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Redevelopment of Urban Village in Shenzhen

A Thesis Presented

By

HANG ZHOU

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF ARCHITECTURE

May 2014

Architecture + Design Program
Department of Art, Architecture and Art History

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Redevelopment of Urban Village in Shenzhen

A Thesis Presented

By

HANG ZHOU

Approved as to style and content by:

_____

Kathleen Lugosch, Chair

_____

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_____

William T. Oedel, Department Chair
Department of Art, Architecture and Art History

DEDICATION

To my parents and family for their endless love and support.

ACKNOWLEDGMENTS

Special thanks to Kathleen Lugosch and Stephen Schreiber for their academic advices and kind help.

ABSTRACT

REDEVELOPMENT OF URBAN VILLAGE IN SHENZHEN

MAY 2014

HANG ZHOU, B. ARCH, CHONGQING UNIVERISTY

M.ARCH, UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor Kathleen Lugosch

Urban Villages are a specific phenomenon raised in modern China due to the high-speed economic development and urbanization in recent three decades. And there are social, economic, cultural and architectural transformations happened in these villages during these years. They appear on both the outskirts and the downtown segments of major cities, and surrounded by skyscrapers, transportation infrastructures, and other modern urban constructions. They are commonly inhabited by the poor and transient.

Most of Urban Villages are heavily populated, overdeveloped, and lack of basic infrastructure. Some villages' building density is higher than 70%. They are composed of overcrowded multi-story buildings from three to five (or more) floors, also with narrow alleys, which are difficult for vehicles to pass through. Inside these villages, it is dark and damp year round and the lights have to be kept on during daytime. However, they are also among the liveliest areas in some cities and are notable for affording economic opportunity for newcomers to the city.

However, Urban Villages are rejected by the governor and face demolition–redevelopment programs in order to replace them with formal urban neighborhoods. But the demolition-redevelopment approach would be devastating not only for the rural migrants, but also for the city's economy which is largely based on labor-intensive sectors.

In my study, I take Gangsha Village, a typical urban village in Shenzhen City, as a study case, to explore an appropriate reformation approach that combines urban design and architectural strategy to solve social, economic and cultural problems in Urban Village. To provide them a better living condition, and make the village better serves the city.

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CHAPTER 1

INTRODUCTION

1.1 What is Urban Village (Global Understanding)

The concept of Urban Villages was formally born in Britain in the late 1980s with the establishment of the Urban Villages Group (UVG).[1]

The Urban Village is an urban planning and urban design concept. It refers to an urban form typically characterized by:

- Medium density development
- Mixed use zoning
- The provision of good public transit
- An emphasis on urban design - particularly pedestrianization and public space

Urban Villages are seen to provide an alternative to recent patterns of urban development in many cities, especially decentralization and urban sprawl. They are generally purported to:

- Reduce car reliance and promote cycling, walking and transit use
- Provide a high level of self-containment (people working, recreating and living in the same area)
- Help facilitate strong community institutions and interaction[2]

---

[1] Aldous, Tony. 1992. "*Urban Villages: a concept for creating mixed-use urban developments on a sustainable scale*". London: Urban Villages Group.

[2] Wikipedia, "*Urban Village*", < http://en.wikipedia.org/wiki/Urban_village>

Figure 1: Urban Village in Greenwich, London

1.2 The specific characteristic of China's Urban Village

Driven by market forces and the government's reaction to the marketplace, the spatial growth of cities is sustained. [3]Because cities are growing, the governments have to rely on the transformation from rural space to urban space, in order to provide enough space for urban development. In this time, many rural villages have been surrounded by newly developed urban land, forming the Urban Villages. Due to the loss of farmland, the traditional way of life with agriculture that the local population rely on

[3] Yeh, A. G. and Wu, F. L. 1999. *The transformation of the urban planning system in China from a centrally-planned to transitional economy*. Progress in Planning. P. 167-252.

is abandoned. The landless farmers, thus need other business to make a living, the retention of their villages' housing areas provides an opportunity. Extensions are made to existing houses and new houses are built and rented to migrant workers. For this reason, local farmers take advantage of their villages' prime locations and exploit them via highly profitable room-rental businesses.[4]

Figure 2: Urban Village in China

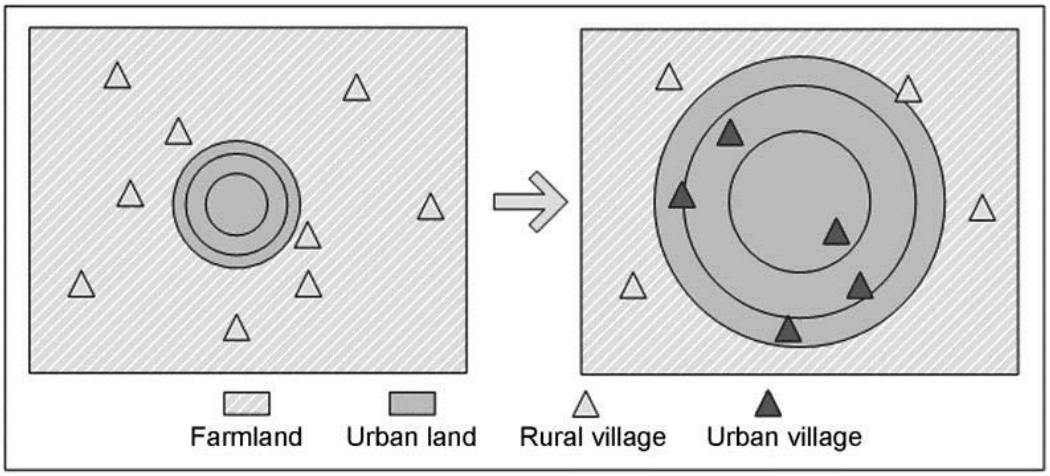

Figure 3: Formation of Urban Village

[4] Hao, Pu 2012. *Spatial Evolution of Urban Villages in Shenzhen*. P. 2

Meanwhile, rural migrants have been flooding into cities' booming manufacturing and service sectors. Being rejected from official urban residential since without enough money and city ID, these migrants are excluded from the formal housing market. [5]They are thus forced to seek accommodation in Urban Villages depend on their affordability and social accessibility. [6] In China's urban transition, while the government neglects the livelihood of the two most vulnerable groups—the landless peasants and the rural migrant workers—Urban Villages have undeniably contributed a positive environment to alleviating the problems of the unemployment of the former and the accommodation of the latter.[7]

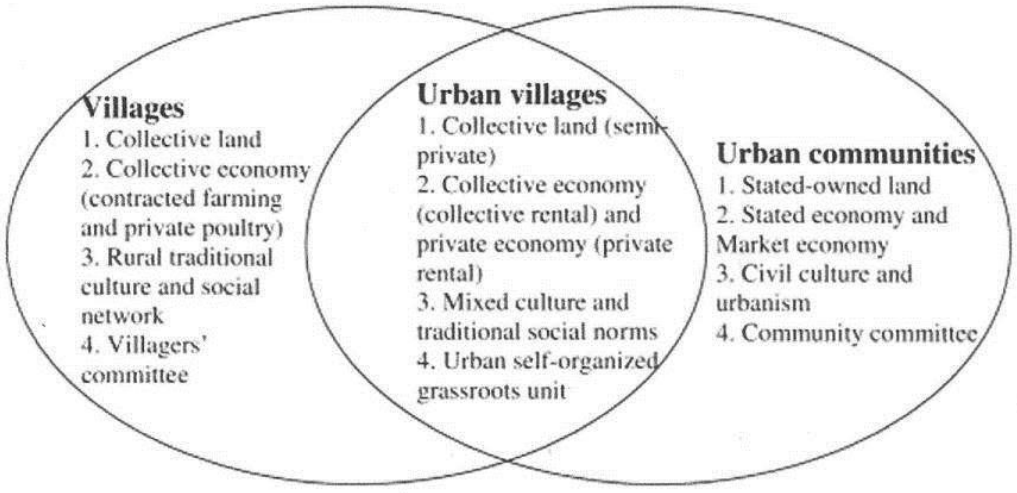

Figure 4: Comparison between Village, Urban Village and Urban Community

[5] Wang, Y. P. 2000. *Housing reform and its impacts on the urban poor in China*. Housing Studies. P. 845-864.

[6] Zhang, L., Zhao, S. X. B. and Tian, J. P. 2003. *Self-help in housing and chengzhongcun in China's urbanization*. International Journal of Urban and Regional Research. P. 912-937.

[7] Hao, Pu 2012. *Spatial Evolution of Urban Villages in Shenzhen*. P. 3

In many cities, Urban Villages serve as an indispensable secondary market of urban housing. However, their development is not regulated by any form of official urban planning due to the rural status of Urban Village land. Many Urban Villages are heavily populated, overdeveloped and lacking basic infrastructure. Urban government and formal urban citizens generally hold a negative view of Urban Villages, [8]regarding them as 'eyesores' and backward places', and blaming them for inefficient and chaotic land use that hampers the process of 'modernization'. [9]Because city government treat Urban Villages as more of an urban management problem, the power for local government to control Urban Villages is a politically important and essential process. These lead the demolition and redevelopment of many Urban Villages. Cities like Beijing, Shanghai, Guangzhou, and many of them have large-scale planning for Urban Village redevelopment. But none of them focus on the new home for landless and migrant workers, only care about earn more money from these newly high standard residential buildings.

1.3 What is the difference between China's Urban Village and Slum

1. Urban Village is a relationship between original villagers and tenants (the majority of the floating population); Slum is the shanty area that completely self-

[8] Zhang, L. 2005. *Migrant enclaves and impacts of redevelopment policy in Chinese cities*, Restructuring the Chinese City: Changing Society, Economy and Space. New York: Routledge. P. 218-233.

[9] Wu, F. L. 2009. *Land development, inequality and urban villages in China*. International Journal of Urban and Regional Research. P. 885-889.

built and occupied public land.

2. Urban Village is the local community with deep social relationship networks, such as blood, kinship, Geo and folk beliefs; Slum is relatively transient, random, and change location with the government's continuous demolition.
3. Urban Village has a socioeconomic system that adapts to the market demand. The village's joint-stock company manages the whole village, has overall responsibility for the community life, forms an infrastructure and maintenance system which serves the original villagers and tenants.

1.4 The specific characteristic of Urban Village in Shenzhen

The Urban Village in Shenzhen is different from the Urban Village in other cities of China. Lots of Urban Villages in Shenzhen are located in the urban center, because this city evolved from rural. Their development mode, industrial structure and economic location are different from the Villages located on the urban fringe.

