



A Community for the Invisible

Aging within the Lilong in Shanghai

Thesis Programme

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Content

Chapter1

EXECUTIVE SUMMARY
SOCIETAL THEME 1: AGING POPULATION
CHINESE CONTEXT
LOCAL STRATEGY: SHANGHAI

Chapter2

THE INVISIBLE
HABITATION OF THE INVISIBLE: LILONG
TYPOLOGICAL CONTEXTS

Chapter3

THE DEFAULT FATE OF THE INVISIBLE
THE CRISIS OF THE SPECULATIVE MODEL

Chapter4

THE LILONG AS A RESISTANCE TO GEN-
TRIFICATION
THE SITE
PROGRAM
REFERENCE

EXECUTIVE SUMMARY

Lilong

=“Li (Neighborhoods)”+ “Long (Lanes)”

originated in response to the housing needs of rapid growing Shanghai at the end of 19th century.

This project explores the practices of aging care strategy within lilong housing neighborhoods facing demolition in the inner Shanghai. “Aging in Place” strategy is promoted by the local government in Shanghai based on the existing communities. However, the distribution of related facilities are not evenly across the urban area to the periphery. The facilities are more clustered in the city center.

Sanzai Li located at the Laoximen municipality in Huangpu district, contains over 40% of the elderly population. As other lilongs in this municipality, it is in the progress of demolition in favor of the development of the gentrifying apartments and retail spaces. The elderly residents and the rental tenants lose their inhabitation in the city center. What they also lose is the access to the equivalent healthcare resources, the access to equivalent affordable housing in city center.

What If lilong is no longer the cramped individual alley units, could it become a better typology for aging compared to the high-rise blocks? How could we modify the existing neighborhood? Will this bring new public functions and boost the social life within the two communities to the lilongs like Sanzai Li?



Fig 1. Demolition near Laoximen.

SOCIETAL THEME 1: AGING POPULATION

The Aging Society

Population aging is one of significant tendencies that already occur or will encounter in most countries in the next decade¹. From 1990 to 2013, the population over 60 has increased from 9.2% to 11.7%. **By 2050, one of five people will be over 60²**. As Fig.1 shows, **two third of the aging population live in the less developed countries**, which will reach **80%** in 2050 by forecast.

The demographic shift is driven by multiple reasons, such as declined fertility rate and increasing life expectancy. **China is experiencing a faster progress of population aging than European countries**, due to its **accelerating urbanization process**. High dependency ratio (a measure of dependent-age population over the working-age population) is one of the main results³(Fig.2), which means more pronounced imbalances, more processing burden in **aging care infrastructures and pension system**⁴, especially in megacities like **Shanghai**.

Noticeably, three fourth of the elderly

¹ David Mah, Leire Asensio Villoria, "Chapter 1: introduction," in Lifestyled: Health and Places (Berlin: Jovis Verlag GmbH,

2016).

² Mah, Villoria, "Chapter 1," 4-5.

³ David E. Bloom, Leo M. Zucker, "Aging Is the Real Population Bomb," IMF, November 14, 2022, <https://www.imf.org/en/Publications/fandd/issues/Series/Analytical-Series/aging-is-the-real-population-bomb-bloom-zucker>.

⁴ Mah, Villoria, "Chapter 1," 4-5.

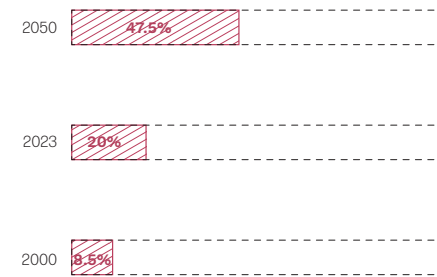


Fig 2. Old-age dependency ratio, China, 2000, 2023, 2050.

Question to be addressed:

Do we need a new paradigm to fulfill the demands of the aging population in the Megacity?

If it is, could this be addressed through the development of existing living neighborhoods?

Could improvement of certain living typologies become more suitable for the elderly?

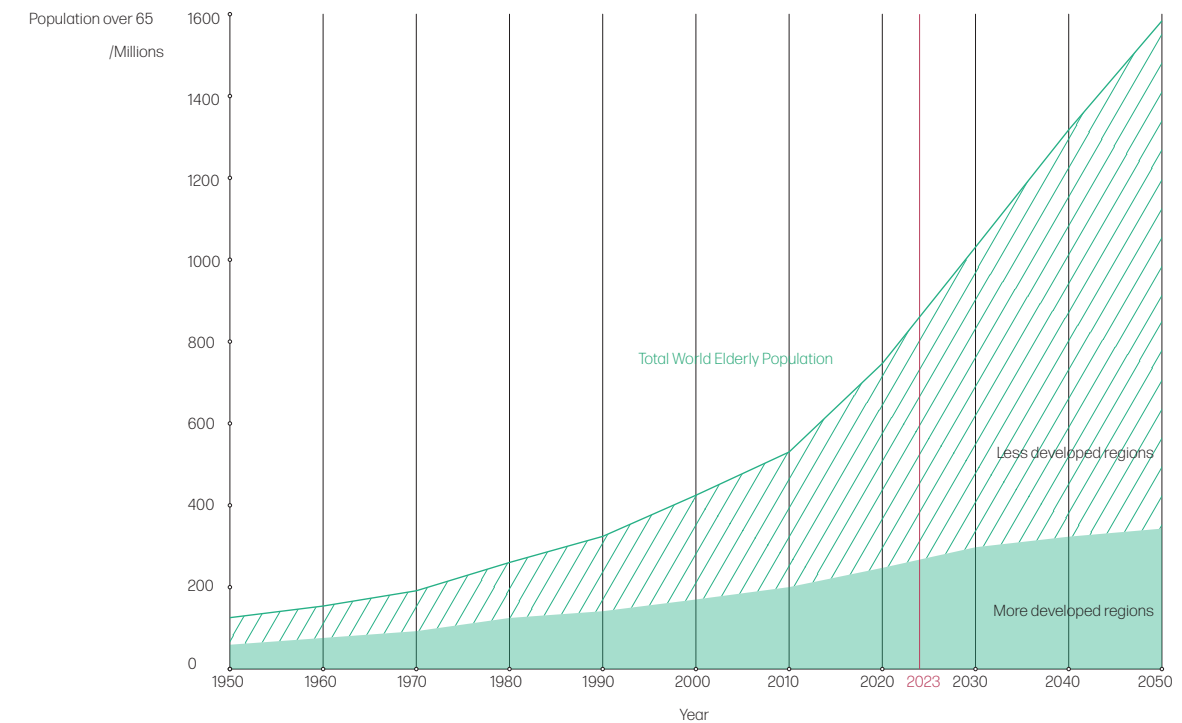


Fig 3. Population aged 60 or over: world and development regions, 1950-2050.

