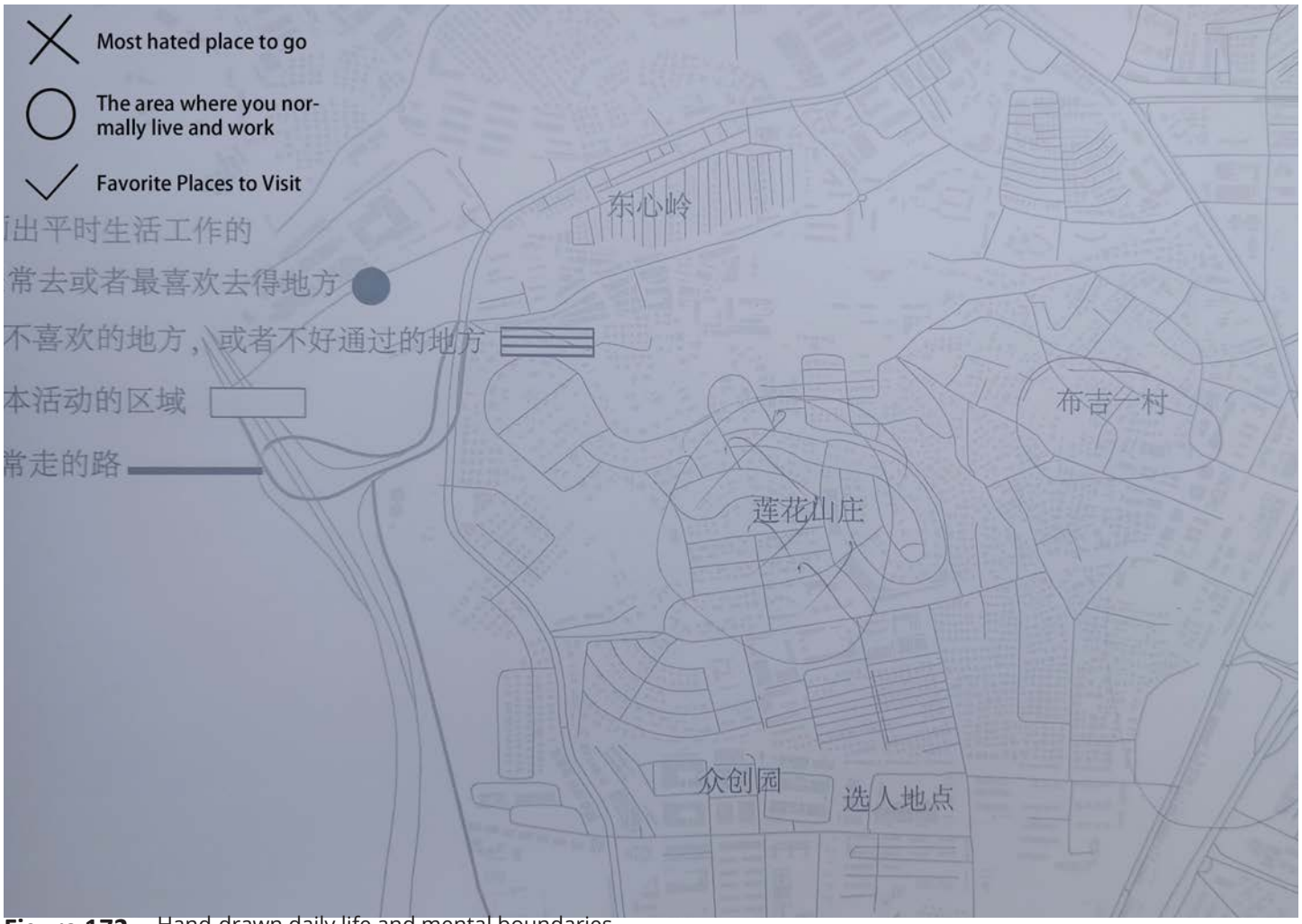

Figure 172 Hand-drawn daily life and mental boundaries

3.Student live in the urban village aree

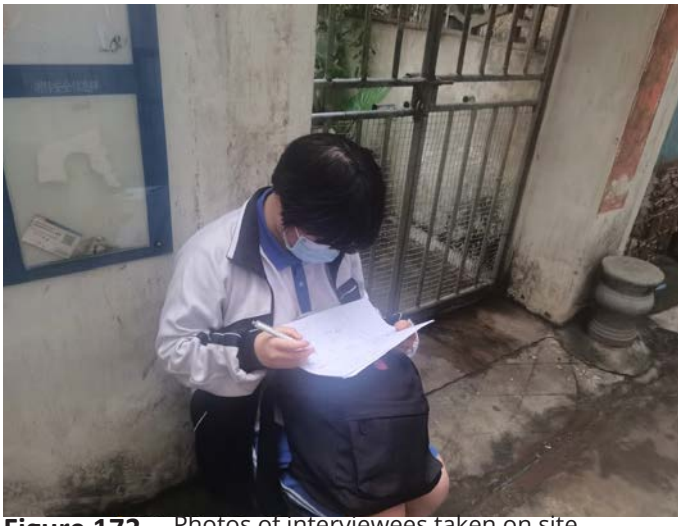

Figure 173 Photos of interviewees taken on site