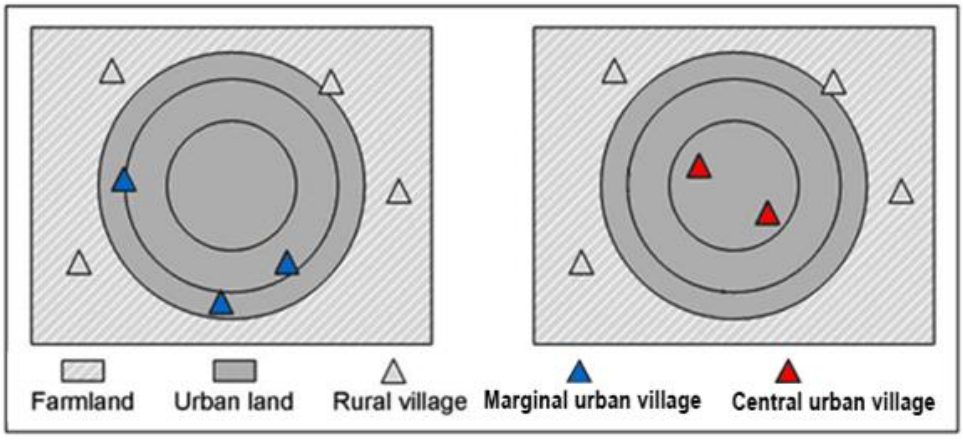

Figure 5: Comparison between marginal and central Urban Village

Table 1: Comparison between marginal and central Urban Village

Contents	**Marginal Urban Village**	**Central Urban Village**
Location	Urban fringe, generally not surrounded by urban districts	Urban center or nearby, surrounded by urban districts
Land use	Residential land, industrial land and part of agricultural land	Residential land. Commercial-residential land
Community economy	Mainly in Secondary industry, lack of Tertiary industry, low income, villagers are mainly migrant workers	Mainly on the rental economy and the tertiary industry
Spatial form	Relatively open, with lower density	Space is continuous, with high-density, mainly "Handshake Building"
Demographic composition	Villagers and migrant workers	Villagers, floating population from different sources
Development prospect	Industrial Zone functions, participate in urban renewal	Residential functions, participate in the reconstruction of residential areas

CHAPTER 2

HISTORY OF URBAN VILLAGE IN SHENZHEN

2.1 Particularity of Shenzhen

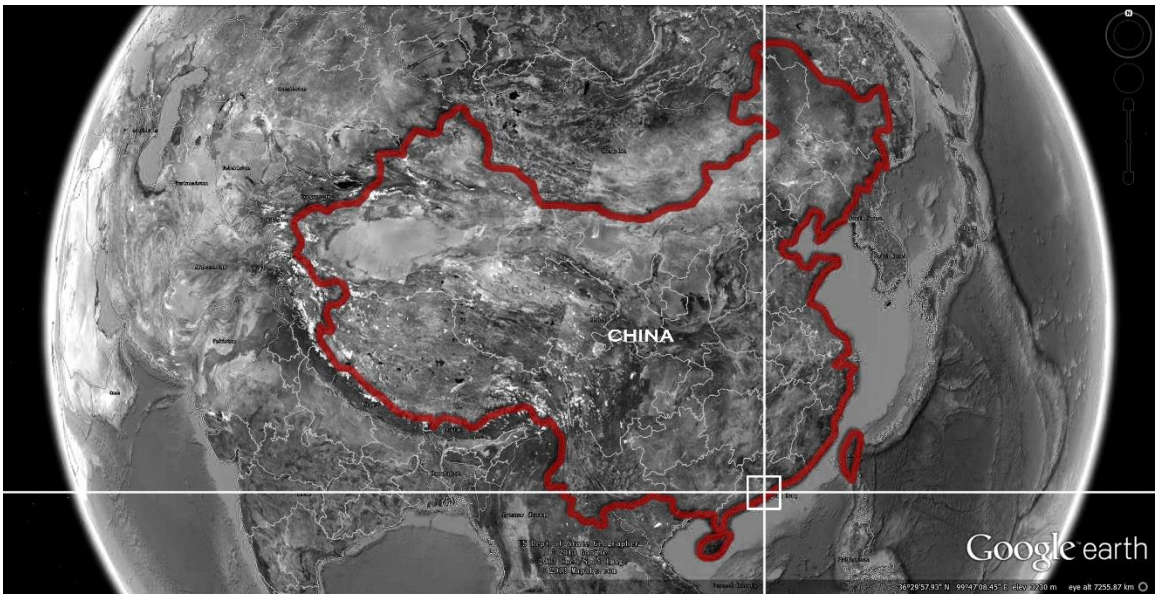

Figure 6: Shenzhen in China

Figure 7: Shenzhen in Guangdong

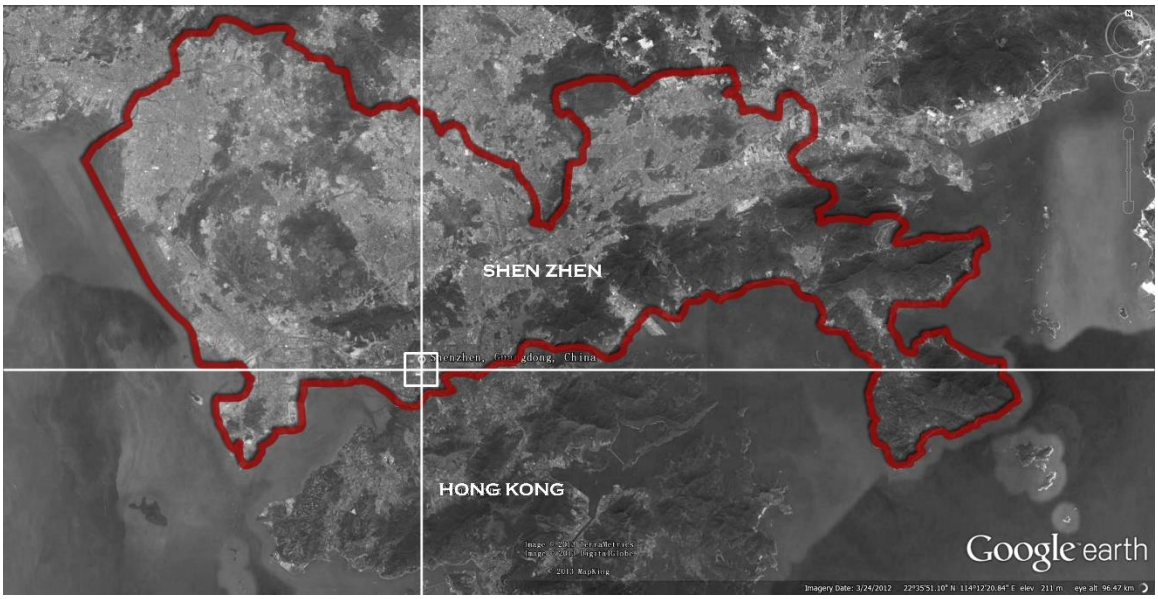

Figure 8: Shenzhen and Hong Kong

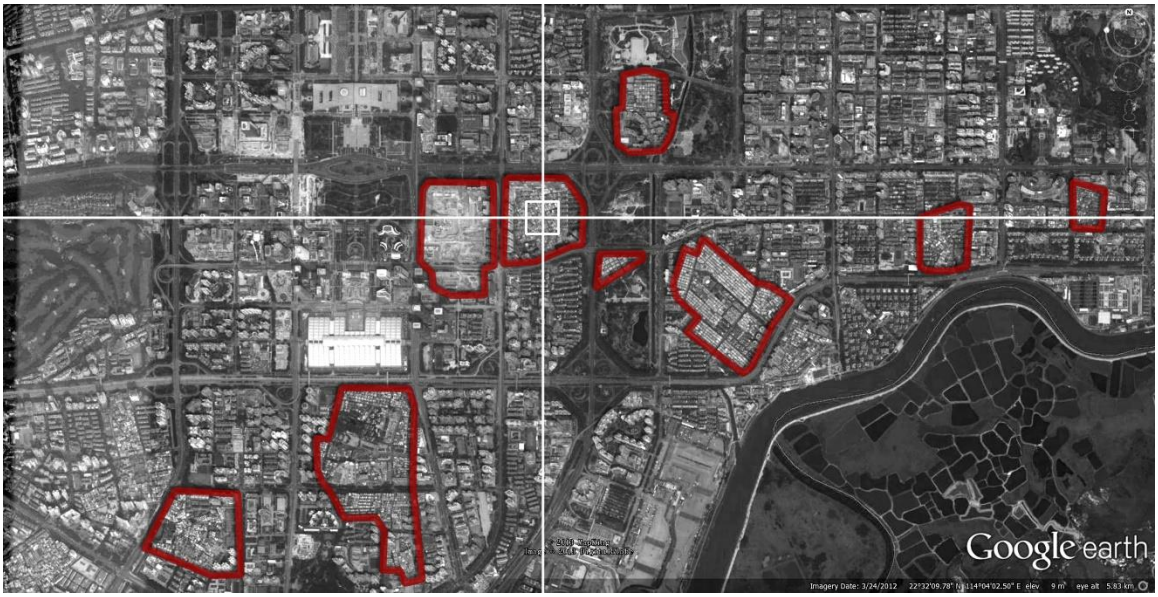

Figure 9: Urban Village in Shenzhen

This research takes the city of Shenzhen, China, as a case study to illustrate the development of urban villages, for the following four reasons:

- The city is the earliest example of a so-called Special Economic Zone (SEZ) in China. As an experimental district for the 'socialist's market economy' for the country, the city is a pioneer of China's reform and 'opening up' to the rest of the world. [10]Thus, reform-related problems and phenomena often emerged first in Shenzhen, and then followed in other Chinese cities. The city is thus an ideal case for research to understand China's social and economic development and transition.
- Shenzhen is a migrant city where the migrant population largely outweighs the permanent residents. Urban villages, which house most of the migrants, play a vital role in the housing market. In 1979, its population is 310,000, but till 2009, it rose to 14 million. At the same time, the urban land expanded from 20 km^2 in 1983 to 900 km^2 in 2010.

Figure 10: Migrants from other place

[10] Ng, M. K. 2005. *Planning Cultures in Two Chinese Transitional Cities: Hong Kong and Shenzhen*. Comparative Planning Cultures. New York: Routledge. P. 113-143

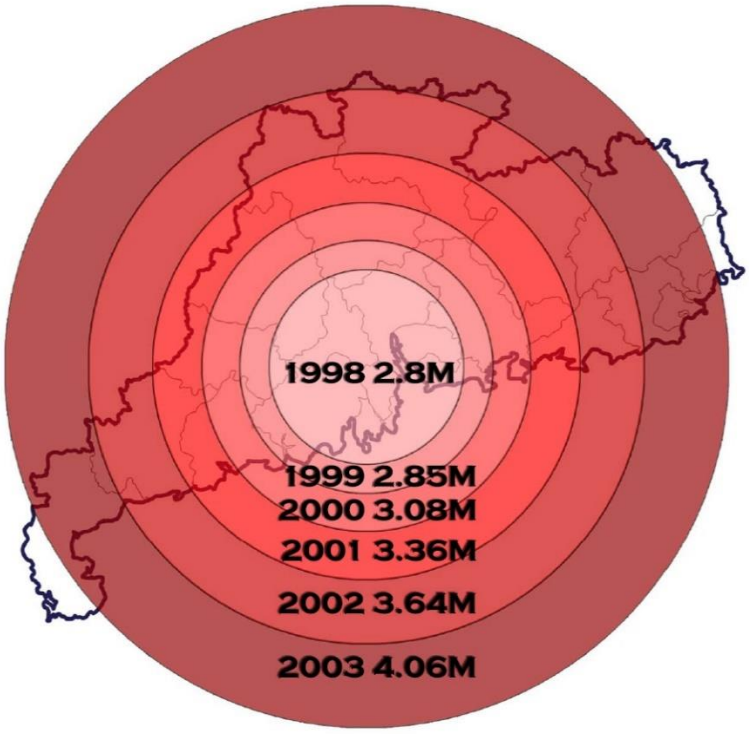

Figure 11: Rapid population growth of migrant workers

- As the city was established and developed from scratch, urban villages are now distributed over the entire city. This allows for the exploration of a large variety of urban villages, which are located in almost all sections of the city.
- Shenzhen is among the first group of cities that introduced and implemented rigid and comprehensive plans to redevelop urban villages.[11]