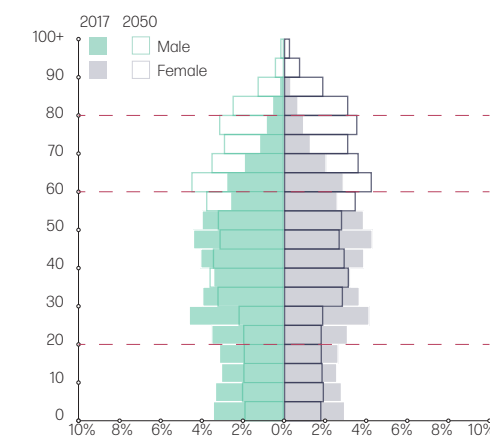


Fig 4. Population Pyramid of China, 2017 Vs 2050.

CHINESE CONTEXT

Shanghai: the most Aging Megacity in China

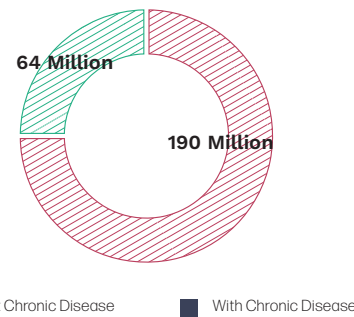


Fig 5. Elderly with(out) chronic Diseases, China, 2021.



Fig 6. Elderly population, Shanghai, 2022.

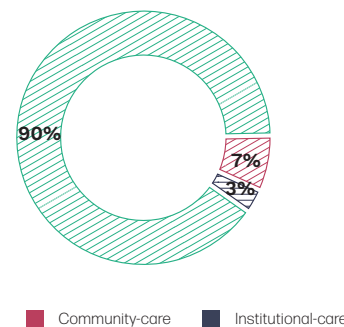


Fig 7. "9073" Structure in Aging Care in China.

Current aging-care paradigm:

Self-care with the supportive infrastructures within the neighborhoods based on municipalities. Shanghai local government is also promoting the "aging in place" as the main strategy, based on the 15-min community life circle.

population in China is under the health condition of having **chronic diseases**⁵ as the graph shows(Fig.5). Currently, the **preventative treatment** of these life-style related diseases are mostly happening at the **final stages of the diseases**⁶, mostly in the hospitals and nursing homes. Besides, there are 40 millions elderly with disabilities in China. As the current situation, the burden for **long-term care facilities** is predicable in the upcoming future.

If the **demand for caregivers** in China is fulfilled, it will need approximately **6 million** professionals to involve. However, there are only **0.5 million** which means a huge gap between the actual number of caregivers and the working labor in need⁷.

Therefore, the government has been promoting the **self-care with the support from the community** since 2000.

Shanghai is the most aging megacity in China. **38%** of the registered population is over 60, in actual number, **5.54 millions** by 2022⁸.

5 2021 National Bulletin on Aging, accessed February 14, 2024, <http://www.nhc.gov.cn/ljk/pqt/202210/e09f046ab8f-14967b19c3cb5c1d934b5.shtml>.

6 Mah, Villoria, "Chapter 1," 4-5.

7 2021 National Bulletin on Aging.

8 Statistics on demographic and programs of the senior citizens in Shanghai, accessed from <https://shylmzj.sh.gov.cn/map>, 2023.

LOCAL STRATEGY: SHANGHAI

Community-based Care: "Aging in Place"

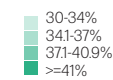
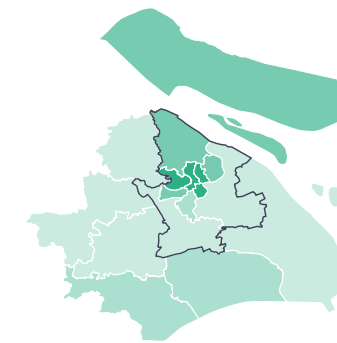


Fig 8. Over 60/total population, distribution by districts

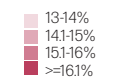
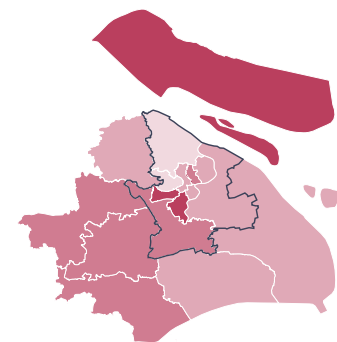


Fig 9. Over 80/total population, distribution by districts

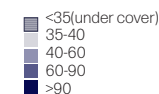


Fig 10. Coverage of beds in nursing homes/ 1,000 people

Shanghai local government is promoting the "Aging in Place" strategy based on the 15-min community life circle. The construction of the 15-minute life circle covers five aspects: housing, employment, transportation, services, and leisure.

The senior service circle operates on the principle of a 15-minute community life circle, considering the mobility patterns of seniors⁹ and the capacity of senior facilities within a spatially interconnected network. These facilities primarily aim to meet the needs of "Aging in Place".

However, the coverage is in general not enough in certain facilities or in certain districts. How should we set up the related facilities within the existing neighborhood? Should a new paradigm be developed?

9 Lulu Hou, Yuryang Liu, "Life Circle Construction in China under the Idea of Collaborative Governance: A Comparative Study of Beijing, Shanghai and Guangzhou," Geographical review of Japan series B 90 vol1 (July 2017), DOI:10.4157/geogrevjapanb.90.2.