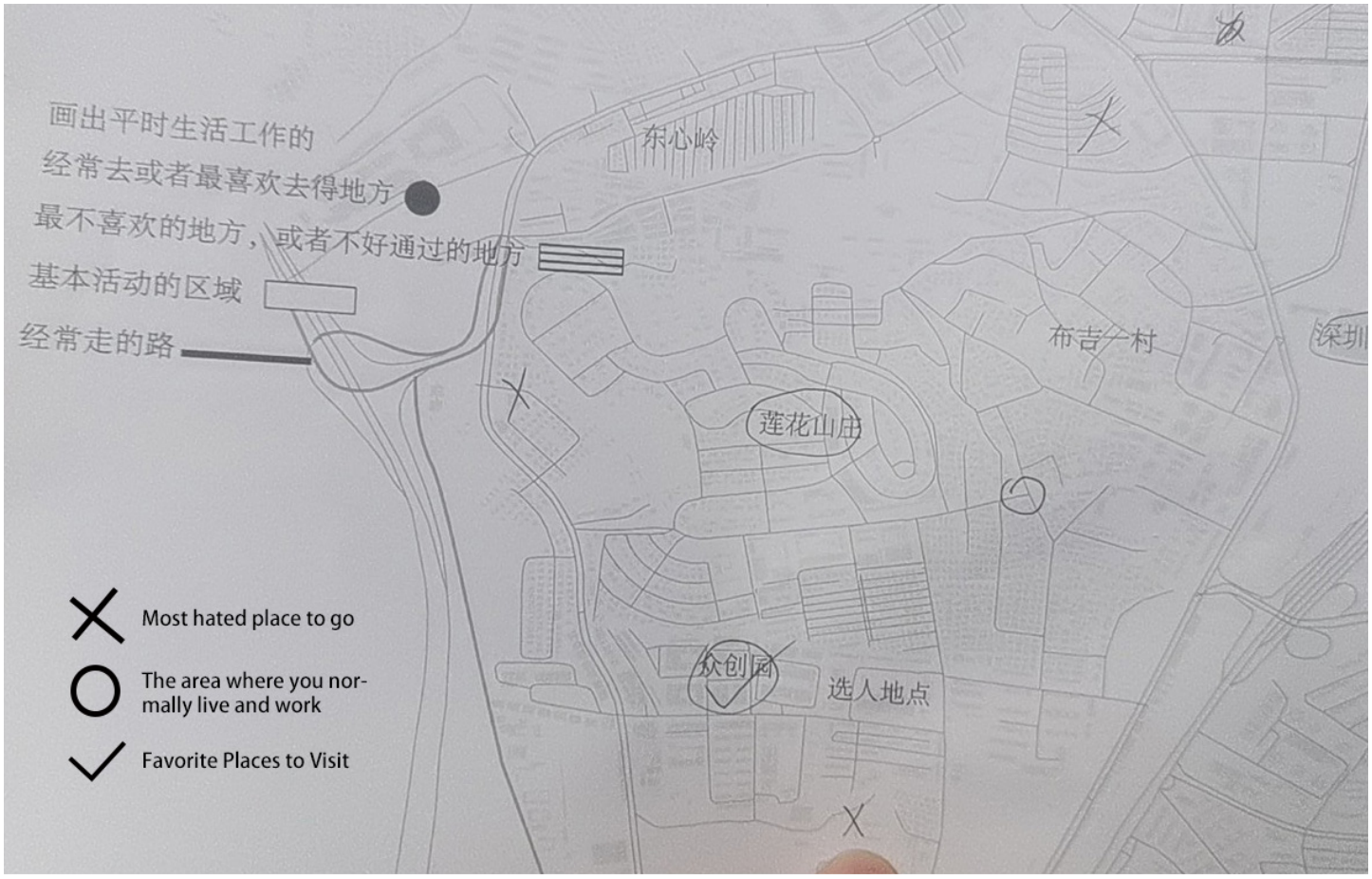

Figure 174 Hand-drawn daily life and mental boundaries

4. Takeaway workers who live in urban villages and work part-time

Figure 175 Photos of interviewees taken on site