2.2 Social transformation of Urban Village in Shenzhen

2.2.1 Dual-community

[11] Hao, Pu 2012. *Spatial Evolution of Urban Villages in Shenzhen* P. 8

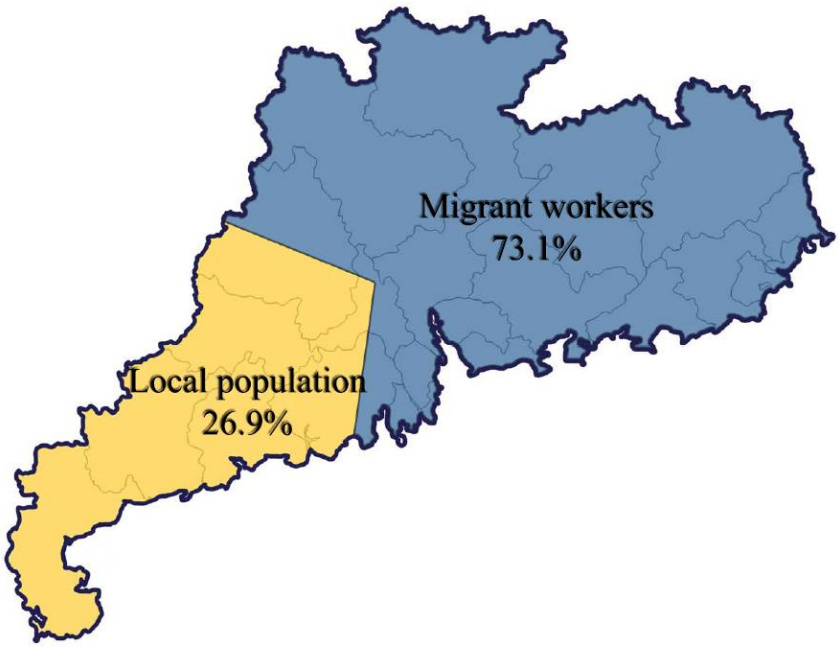

Figure 12: Dual-community

With the rapid urbanization in Shenzhen, more and more people from other places come here to work, living and serve the city. The low rents in Urban Village attract these migrants, more and more people choose to live there. That makes these villages become dual-community, one from the villagers, the other from migrants. Because the two types of people have different living style and working style, psychologically, they do not agree with each other.

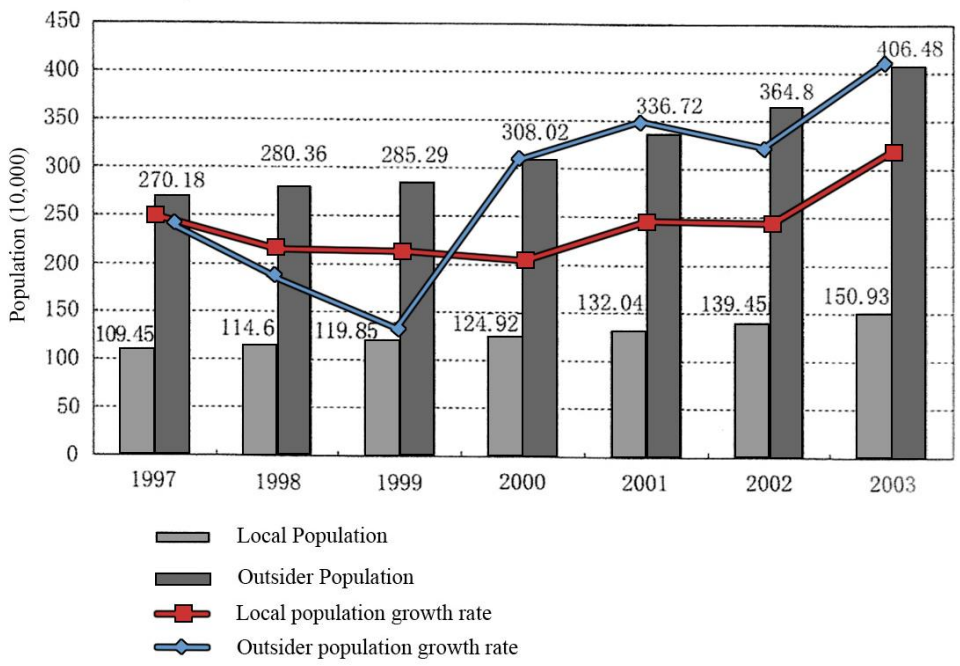

Figure 13: Shenzhen local population and outsider population (1997 ~ 2003)

The locals and outsiders have a lease relationship as landlord and tenant, basically there is no other contact. The locals are exceptionally cautioned of outsiders, or even avoid to communicate with them as much as possible. So far, while the outsiders dominate the population, the local still occupy an absolute advantage of the economic and social structure of these villages.

From the economic point of view, the local expect the tenant to pay as much as possible. At the same time, they are deeply disturbed by the environment and public security issue caused by the large number of outsider population.

2.2.2 Difference between locals and outsiders

2.2.2.1 Cultural differences

For the communication between locals and outsiders, the cultural differences constitute important barriers. The main differences are language and habits. Chinese culture has obvious differences in different places, especially in lifestyle, eating habits and other. At the same time, the language barrier becomes an important factor affecting interpersonal communication. In Shenzhen, local people speak Cantonese, the outsiders mostly come from west part of China, they speak Uighur, Sichuan dialect, Yunnan dialect, Tibetan, Guizhou dialect, Gansu dialect, etc. That makes outsiders, so difficult to communicate with the locals.

2.2.2.2 Population structure differences

Initially, most of the local villagers living by fishing, farming. With the urban expansion, these villages are gradually surrounded by the urban blocks. Rental housing and land is rapidly becoming an important and stable income source for the local villagers in the Urban Villages. Some villagers live a comfortable and relaxed life only rely on the rental income.

When urban sprawl in the development stage, these Urban Villages are located on the urban fringe. At this stage, the outsiders are mainly migrant workers, who work at these construction sites.

With the growth of urban sprawl, these Urban Villages gradually located in the urban

center, close to shopping malls, schools and office buildings. This allows people who work nearby also select Urban Villages to live with, because the rent is cheap, near workplaces and have convenient public transport.

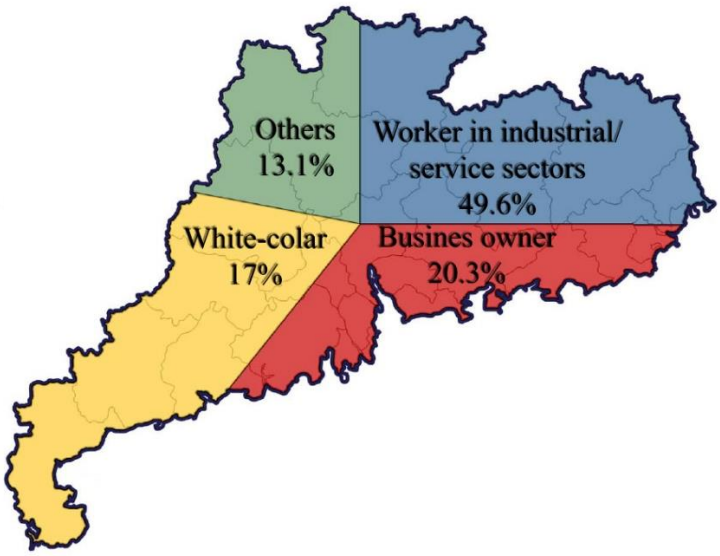

Figure 14: Population structure

Table 2: Population structure of urban village residents; units: 10 thousands

(Source: Shenzhen Urban Planning Bureau)

District	Total residents	Ratio landlord :tenants	Landlord	Tenants				
				Total	White-collar	Business owner	Worker in industrial/ service sectors	Others
Futian	59.1	1:30	1.9	57.2	26.8	5.7	17.2	7.4
Luohu	76.7	1:40	1.87	74.8	19.5	7.5	38.1	9.7
Nanshan	53.4	1:20	2.6	50.9	24.3	5.1	14.9	6.6
Yantian	15.3	1:30	0.5	14.8	2.4	1.5	9.0	1.9
Baoan	182.7	1:11	15.8	166.9	4.9	66.8	73.6	21.7
Longgang	124.1	1:8	13.3	110.8	3.2	10.0	83.2	14.4

2.2.2.3 Economic differences

Urban villages are now home of white-collar, blue-collar, the rich, the poor, artists, migrant workers and beggars with a significant income gap. High-income people can

rent a large room with private bathroom, low-incomes only afford small room, and share bathroom with others, but they all live in one apartment. Some have cars, others not. Someone can enjoy internet at home, someone has to go to internet cafes. On the one hand, this gap makes barriers, resentment, and even antagonistic emotions between each other. On the other hand, in the economic and social activities, they form an interdependence and shared relationship.

Figure 15: Different living condition in Urban Village

2.2.3 Social anomie

These classic words to describe the Urban Villages in Shenzhen, “They are outsider population settlements in Shenzhen, the rental group dense likes a forest, with all the chaos, vigor and desire of the city.” The community formed by the two social groups provide rental demand and consumer demand, but also have other public issues, such

as public security, sanitation and life quality issues.

In the Urban Villages, people's social behavior is different from the place they lived in the past. These migrant workers from rural areas can not have the equal rights, which the urban residents have, such as medical insurance, pension insurance, unemployment insurance, etc. They experienced totally different social value. In this case, they are inevitable to feel confused and loss, consider themselves abandoned by this society. In sociology, it is called social anomie. This is the sociological reason that there are a large number of criminal in Urban Village.

- Vice establishment: The beauty salon, hair salon, massage parlors, cafes, leisure homes and other places
- Casino: Streets, shops, rental rooms, senior activity center and ancestral halls
- Drug places
- Gangdom: Engaged as entertainment business, provide pornographic, gambling and other illegal activities.
- Fire disaster: The street is narrow, between two buildings, there are less than two meters in the middle, on the walls are a mess of wires.

2.3 Economic transformations of Urban Village in Shenzhen

2.3.1 Land feature change in Urban Village

Shenzhen, as one of the central cities in the Pearl River Delta region, since its

inception in 1979, from a population of 314,100 people, 196 million yuan of gross domestic product (GDP), a small coastal town, grow to a large city with having a population of 10.6 million people, 11,000 billion of the GDP in 2012. This high-speed urbanization process has brought rapid economic development, also caused the rapid changes in land use. On the one hand is the rapid expansion of the scale of urban land, on the other hand is the dramatic disappearance of a large number of agricultural and ecological land. In 1978, non-agricultural land in Shenzhen accounted for only 2.29% of the land area, rose to 23.84% in 1990, 31.72% in 2000, at the same time, the cultivated land area decreased from 23.95% in 1978 to 6.03% in 1990 to only 3.3% in 2000. Shenzhen, as the rapid development of an emerging city, connected to the high-speed expansion of urban land scale and the sharp drop in agricultural land. The expansion of urban construction led a series of problems, this is the external factor of the land characteristics change in Urban Village in Shenzhen.