WELFARE SYSTEM

“Hukou: Household Registration”

The People’s Commune Movement moved in the cities to pursue the industrialization in the 1950s, leading to the improvement of communes within existing social structures such as factories, schools, and neighborhoods¹⁰. With the implement of the **Work units (danwei)**¹¹ in **1958**, the workplace has been centralized for both **social and domestic activities**¹². Citizens were allocated a role within the new society under the **Registered Residence (Hukou) System**¹³ at the same year, aiming to limit the growth and migration in the urban area and trace the citizens, strengthening the segregation of urban and rural areas¹⁴. Moreover, it restricted citizens to receive the welfare benefits outside their registered locations¹⁵. Since then, Danwei and Hukou have become the pivot in the civic lives, offering stable employment, free housing, and other essential services¹⁶. After the Reforms started in 1978, the restrictions of migration from rural to urban areas has started to gradually release. From 1992, after the **transformation to the market economy**

¹⁰ Mah, Kollar, Wu, Yang, Li, Villoria, “Chapter 5,” 209.

¹¹ Work Unit (Danwei): “The work unit is a hybrid of Soviet-style central administration and the existing systems that evolved from baojia or lilin systems.” Work units were founded during the People’s Commune Movement in the cities, which were the establishment of the self-sufficient and isolated productive units.

¹² Mah, Kollar, Wu, Yang, Li, Villoria, “Chapter 5,” 210-211.

¹³ Mah, Kollar, Wu, Yang, Li, Villoria, “Chapter 5,” 214.

¹⁴ Mah, Kollar, Wu, Yang, Li, Villoria, “Chapter 5,” 214-215.

¹⁵ Mah, Kollar, Wu, Yang, Li, Villoria, “Chapter 5,” 209.

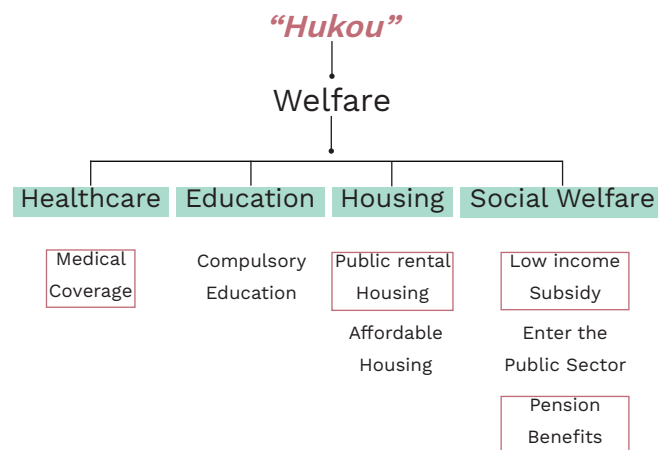
¹⁶ Mah, Kollar, Wu, Yang, Li, Villoria, “Chapter 5,” 228-229.

Hukou, Registered Residence System:

“It is a residential permit to limit that people **only worked and lived in the places designed by the state.**”



Fig 11. Image of “Hukou”.



the restrictions on working places has started to release from certain small cities and towns¹⁷. In early 2000s, it has also been applied to large cities, like Shanghai and Tianjin. **However, the welfare system is still based on the places of Register.**

As afore mentioned, the welfare ben-

¹⁷ Mah, Kollar, Wu, Yang, Li, Villoria, “Chapter 5,” 228-229.

THE INVISIBLE

“The Hidden Community in the Megacity”

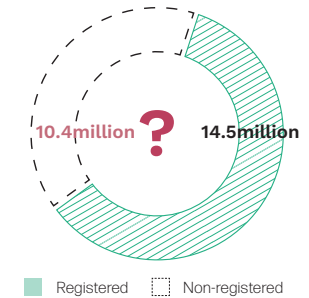
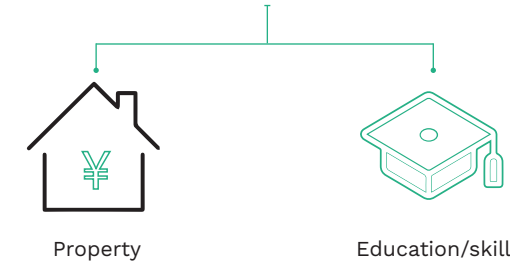


Fig 12. Registered Vs Non-registered population in Shanghai, 2021

Methods to obtain a Shanghai permant residence



1 Dependent Relocation

There are no requirements for academic qualifications, social insurance or jobs in the way of defection, but not everyone is obligated. **The delegate must own a property in Shanghai** and the owner must sign off on the application form.

2 SRC to Hukou

SRC: Shanghai residence card, approval for living in one Shanghai address in rental properties.

SRC cardholders over 7 years and at the same time **paying for the social insurance and taxes** are obligated to apply.

3 Graduates with international institution degrees

Individuals and companies that meet the conditions can apply. International students need to **be back to China within 2 years after graduation and start to work and pay social insurance**. This track is fast categorized by **school ranking** granted in 2-3 months after official submission.

4 Skilled Talent Program

The talents work in high-tech companies or institutions paying the **social insurance** can apply. The requirements also ask the companies to have a certain number of **application quota**. For the talents in urgent need, or with special contributions, requirements may be flexible.

5 New Graduate Program

Graduates finished bachelor, master or (post)graduate programmes can apply at the same year of graduation. **No record of paying social insurance during the study**. Students graduated from certain top universities can be prioritized. The rest need to reach certain scores in skill assessment.

efits are partially related to Hukou. For instance, individuals are obligated with medical coverage and public rental housing if they are paying the social and medical insurance in Shanghai. However, the restrictions applied to property purchase without a Shanghai Hukou, with the exception for one of the spouses who have been paying for taxes or social insurances over 5 years. **The Hukou in Shanghai** is not only the permanent residence, but the access to **more advanced resources in education, medical care and social welfare benefits.**

By 2021 the population of long-term residents in Shanghai is 24.9 million. About **42% of the population is non-registered**¹⁸. Except for the individuals under the bridging of waiting for applications granted and the foreign residents, the rest are mainly **from small towns or cities to seek opportunities**. Most of them have salaries lower than the average. Their occupations are among different industry, **from construction workers to food delivery, from**

¹⁸ “Shanghai Statistical Yearbook 2022”, accessed February 14, 2024. <https://tj.sh.gov.cn/tjnj/nj22.htm?d=2022tjnjn/BZSME.html>

THE INVISIBLE

“Who” are they? “Where” they inhabit?

small business owners to electrician. Quite large percent of their employers are **not paying the social insurance and medical insurance** for them even though it is illegal according to the labor law. They choose to live their hometown for a better income. They contribute to the development of the city and the operation of convenient life in Shanghai.