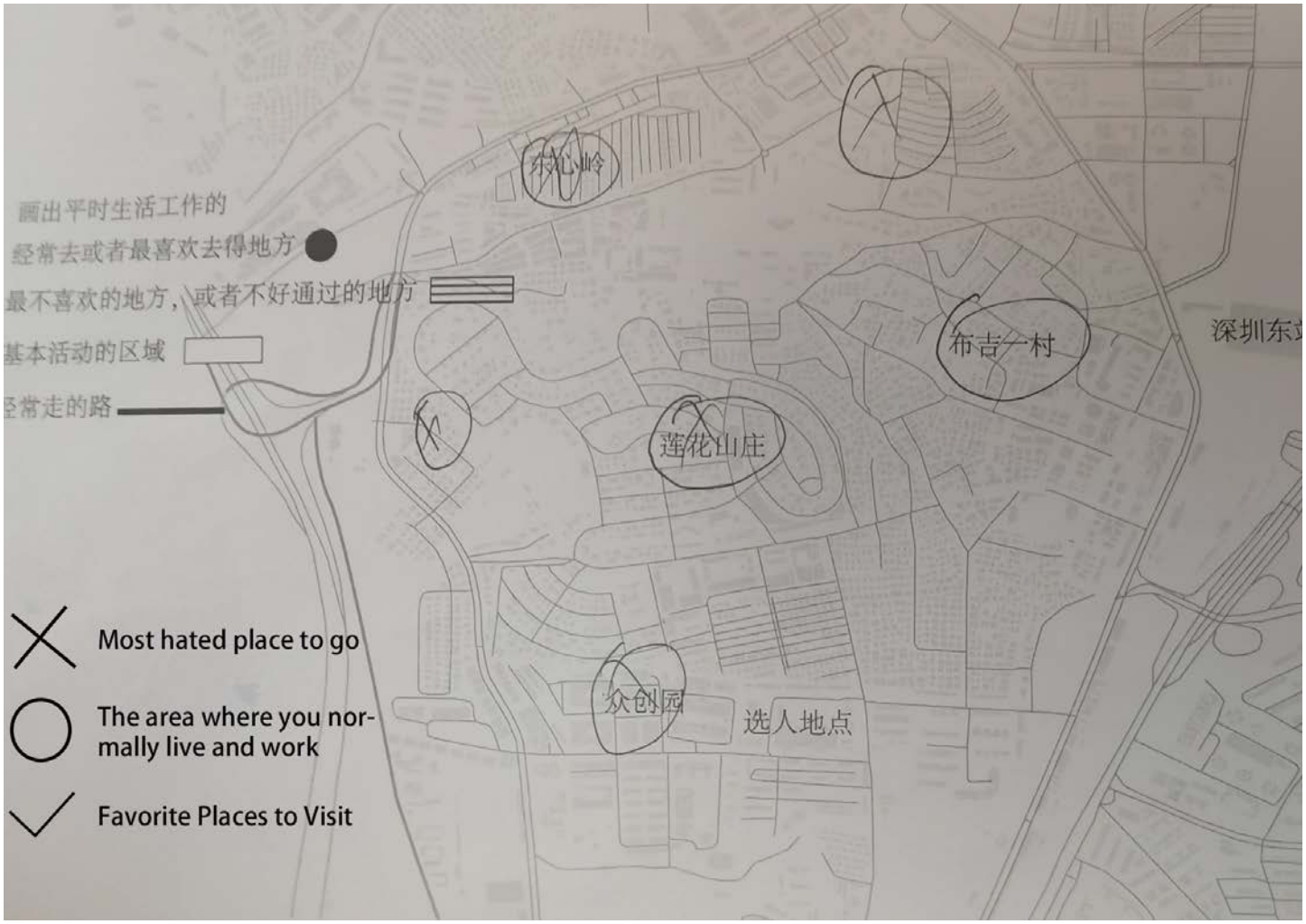

Figure 176 Hand-drawn daily life and mental boundaries

5.Domestic migrant live in urban village

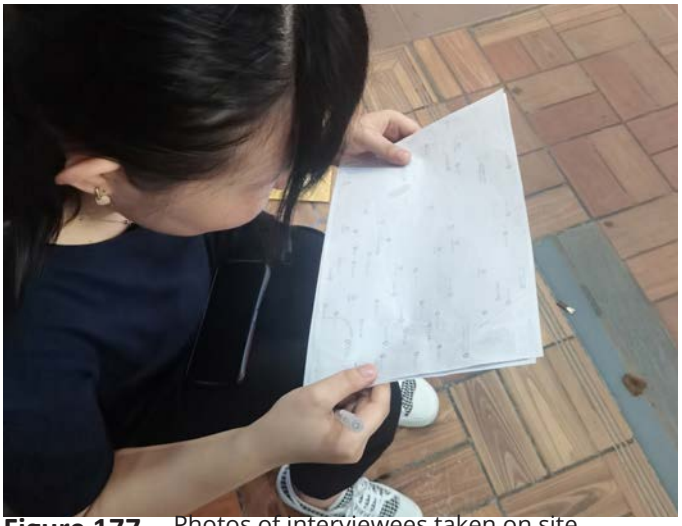

Figure 177 Photos of interviewees taken on site