Table 3: Land feature change in Urban Village, Shenzhen

Development stage	Land feature	Land efficiency	Urban-rural relations
Traditional Villages	Simple land structure and function, high building density, low FAR, good ecological environment	The land ecological, social and economic efficiency are unified	Urban-rural separation, the city basically has no impact on rural villages, it is relatively an independent system
Urban Villages	Versatile, confounding, high building density, high FAR, poor living conditions	Economic efficiency priority, social and ecological efficiency are often ignored	Villages located in the urban center, impacted by the urban economy, but institutionally separate from the city

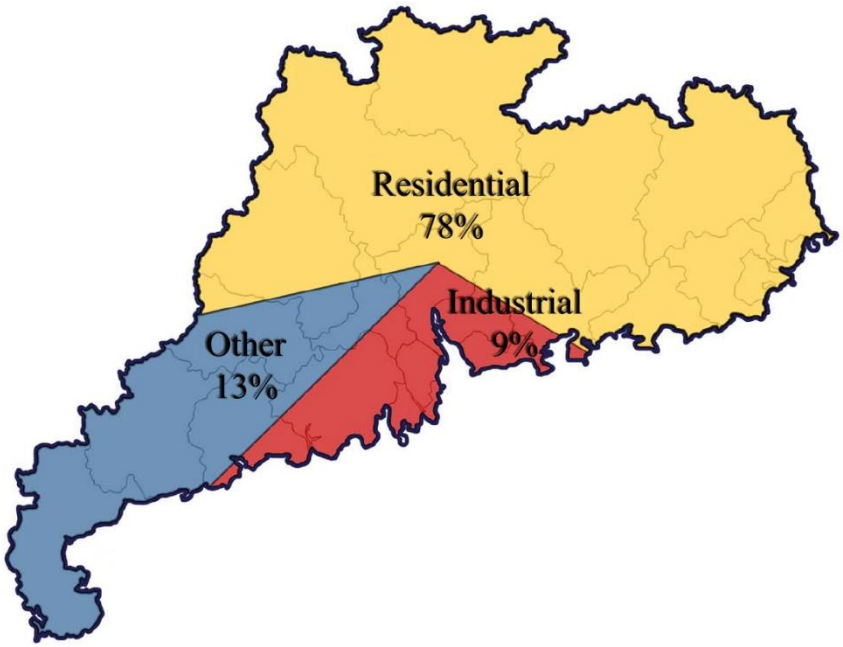

Figure 16: Land Type

2.3.2 Factors of land feature change in Shenzhen

2.3.2.1 Location factors

Shenzhen is located in the coastal areas of Guangdong, near Hong Kong, which will help its international investment. At the same time, Hong Kong is a small place with dense population, high land price and high price of labor, Shenzhen has become a very attractive place for investment in Hong Kong. This provided favorable conditions for the development of Shenzhen. Since then, the international investment has entered Shenzhen, the urban population and the scale of urban construction grow rapidly, and the vast majority of construction land come from agricultural land. So, the political, economic, and geographic changes in Shenzhen are important external

factors that change the social and economic structure of Urban Villages.

2.3.2.2 Demographic factors

Shenzhen population has been showing a trend of sustained high growth. The increasing number of outsider population gradually become the main body of the urban population growth. Large-scale population growth has directly increased the demand for housing, public facilities and municipal facilities, especially the problem for a large number of outsider population.

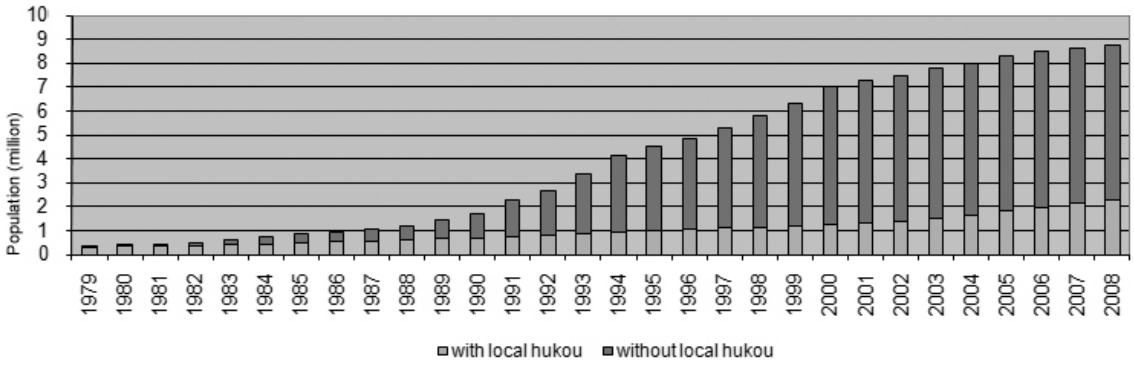

Figure 17: Population growth of Shenzhen during the period 1979–2008

(Source: Shenzhen Statistics Bureau).

2.3.2.3 Economic factors

Because a large number of urban constructions expropriated agricultural land, the farmers have no land for farming. At the same time, labor-intensive industries in the Shenzhen Special Economic Zone are gradually transferred to the outside of SEZ, the factories are gradually idle. At the beginning of the establishment of the

Shenzhen Special Economic Zone, a large amount of foreign investment and migrant workers came, meanwhile, the Government's lack of residential buildings. Driven by economic interests, village, town and other different groups began to occupy, transfer or sell land, and construction of private houses.

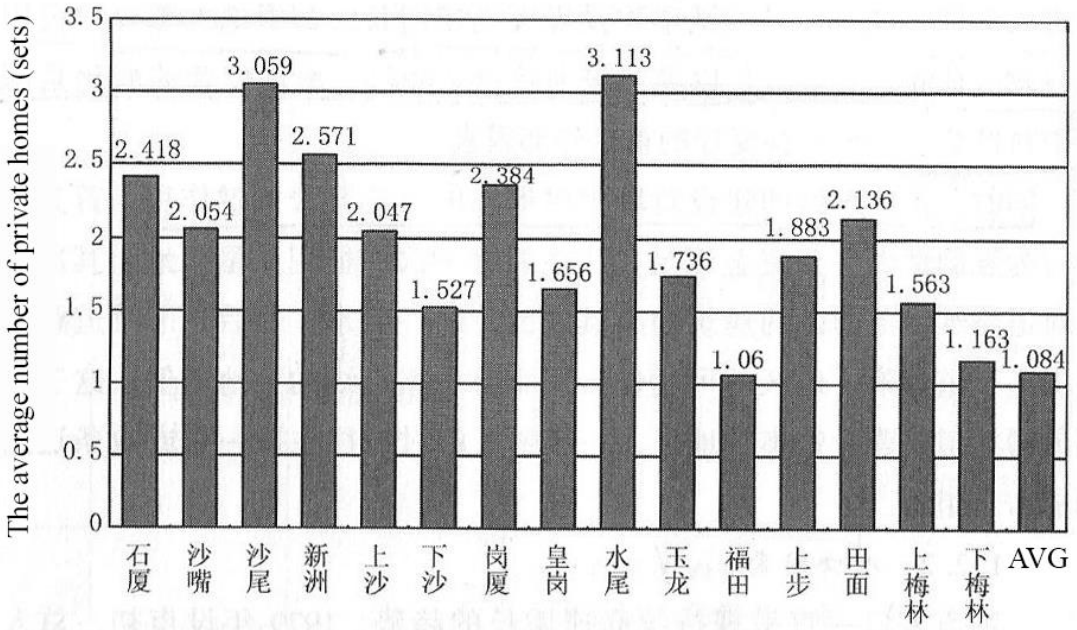

Figure 18: The average number of private homes in each district

(Source: Shenzhen Statistics Bureau).

The land value is impacted by the distance to the city center. The closer from the city center, the higher the land price, which rents also increased.

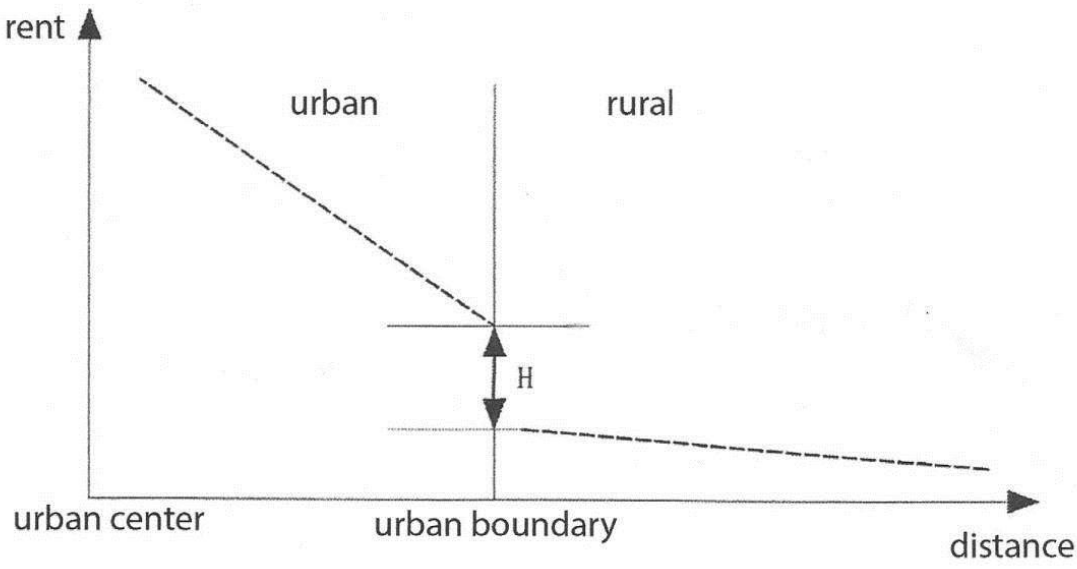

Figure 19: Rental price comparison

2.4 Cultural transformations of Urban Village in Shenzhen

Initially, because the villagers were engaged in farming and fishing, agricultural culture became the main characteristic of the village.

With the large number of outsider population pooled from various places, the village became a place in multicultural collection.

- Language: China is a multi-ethnic, multi-lingual country, even if it is Mandarin, due to the different regions, it has different voices. The people with same dialect like join together, and form small groups. And the group with the largest number of people become the main community. So, there have been a lot of geographical naming Urban Villages.

- Food: China has eight major cuisines, is divided according to geographical or taste. In the villages, with people from all over the country, the food is varied. People join together because the same interests of some kind of food, to increase the opportunities to communicate.

Also, in Shenzhen, there is kind of Urban Village formed with people engaged in the same kind of career. The village named "Dafen" is an example.

In 1989， Mr. Huang Jiang, a Hong Kong artist came to Da Fen. He rented the residential buildings and hired arts students and artists to make the creation, imitation, collection and export of the oil paintings, thus, bringing the special industry of oil paintings to the Da Fen Village and "Da Fen Oil Paintings"have become the well- known cultural brand at home and abroad.