However, they live **in the hidden layer in such a Megacity.** Most of them live in the shared rental properties due to the high living cost in Shanghai. Since they are not obligated to public rental housing without Hukou or SRC. **Lilong, where the rent is much cheaper, a bed can be less than 700 RMB per month in a shared unit, provide a roof for them in the Megacity, providing affordable housing for the low-income groups.**



Fig 13



Fig 14



Fig 15



Fig 16



Fig 17



Fig 18



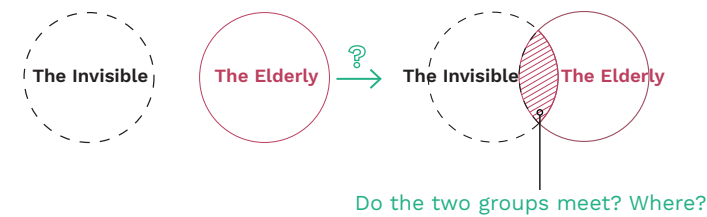
Fig 19



Fig 20

HABITATION OF THE INVISIBLE: LILONG

The Morphological study of Lilong



Lilong, as a typology invented since last century, accommodates a quite large group of elderly population.

Lilong, clusters the elderly, the invisible, the two vulnerable groups meet.

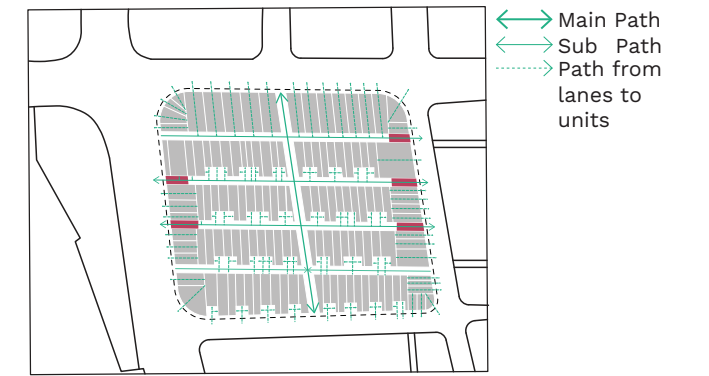
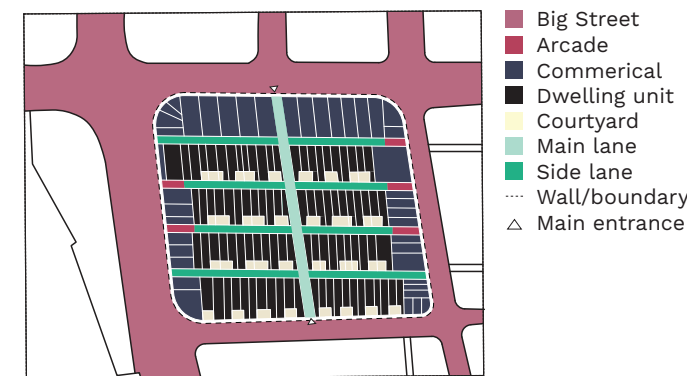


Fig 21. The morphological analysis of a general lilong settlement, land use and circulation.

“Li” refers to communities, while “Long” means lanes. lilong housing represents a “lane-and-community based urban dwelling form¹⁹”.

Typically, a lilong is situated with one or two sides adjacent to commercial streets, while the remaining sides are allocated to other developments but enclosed by walls²⁰. Each lilong comprises both housing and commercial units. The

housing units, usually tightly arranged in rows, follow a Western row-housing pattern and are evenly distributed, with exceptions like the Garden or Apartment lilong models (will be specified next). Commercial units, mirroring the layout of housing units, occupy street-front lots²¹. Access to housing units is provided via internal circulation lanes, while external commercial streets grant access to commercial units as Fig.21 shown.

¹⁹ “Chapter 2: The Urban Development of Shanghai and the Generation of Lilong Housing.” Minimum Cost Housing Group, April 6, 2011, <https://www.mcjll.ca/mcjh/student/lilong/chapter2>.

²⁰ “Chapter 2.” Minimum Cost Housing Group.

²¹ Alice Pontiggia, “Lilong Identity,” Issuu, January 19, 2016, https://issuu.com/alicepontiggia/docs/lilong_identity.

TYOLOGICAL CONTEXTS

Lilong Development and placement

Before 1845 (open trade), the town of Shanghai was confined to a 2.04 km²-land, bordered by cultivated fields, marshy terrain, and the Huangpu River to the east²². In the next 60 years, along the colonization of Britain, America and French, with the development of the foreign confessions and settlement, the city expanded as 6 times of the old town. Alongside the **urbanization and the proliferation of commercial activities**, the population grew rapidly. In response to the **incredible demographic increase and accommodate the immigrating workers**²³, Lilong housing was invented.

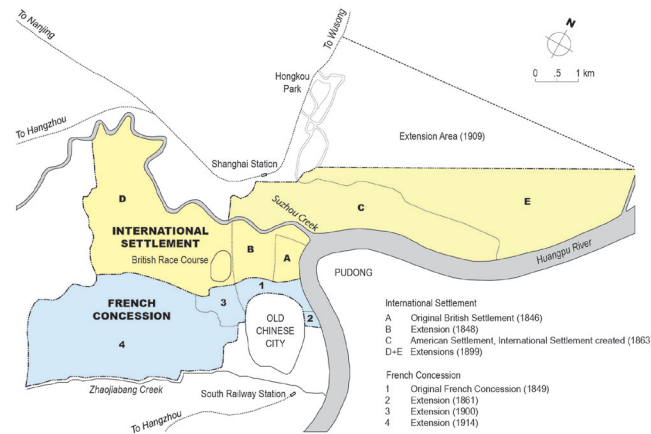


Fig 23. Foreign confession and International Settlement

²² "Chapter 2," Minimum Cost Housing Group.

²³ Pontiggia, "Lilong Identity", 5-6.