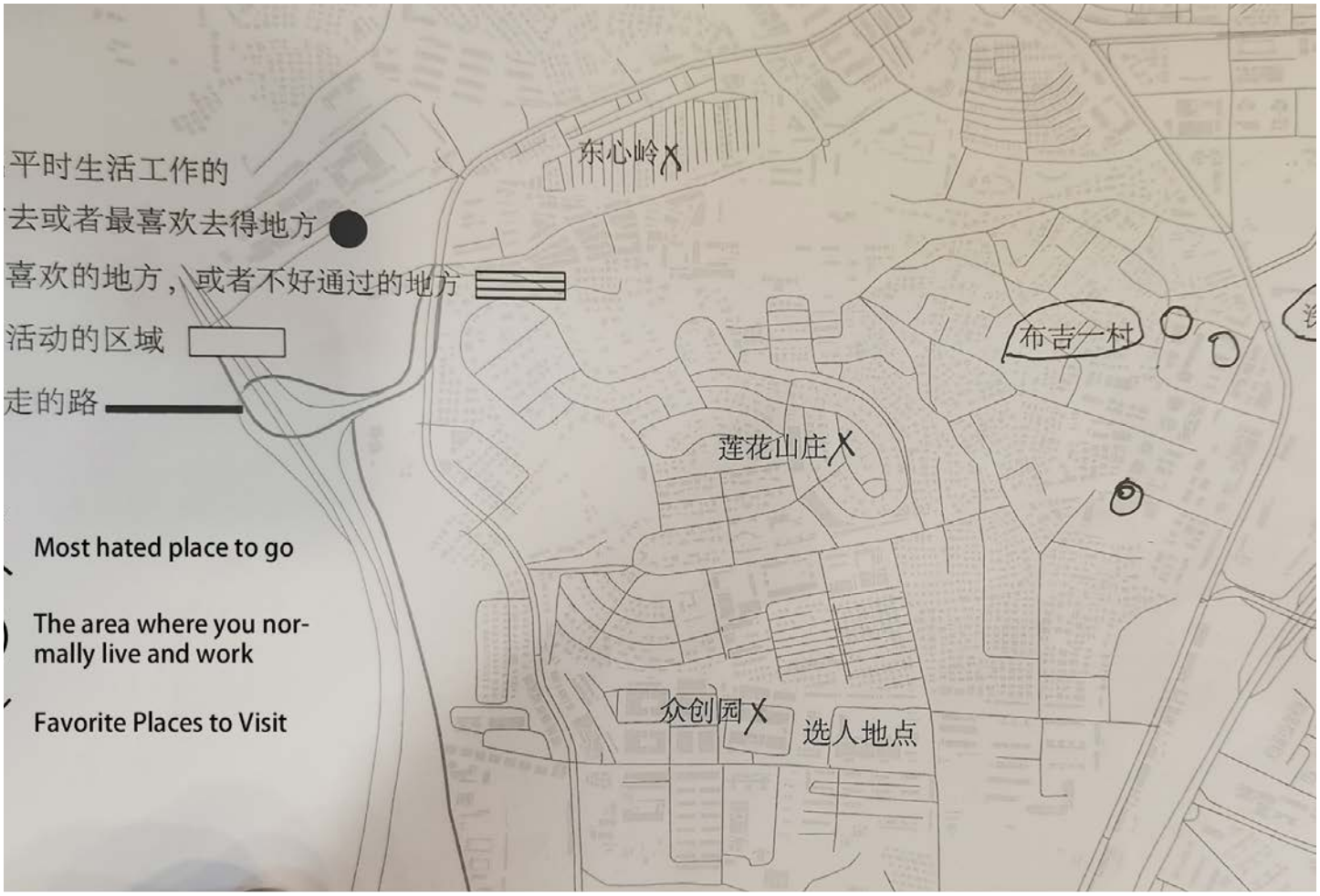

Figure 178 Hand-drawn daily life and mental boundaries

6. Small business owner on the first floor of an urban village

Figure 179 Photos of interviewees taken on site