Since 1998, both the district-level and town-level governments have made Da Fen Oil Painting Village a key project for cultural construction, making investments in different periods of time on the changing of its environment, providing regulations and guidance to the oil painting market, meanwhile strengthening the promotion and publicizing of it, and creating Da Fen Oil Painting Village as a unique culture industry brand. Currently, in Da Fen Oil Painting Village, there are 1100 galleries and over 8,000 artists.[12]

[12] Official website of Dafen Oil Painting Village, <http://www.cndafen.com/index.php/About/index.shtml>

Figure 20: Dafen Oil Painting Village

2.5 Architectural transformations of Urban Village in Shenzhen

As can be seen from the figure, the development of housing changes can be clearly divided into three stages. 1982-1989, Village housing in a uniform and rapid growth, and this is the initial stage. 1990-2004, residential rapid development, which is its rapid growth stage. After 2005, obvious drop of the growth, Shenzhen urban village housing market is basically stable at this time, and entered the transformation stage.

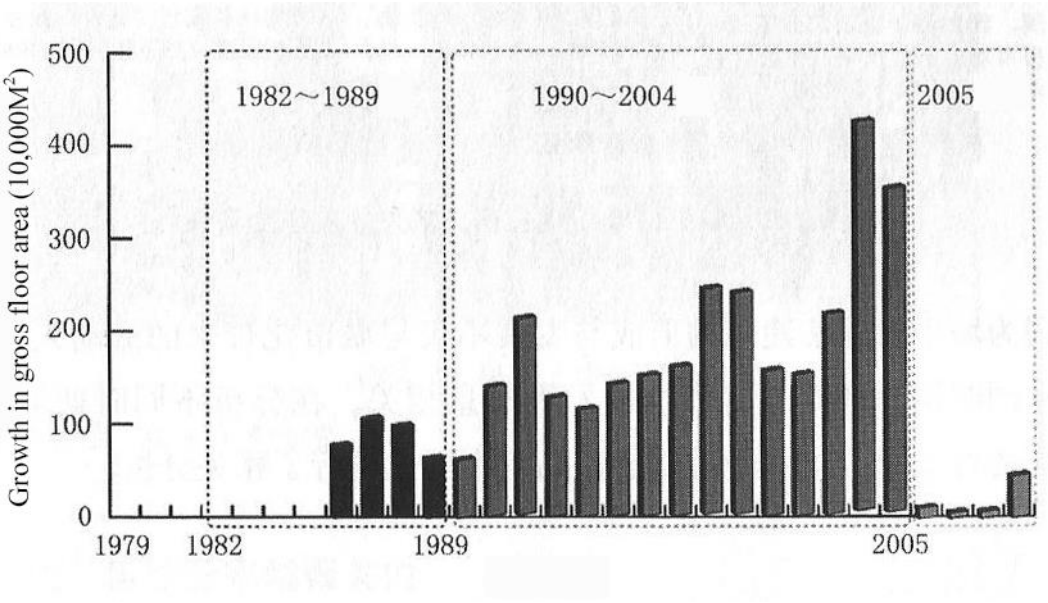

Fig 21: 1979 – 2008 Housing construction area of Urban Villages

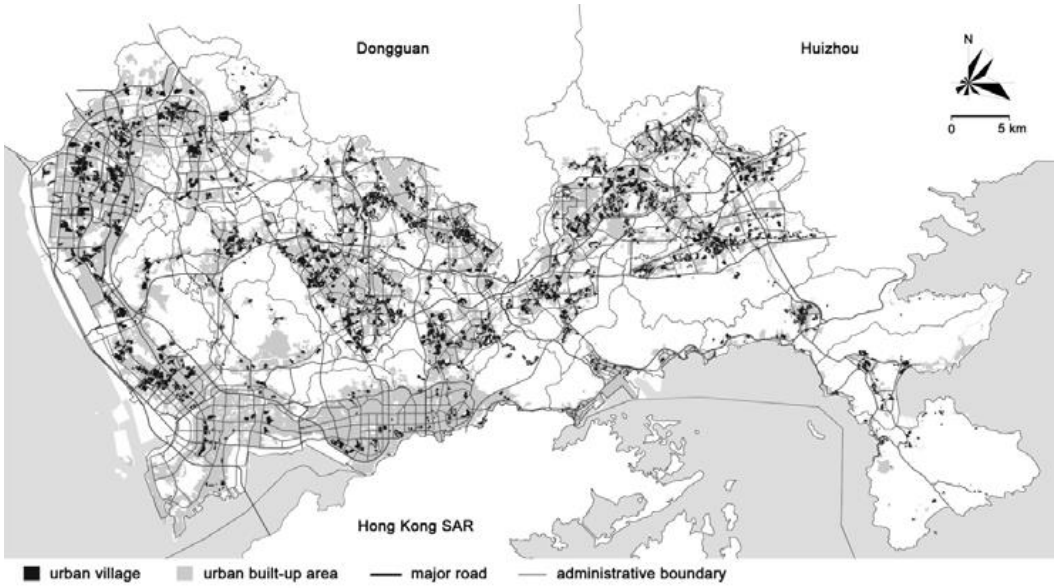

Figure 22: The distribution of urban villages in Shenzhen

2.5.1 Initial stage

2.5.1.1 Background

1980, marks the establishment of the SEZ, it is the beginning of Shenzhen from a small fishing village into a new city. At the same time, because the development and construction of the city, the original land structure of the village changed.

Figure 23: Early fishermen village

2.5.1.2 Geographical distribution and texture

The spatial form, formation of Urban Village is transitioning from the villagers' own home to rental housing. And the rent is based on their own living condition, so the Urban Villages mostly in the natural village form.

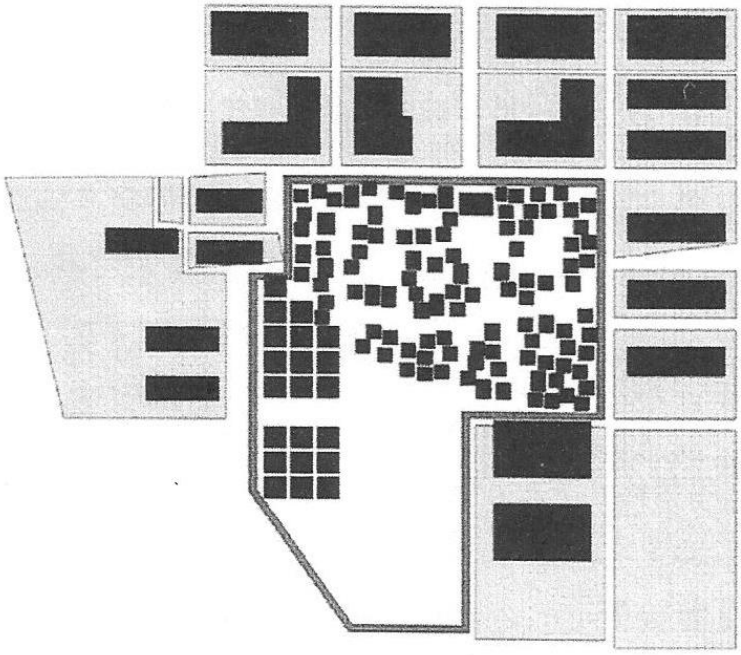

Figure 24: Initial stage urban village housing texture

2.5.1.3 Building density

At this time, the form is mainly single courtyard residential housing basically 2 to 3 floors, only a small amount is for rent, there is no unified planning and layout of the whole village.

The late 1980s, the influx of floating population, need a lot of cheap housing. The the villagers' house began to expand the scale of the original basis, at the beginning, only the spare room is for rent. With a certain amount of income, they began the construction of rental. In order to obtain more rent, the courtyard residents gradually become the dot mode building of rental, mainly 3 to 5 floors. As can be seen from the following figure, the construction of Urban Village is rising.

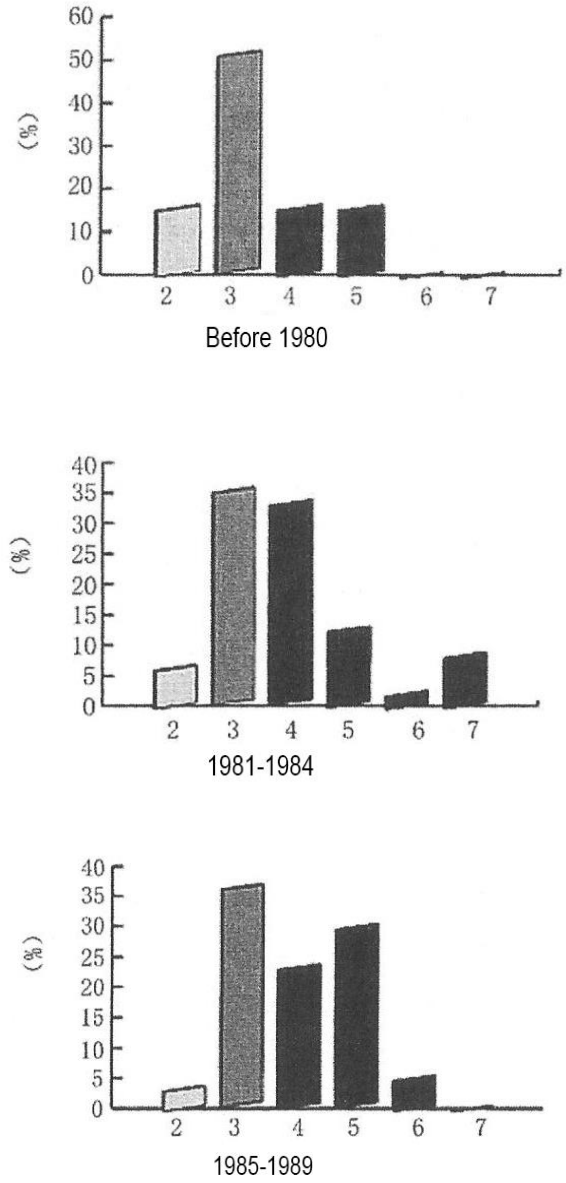

Figure 25: Residential building floors of each period

2.5.2 Rapid growth stage

2.5.2.1 Background

1990-2004, the positioning of Shenzhen has increased from a mere industrial export

industry base upgraded to integrate special economic zones, the regional transport hub, the port city based on container transportation, regional central city functional complements with Hong Kong, high-tech technology-led regional manufacturing base, and a modern historical and cultural city.

Figure 26: Growth stage – building density increased

The economic strength of the city has been increased, also in rural area, it has been greatly improved. Traditional agriculture has disappeared, most of the farmers are no longer engaged in agricultural production. At the same time, due to the urban village is located in the important area of the city, the conflict between villages and city is slowly highlighted.

2.5.2.2 Geographical distribution and texture

During this period, the Shenzhen real estate market is booming, prices gradually increased. But the main targets of the commercial housing are Shenzhen permanent residents, the government did not consider the housing problem of the floating

population.

In this phase, the urban village housing has developed into a fairly large system throughout the city, tends to saturate in the construction, but the building size is still expanding.