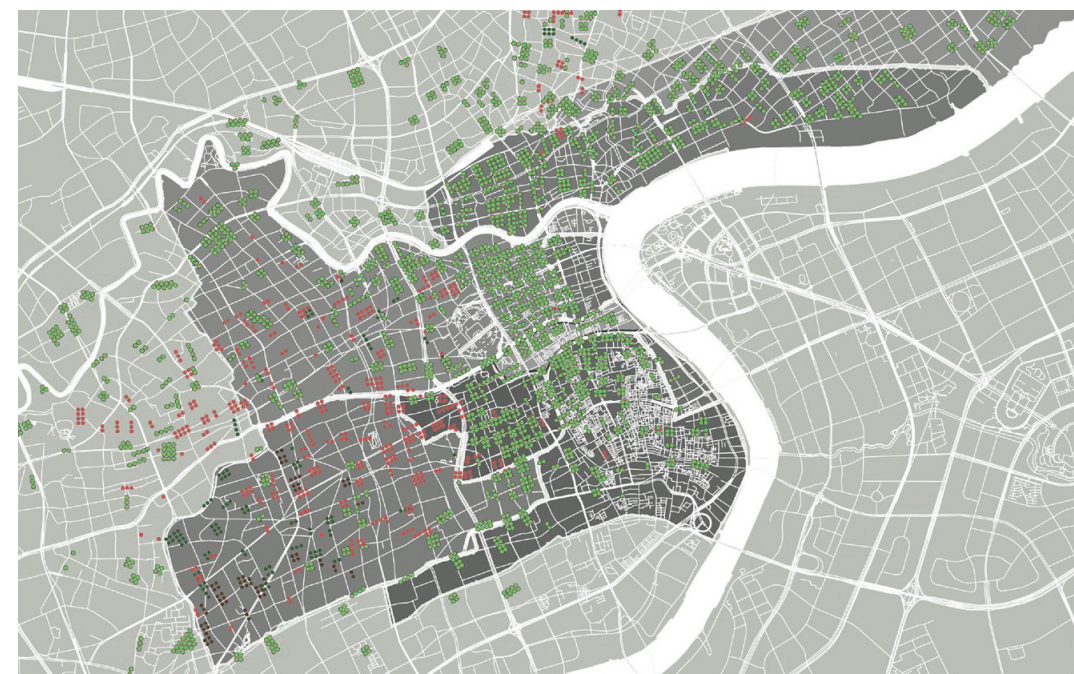
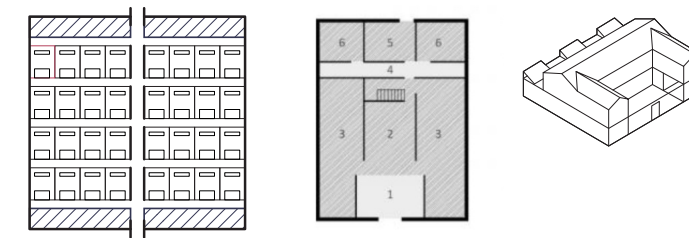


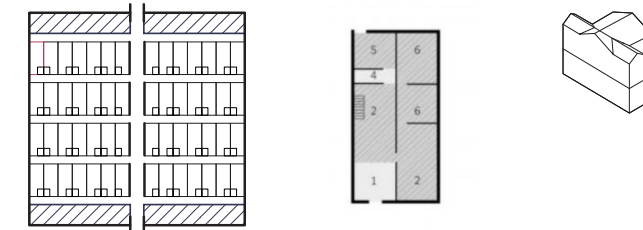
Fig 24. Lilong Placement in Huangpu District.

TYOLOGICAL CONTEXTS

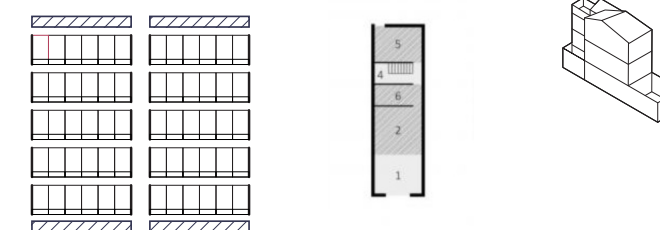
Lilong Types



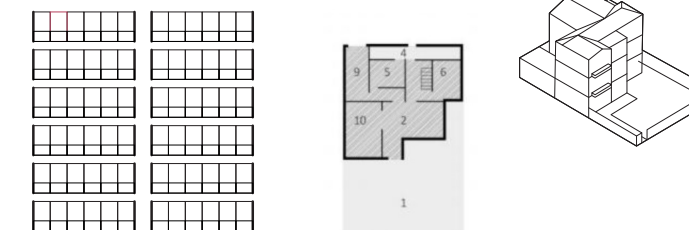
1. 1870-1910 Old Shikumen Lilong



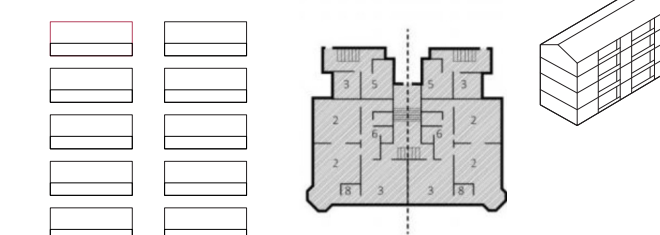
2. 1919-1930 New Shikumen Lilong



3. 1924-1938 New Type Lilong



4. 1931-1945 Garden Lilong



5. 1931-1945 Apartment Lilong

- ▨ Commercial
 - Dwelling
 - Courtyard
 - ▨ Wall
1. Courtyard 2. Main room-Jian 3. Bedroom/library-Shang
4. Outdoor corridor 5. Kitchen 6. Auxiliary room
8. Bathroom 9. Garage 10. Dining room

The initial iteration of lilong housing emerged uniquely in Shanghai, using the form of **temporary wooden shacks**²⁴. Subsequently, through years of experiment, the **brick or brick-concrete mixed structures**, gradually established itself as a mature housing prototype²⁵ widely adopted in Shanghai.

Old Shikumen Style:

- Combination of the row house model and the layout of San-he-yuan and Si-he-yuan

-basic housing prototype: "the form of a main two-storied building body at the front enclosing a central courtyard and linked to a rear one-storied building body through a light-well²⁶".

New Shikumen Style:

- Adopted to suit the **low-income families**

- "**high-density** scheme with reduced or minimum courtyards²⁷"

-reduction of rooms, the reduced size and height of rooms. "Some lilongs put up three-stories in the front building body, and the service space added up to two stories²⁸".