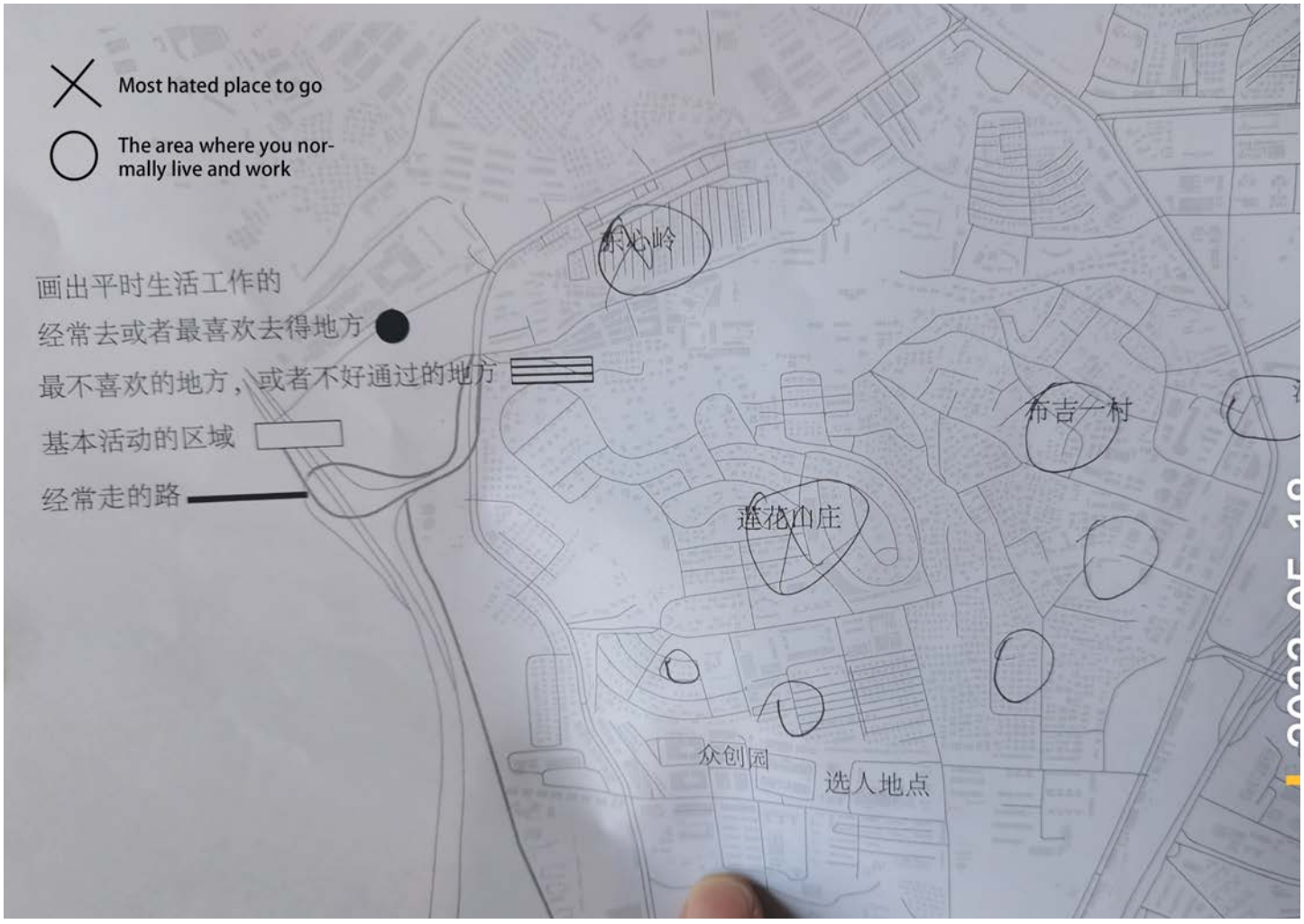

Figure 180 Hand-drawn daily life and mental boundaries

7. Domestic migrant live in urban village

Figure 181 Photos of interviewees taken on site

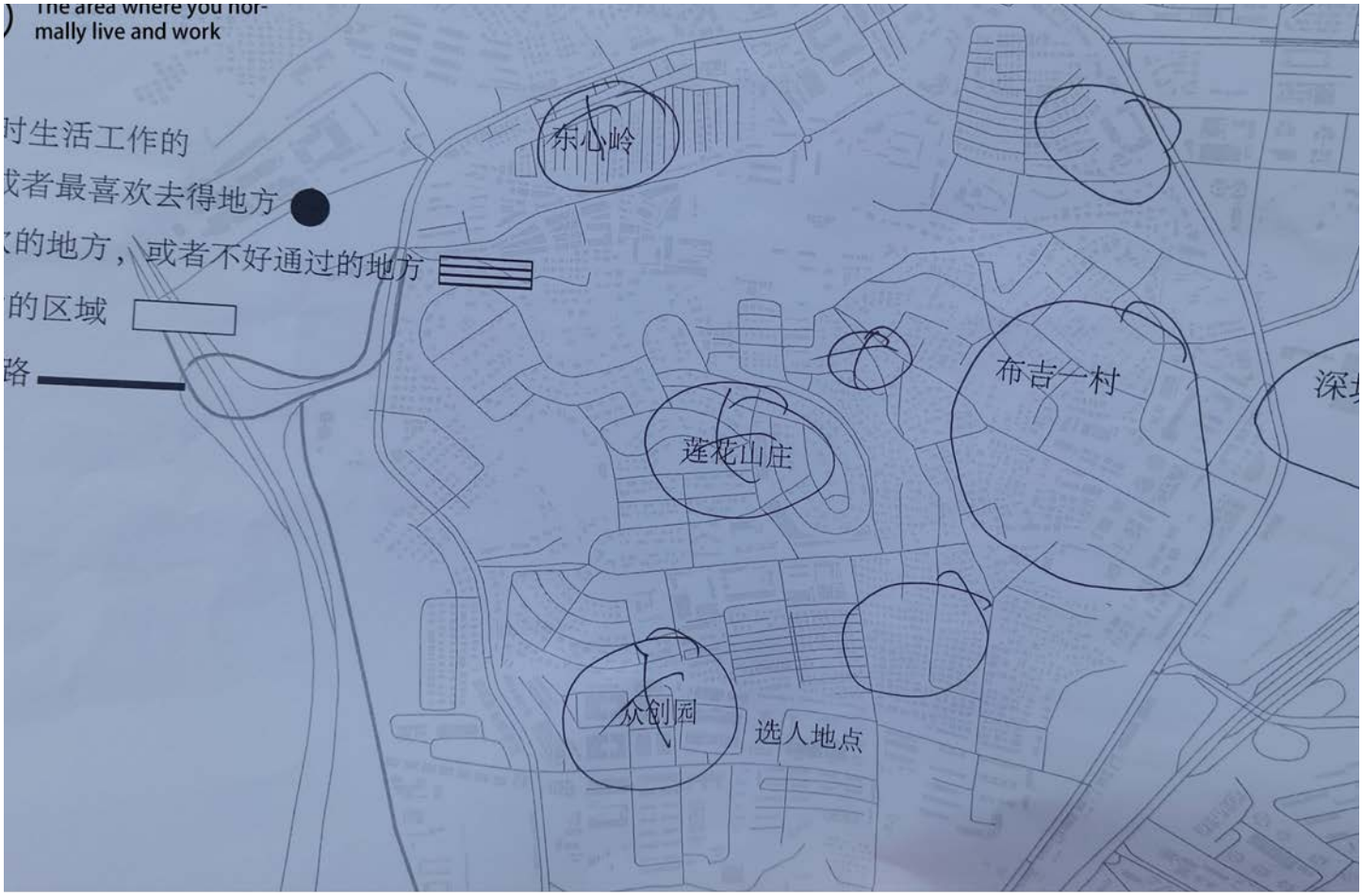