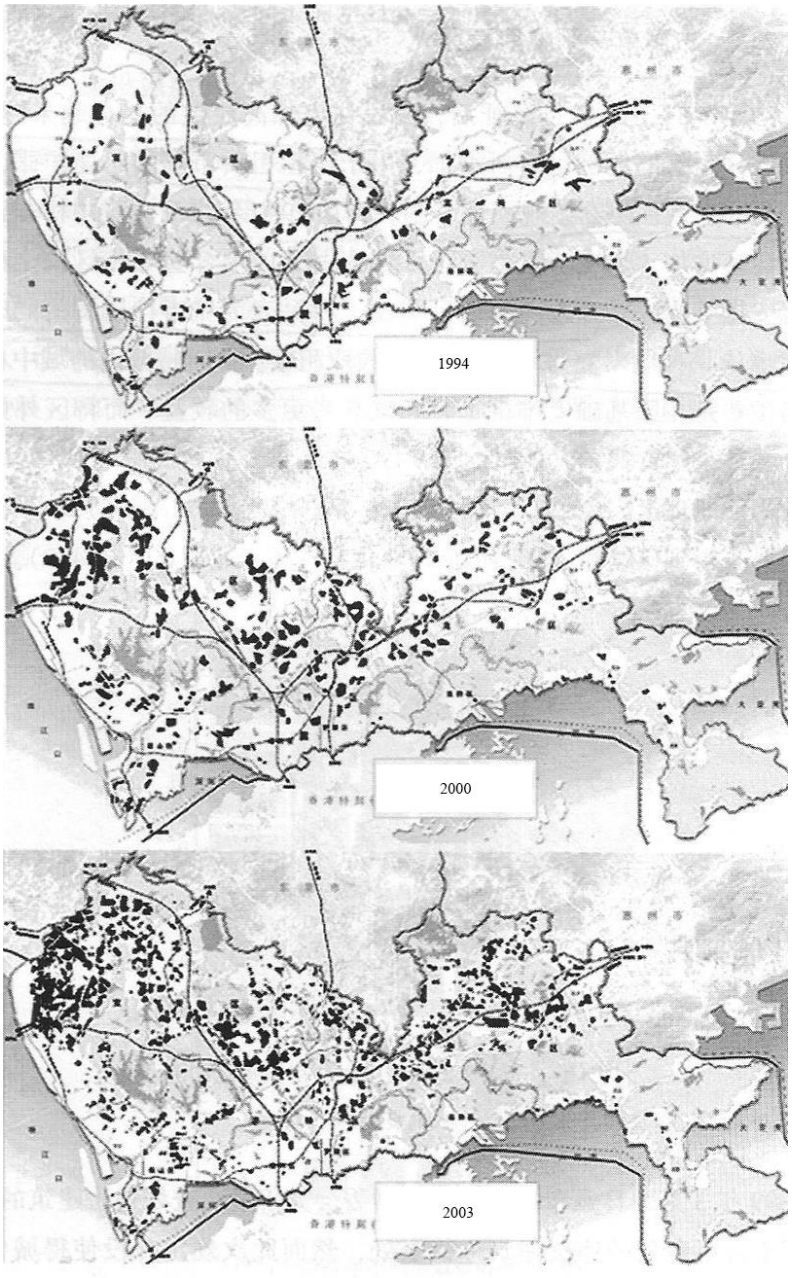

Figure 27: 1994,2000,2003, Shenzhen construction land distribution

Over 1989, the trend of residential building adds floors become increasingly evident. Due to the rapid expansion of the rental market, the villages' housing start dot mode reputation on a large scale. At this time, the buildings in urban villages are mainly rebuilt in their own place, in order to get more revenue.

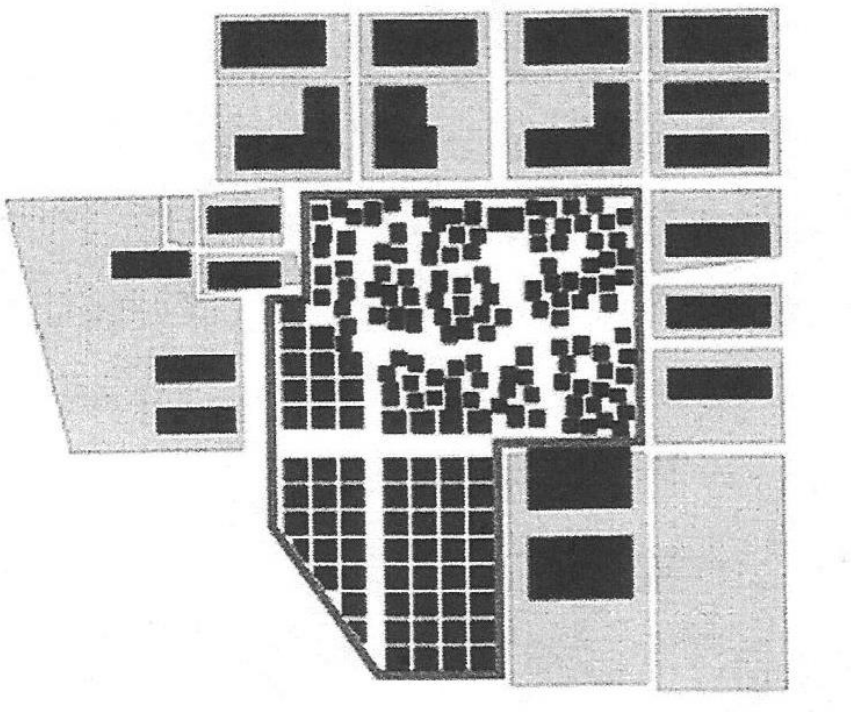

Figure 28: Rapid growth stage urban village housing texture

2.5.2.3 Building density

In this stage, building layers from 3-4 layers upgrade to 4-8 layers, increased construction area, the distance between buildings and public spaces significantly reduced, come out the phenomenon called "handshake buildings". This period is the prototype of the modern urban village.

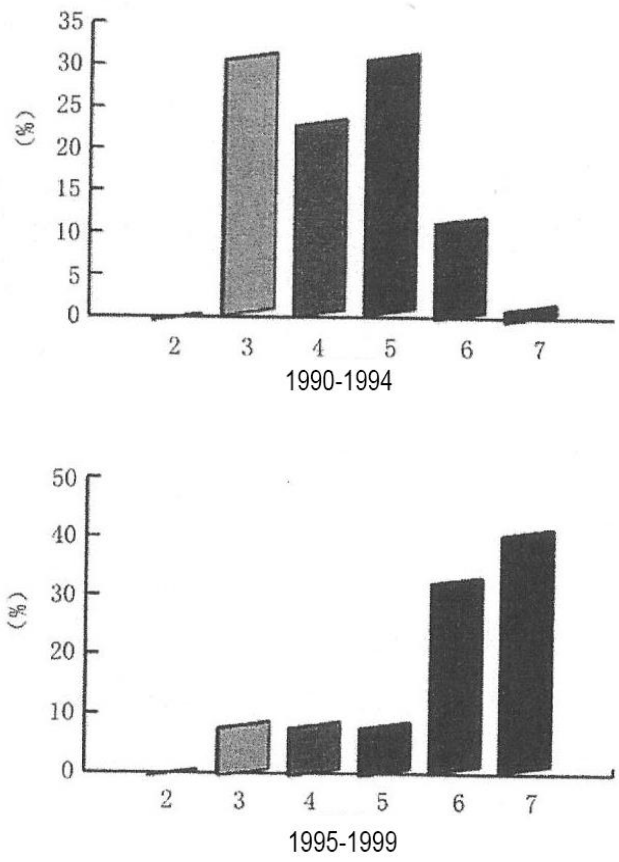

Figure 29: Residential building floors of each period

2.5.3 Transformation stage

2.5.3.1 Background

The Shenzhen land area is relatively small, with a total area of 1,953 square kilometers, only 760 square kilometers are available for construction. Today, the remaining land for urban construction is only 138.18 square kilometers, if the development rate is 10 square kilometers per year, less than 15 years, Shenzhen will have no land can take advantage of. Therefore, the existing land, especially the re-

development of the urban village land has become a priority.

Figure 30: Blasting Demolition of Urban Village

2.5.3.2 Geographical distribution and texture

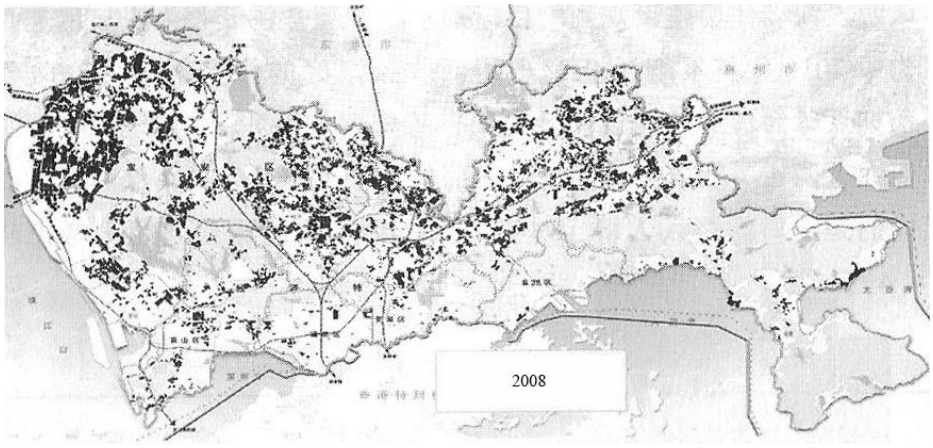

Figure 31: Distribution of construction land in Shenzhen, 2008

At this stage, the separated layers of residential is obvious, from the SEC center to

rural, it can be divided into 3 layers: The SEZ center, SEZ peripheral and the edge of the city. This period, the architectural space is relatively simple, a serious lack of public space, the original context disappeared. Building in different regions has different characteristics. The central area housing construction has the highest intensity, best quality, but no courtyard space. The SEZ peripheral buildings have a higher intensity, general quality, also have no courtyard space. The city edge housing has lower density and small courtyard space.

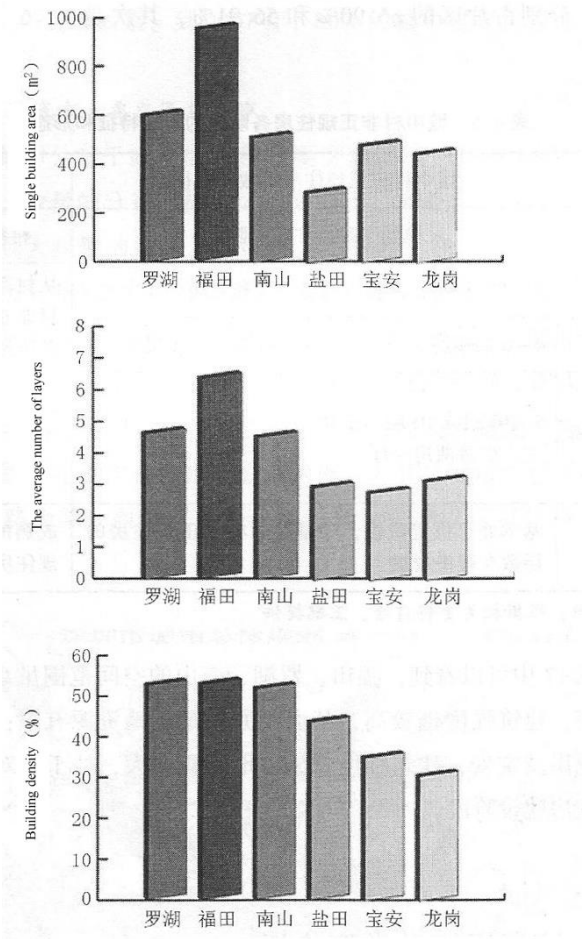

Figure 32: 2007 Urban Village housing construction intensity in districts of Shenzhen

CHAPTER 3

ANALYSIS OF THE SITE

3.1 The site

The site I select named Heyuan block of Gangsha village. It has a land area of 17 ha, with each housing lot containing about 10 ha. The Block had a housing area of 270,000 sqm. It is located in the future cbd in Shenzhen, thus facing tremendous rehabilitation pressure.