New Type Lilong was developed in 3 modes: one-jian, one-and-half jian and two-jian. The function of rooms was more clearly defined, Usually 3 stories²⁹.

Garden Lilong was the result of western cultures and for the wealthy classes, very low-density, demonstrated the grandness of the spaces and the fulfillment of the services spaces, minor social with neighbors³⁰.

Apartment Lilong was very compact and concentrated embedded with modern apartment features. "The ground-relatedness, socially cohesive atmosphere common in traditional lilong dwelling was sacrificed or lost³¹".

²⁴ "Chapter 2," Minimum Cost Housing Group.

²⁵ "Chapter 2," Minimum Cost Housing Group.

²⁶ "Chapter 3," Minimum Cost Housing Group.

²⁷ "Chapter 3," Minimum Cost Housing Group.

²⁸ "Chapter 3," Minimum Cost Housing Group.

²⁹ "Chapter 3," Minimum Cost Housing Group.

³⁰ "Chapter 3," Minimum Cost Housing Group.

³¹ Chapter 3," Minimum Cost Housing Group.

Fig 25. 5 types of Lilong Housing: Layout, Ground Floor layout, axonometric

THE DEFAULT FATE OF THE INVISIBLE

Demolish, Displacement, Culture loss

Due to the historical reason of open trade, plus the location nearby the coastal lines, Shanghai has become the one of the fastest developed cities in China also worldwide during last decades³². The GDP per capita of Shanghai has been non-stopping growing since 1991³³. Along the rapid development of economical activities, **the significance of the real estate market has grown steadily since the 2000s**. The total investment on the real estate development in Shanghai in 2010 was more than 3 times than that in 2000³⁴. The total investment on the real estate development in Shanghai in 2010 was more than 3 times than that in 2000. **Housing, in both the investment and the construction floor area, is the most important section³⁵**.

While the fast development of the new residential housing blocks, countless lilongs were torn down for the gentrified apartments. The preservation plan of historic Modern buildings in Shanghai started to take place in the late 1990s, which only took place in individual buildings at first then extended to districts.

32 Pontiggia, "Lilong Identity," 1718.

33 Pontiggia, "Lilong Identity," 1718.

34 Pontiggia, "Lilong Identity," 1718.

35 Pontiggia, "Lilong Identity," 1718.

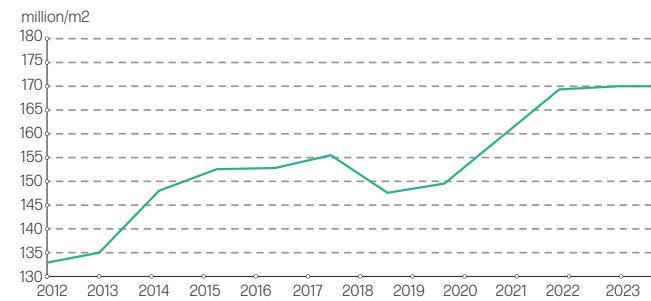


Fig 26. Floor space of construction, Shanghai, 2012-2023.

However, the Historic Preservation Law only started to act at the early 2000s³⁶. In fact, it **only protected small representative gems, leaving the rest areas free of deconstruction**. In the year of 2000, **27 million square meters housing were demolished, 640 thousand household were relocated and 1 billion square meters of new housing was constructed³⁷**. There are a few well-developed cases of preservation in lilong, like Xintiandi, which is a top-down redevelopment only contains commercial and cultural areas, a transformation from residential area to tourist spot.

Currently, 90% lilongs within Laoximen municipality in Huangpu district are in the progress of demolition³⁸. The original inhabitants are pushed away from the

36 Pontiggia, "Lilong Identity," 27.

37 Pontiggia, "Lilong Identity," 27.
38 <https://www.shhuangpu.gov.cn/zw/009001/009001010/009001010001/20220309/4957af75-8b68-4eed-9df5-1e8ea05662ff.html>

THE CRISIS OF THE SPECULATIVE MODEL

Housing Bubble Burst in China

city center in the speculative maneuvers. The elderly has to move to the periphery, which means less accessible medical or healthcare resources.

The displacement of the lilong residents and the shift of urban fabric, and the culture loss is ignored in front of the market-driven development.

As reported, 1.8 billion square meters new residential floor space in China were built only in the year of 2010, slightly less than **the total housing stock in Spain³⁹**.

“Fall of Evergrande Group”

25% of China’s GDP was contributed by private housing ownership, representing the largest form household wealth, around 70%⁴⁰.

Evergrande, is the largest developer in China. In December 2021, Evergrande defaulted on two dollar-bond coupons. As the most heavily indebted developer

39 Pontiggia, "Lilong Identity," 1718.

40 Cato.org, accessed February 20, 2024, <https://www.cato.org/blog/anatomy-chinas-housing-crisis-ending-financial-repression#:~:text=The%20Sources%20of%20China's%20Housing%20Crisis&text=As%20housing%20demand%20increased%20and,new%20regulations%20to%20stem%20speculation.>

in China, its liabilities amount to nearly \$330 billion, including \$20 billion of off-shore debt⁴¹.

The real estate market played a vital role to stimulate China’s economy. Nonetheless, slower economic growth caused by the pandemic, new construction starts fell 39% in 2022 comparing to 2021⁴².

The fall of Evergrande proves that demolition of the traditional neighborhoods in favor of the new speculative development is not only a fail-proof option, however it flaws a huge socioeconomic impact.

It addresses us to question the model of speculative development of gentrifying apartments in city centers.

What if Lilongs could become the anti-gentrifying mechanism?

41 Cato.org.

42 Cato.org.

THE LILONG AS A RESISTANCE TO GENTRIFICATION

Location: Menghua Street, Huangpu District

The chosen lilongs are located at the Laoximen Municipality, Huangpu district. Opposite to the Confucian Temple. The registered population are approximately 2,100. **40%** Of the residents are tenants (Mostly without Shanghai Hukou); **60%** of the registered population is over 65.