Figure 182 Hand-drawn daily life and mental boundaries

8.Small business owner on the first floor of an urban village

Figure 183 Photos of interviewees taken on site

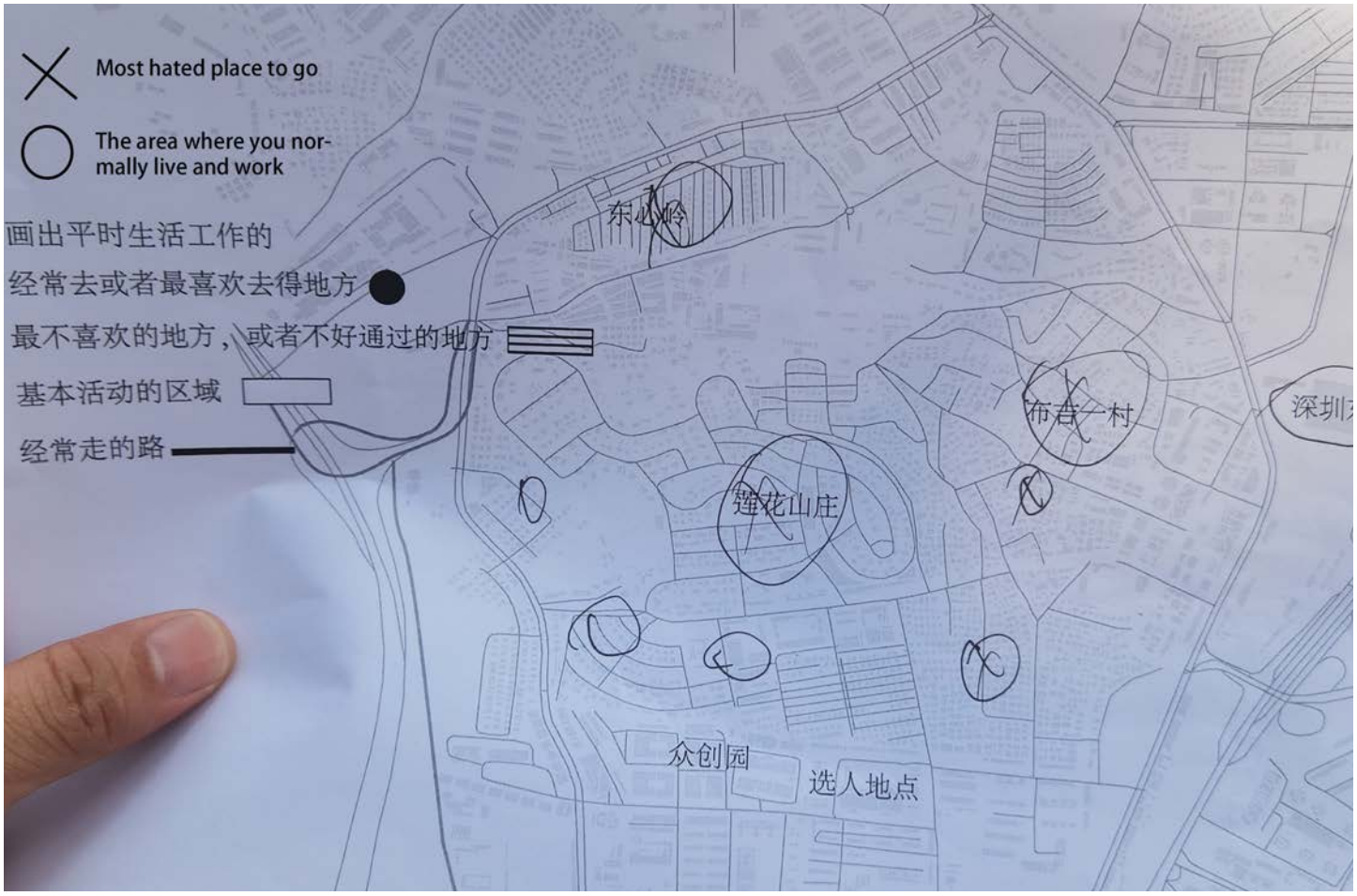

Figure 184 Hand-drawn daily life and mental boundaries

Addition notes: All photos and questionnaires are publicly available with the permission of the interviewee.

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