Figure 33: The site – Heyuan block in Gangsha village

The building height on the site are ranging from two floors to ten floors, mainly with brick structure, while a few new buildings are reinforced concrete structure. Because the owners add lots of volume, which makes the site nearly has no public land. The roads are very crowded, fire truck cannot in and out. And there are almost no fire

hydrants.

Figure 34: Site images

The crowded building layout makes no sunlight all year round in most part of the site. Corner spaces are very moist, can easily breed bacteria, and affect people's health.

Therefore, in this site, increase public space, adding more sunshine, improve site security, increase neighborhood association became the most important issue.

3.2 Shadow analysis

First of all, I did shadow analysis, in order to determine the most serious shaded area, prepare for the next design strategies.

Figure 35: Building height status.

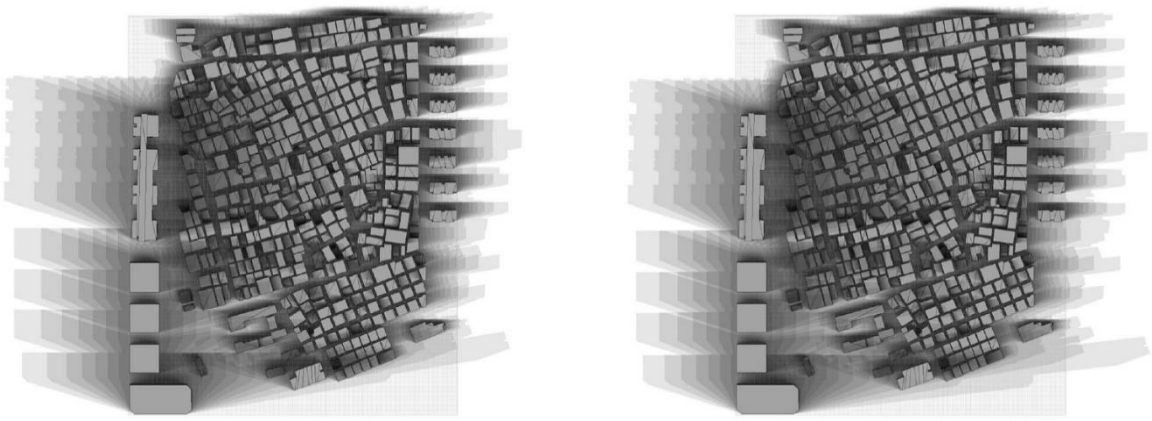

Figure 36: Shadow analysis – 1

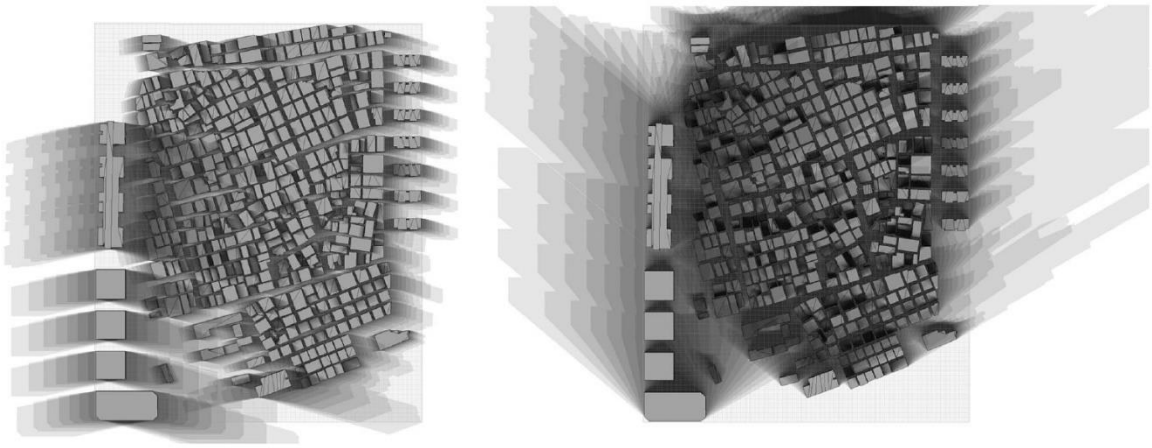

Figure 37: Shadow analysis – 2

Comparative analysis of the shadow and the building height, we can see the space where has the most shadow are the low building. In the next step, some of the buildings can be demolished because these lower buildings, mainly with aging structure, while taking up the main road, likely to cause the safety hazard.

3.3 Precipitation analysis

Shenzhen is one of China's top ten cities with the most annual precipitation. The average annual rainfall is 1966.3 mm. The utilization of water resource is one of the site self-renewal.

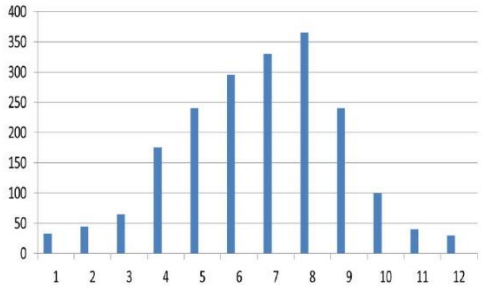

Figure 38: Monthly percipitation

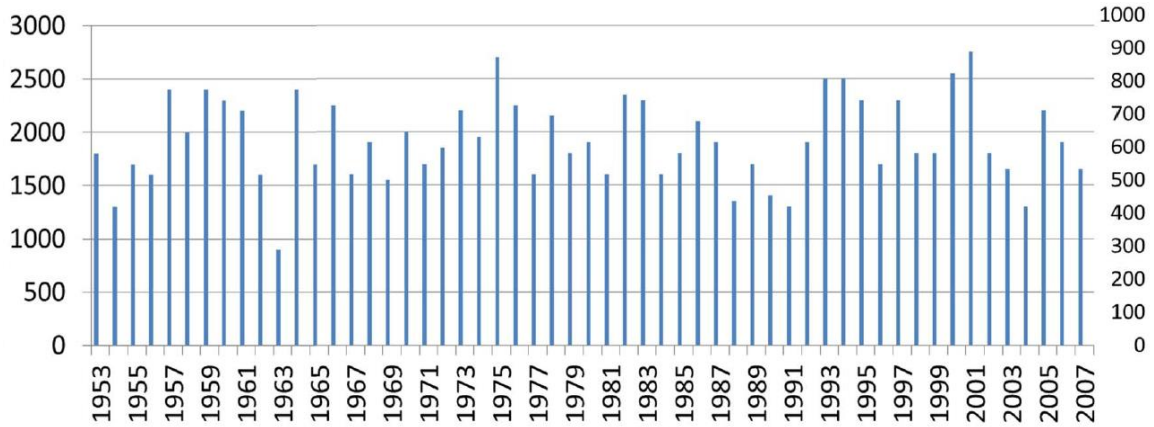

Figure 39: Annual percipitation

3.4 Skyline analysis

The high-density living environment stays focused on the most frequently interface - street. However, the potential resource is the sky. Enhance the living space for two-dimensional to three dimensions, create more vertical possibilities in the limited space, can increase the public space, and the neighborhood communication.

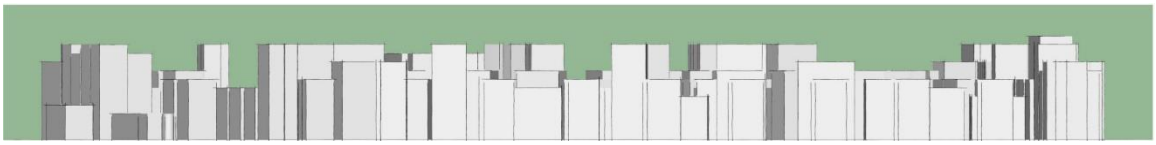

Figure 40: Skyline of the site

I take the Highline in New York as the case study. This is a very famous case, a three-dimensional moving line is the city logo. Air corridor will connect numerous high-rise buildings as a whole, increasing the accessibility of each building. Also provide people more open space at multiple layers.

Figure 41: Highline in New York

Figure 42: Hong Kong corridor system

Another case is Hong Kong's Central pedestrian corridor system. The system connects the entire Central financial district as a whole. When people go to work, they take the escalator to reach the various high-rise office directly from the home, also can easily reach each shopping mall.

Hong Kong is also associated with high-density similar to the site. I can consider increasing the number of levels in high-density environments, add a three-dimensional moving line, so that makes the site to become a three-dimensional traffic, three-dimensional community.

Similar to the city's subway system underground to form a three-dimensional transportation network, in this case, I can also be use all levels of the site to form an Up-Way system.

3.5 Self-renewal

Southern China is rich in bamboo, and the flexibility and strength of bamboo structure make it an extremely high-quality materials, with low price. And may try to take advantage of the unique internal structure of the bamboo to build a water system

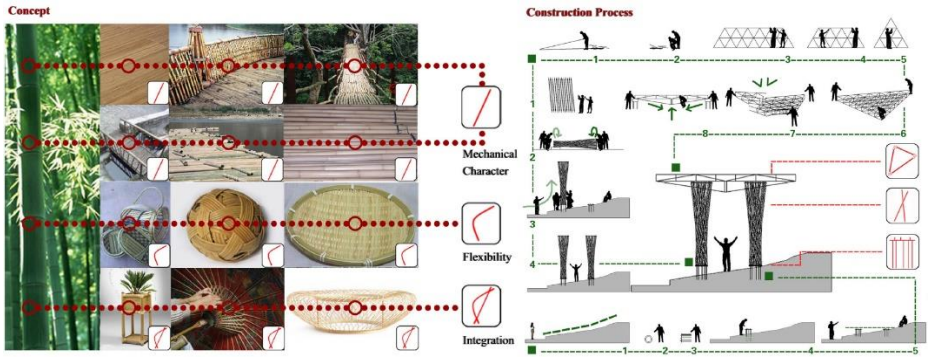

Figure 43: Bamboo structure

CHAPTER 4

REFORM THE SITE

4.1 New layout

According to preliminary analysis, demolish the unwanted low-quality low-rise buildings, and analyze the shadow again. It can be seen that in various intersection space, there is direct sunlight all year round, and the texture is more obvious. Through these texture features, the site can be divided into multiple groups. Each group has its own internal circulation network, and then form a large network between each group. A network formed with a different theme, similar to the different lines of subway transportation, such as entertainment, sport, culture and leisure.