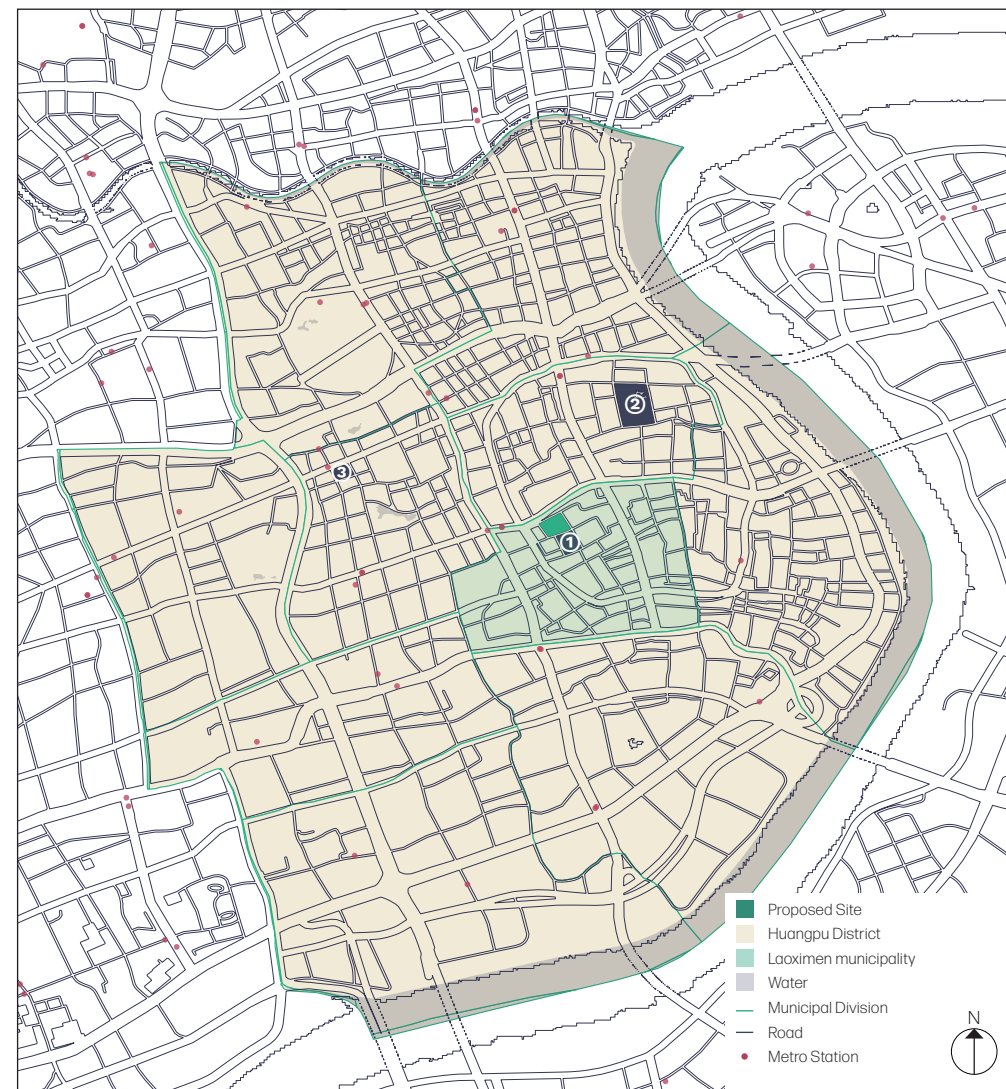
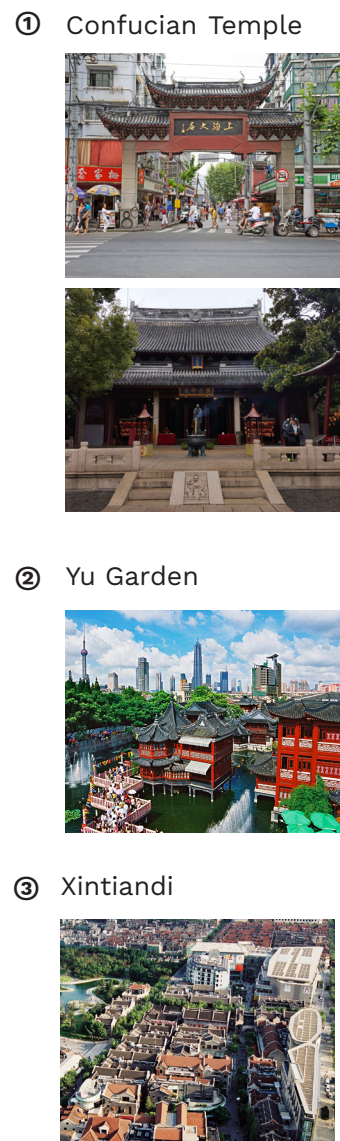