Figure 44: New layout

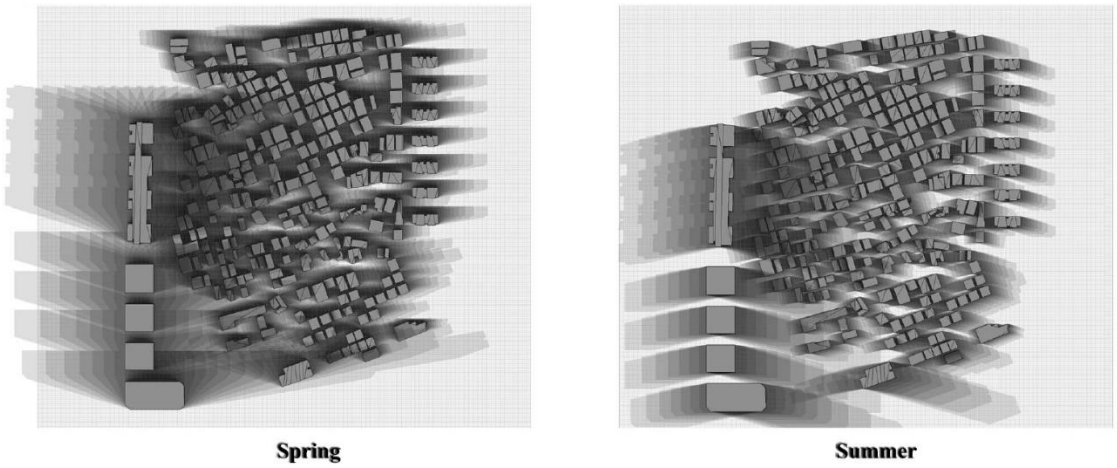

Figure 45: Shadow analysis – 3

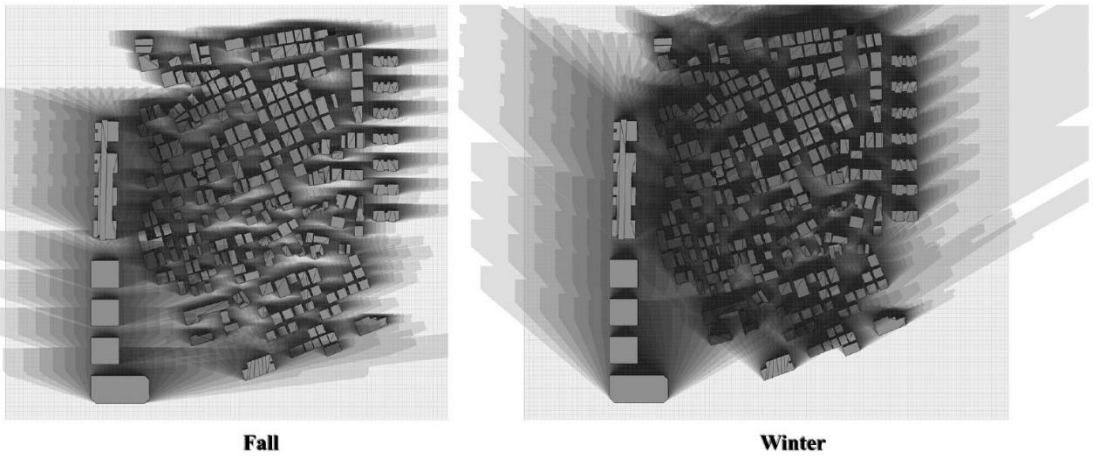

Figure 46: Shadow analysis – 4

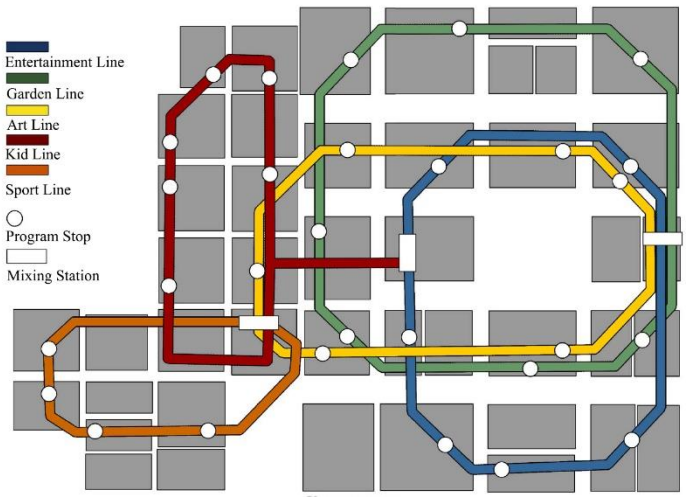

Figure 47: Up-Way system

4.2 Circulation system design

Use free resources like water and wind, to provide usable energy. For internal water harvesting, bamboo can be a transport channel. Another recycled plastic beverage bottles can be used as water storage, water supply tool. Add small turbofan in the pipeline, generate power with gravity. Meanwhile, walking trails floors are added pressure type power storage system. At the same time when people walk, the new energy can be generated.

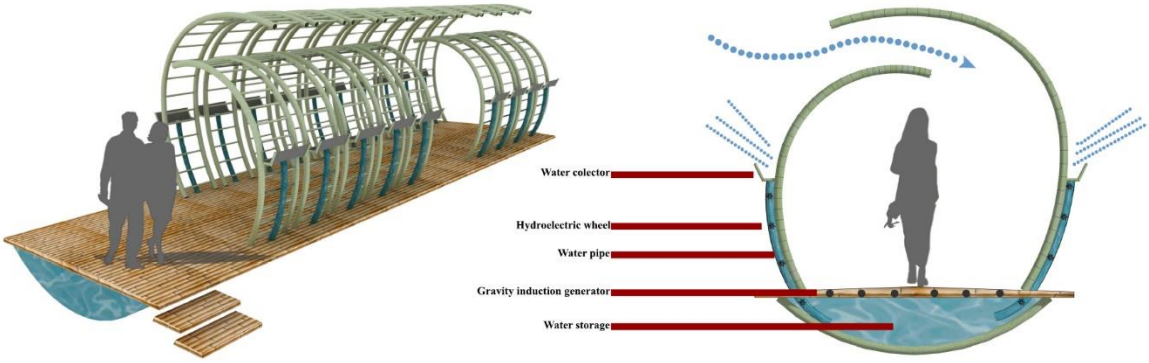

Figure 48: New circulation system

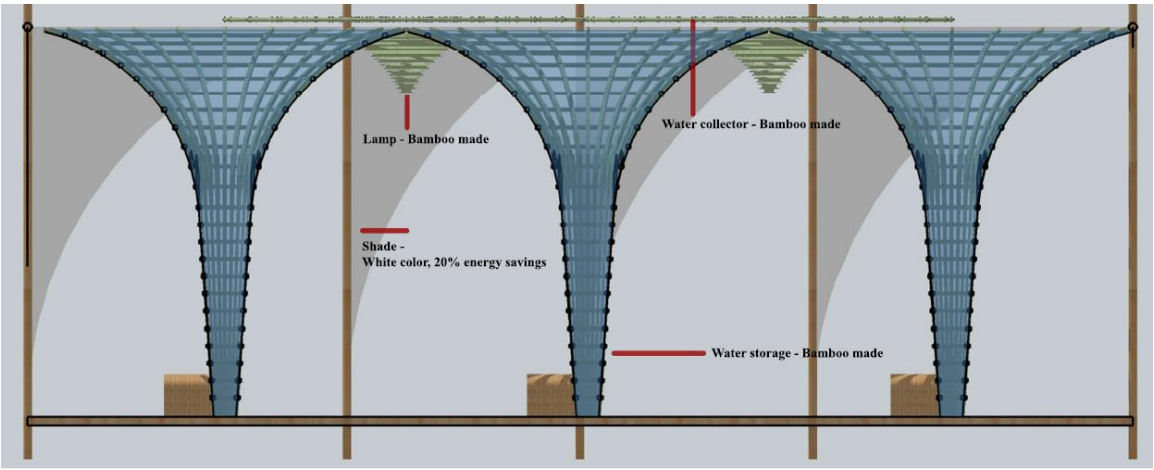

Figure 49: Water collection

4.3 Design result

In this case, I select a group to do detailed design. Combine these concepts into one, in order to test its effectiveness. In this group, on the roof I designed civic center, basketball court, rooftop cinema and tearooms and other leisure places. Under the sunshine, people from the same place can chat with a cup of tea, increase understanding, and eliminate homesickness.

Figure 50: New site plan

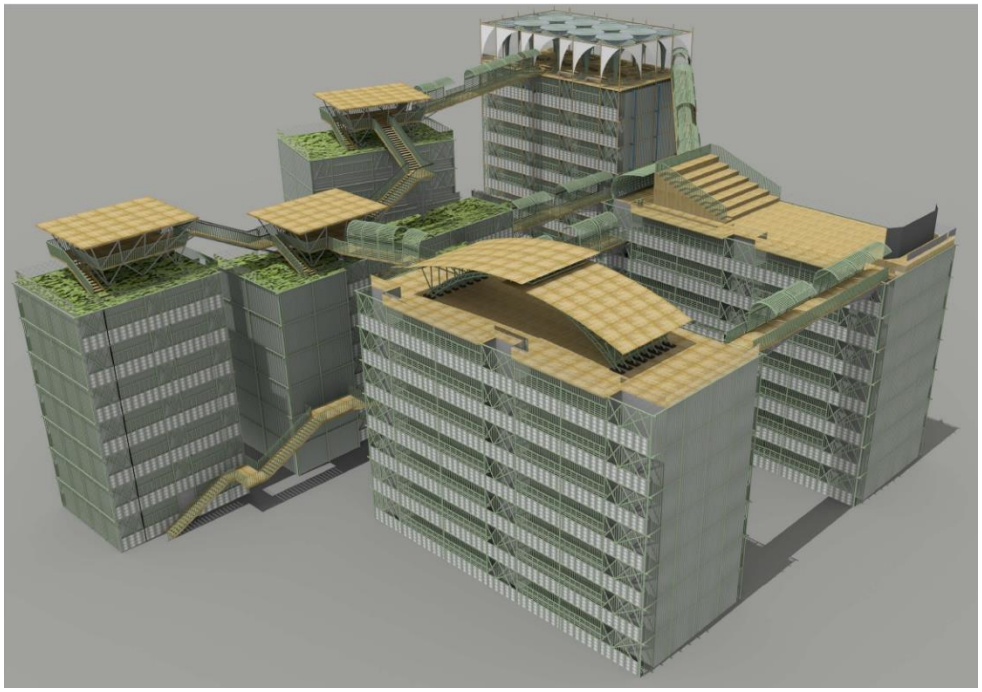

Figure 51: Group Design

After promoting this model for the entire site, the whole site will form different theme groups. Such as geography, diet, or hobbies.

Figure 52: Groups network

CHAPTER 5

CONCLUSION

For this thesis, I just provide a new concept for people who live in these Urban Villages a better living condition. A equal, confort, happiness life. It is not just design an architectural form, but the most important thing is to design a social network. Meanwhile, more architect may also be invited, each one can design a group, so that each group will have a unique shape, character and culture. This will bring more people into the community, to achieve the goal of self-renewal protection.

Because only supply internal person, the impact force is limited. Only more people involved, understand the site, love the site, and can truly protect it not been demolished to build a new housing district.

Here, urbanization has a new meaning, not to provide people with a new city, new look, but to learn to respect everyone lives there, learn how to protect vulnerable groups, learn fair. I think this is the sociological significance of urbanization, a more fundamental significance.

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