Fig 27. Site map, Huangpu District, Shanghai. Scale: 1:35000

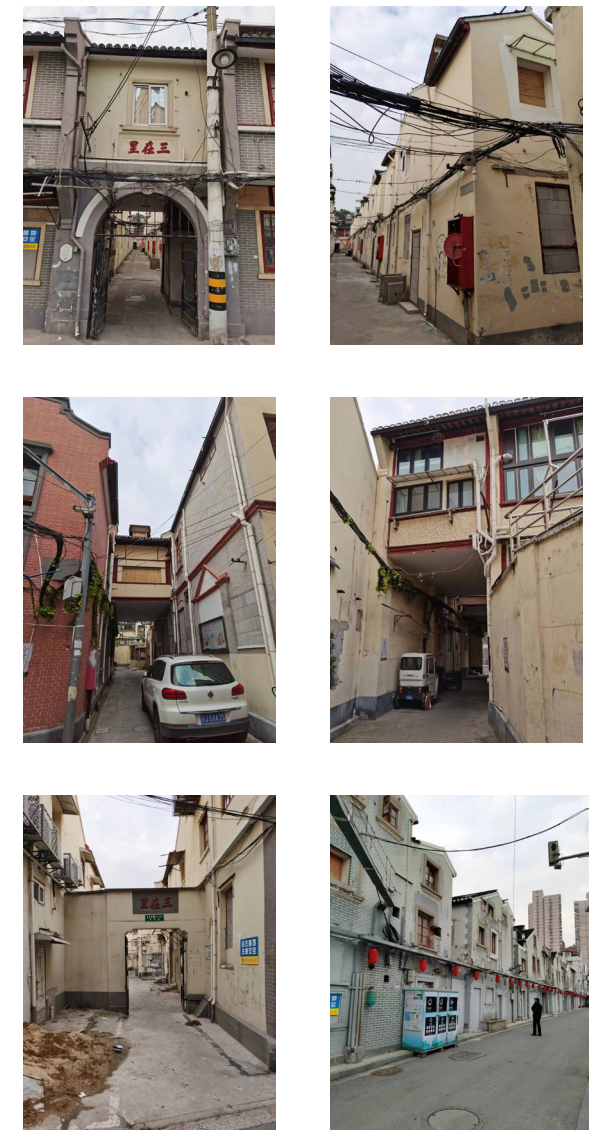


THE SITE

Chosen Lilong: 2 Lilongs, Sanzai Li & Jiazhi Li



Fig 28. Site map, 1:1500 @A3



PROGRAMME

Concept

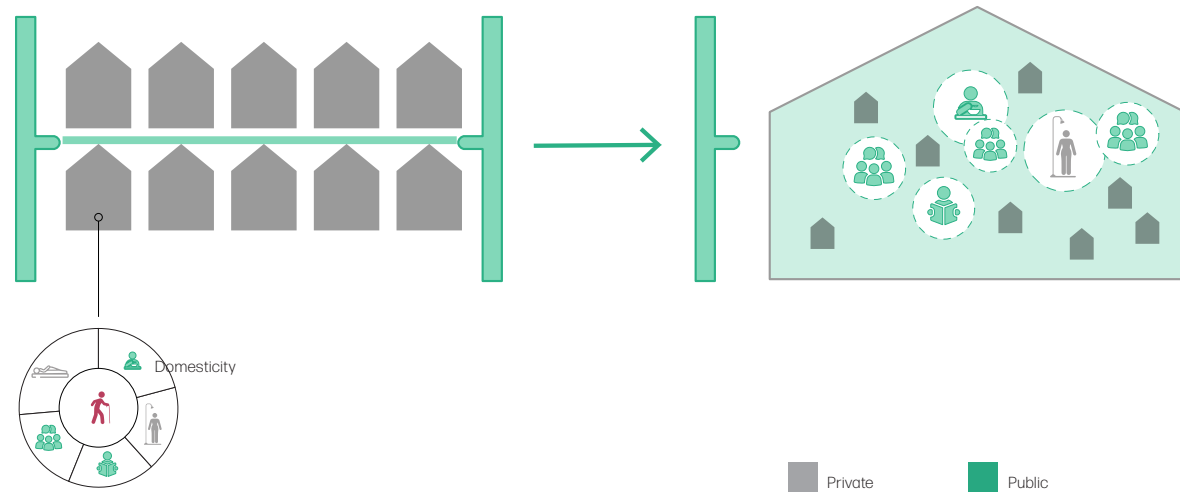
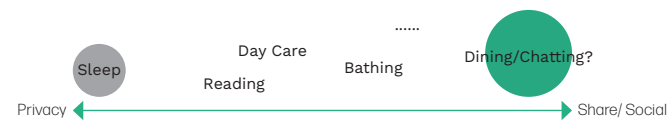


Fig 29. Concept Diagram



Program Intentions

The program circles around the re-imagination of the lilong housing neighborhood. Lilong, is no longer a place with **crammed individual households, become the urban living room with social functions scattered around the alleys**. A place recreates the vibrant social life with affordable housing options as the original response.

With this project I wish to address and discuss the preservation and recreation of the traditional neighborhood within the gentrifying city center as residential purpose. Besides, to test the typological potential of lilong for the aging population. How to alter the typology with small changes to enhance the need of the elderly?

PROGRAMME

Urban Puncture



Fig 30. Urban discontinuities within the neighborhood and potential program allocation.

Through the analysis of **the gradient of privacy/public of the daily domesticity**, extracting the **relevant functions from the existing** lilong typology and **inserting into the surrounding** neighborhood, lilong itself becomes a large “house” for the two social groups and a more socializing space.

Urban Puncture:

1. Map out the shortcut;
2. Map out the existing meeting/rest spots, insert the relevant social programme.
(could be run by the invisible individuals to connect the two social groups)

PROGRAMME

Architecture scale

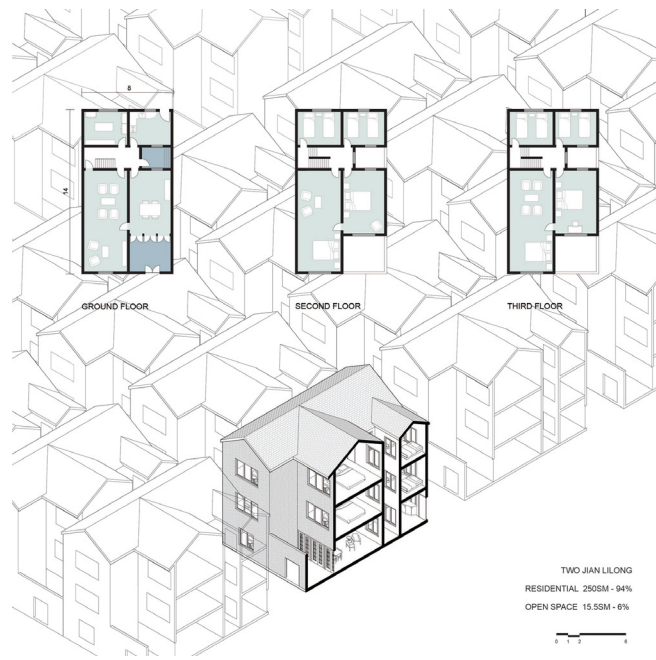


Fig 31. Typical Two-Jian Lilong

By extraxtion of the public function from the housing units, there is an opportunity to improve the internal spacial quality to fulfill the needs for the elderly groups. Also to alter for more bedrooms as affordable housing for the invisible individuals.

DELIVERABLES

Reference Project

Program Deliverables:

Neighborhood plan: 1:500

Architectural drawing: 1:100

Architectural model: 1:20

Neighborhood scale

1800㎡ 社区公共客厅
Community Public Living Room

- 4个单元入口廊
- 4 Entrances of Units Activation
- 3+1 地面环境提升
- 3+1 Fundamental Environment Promotion
- 2个共享空间建筑
- 2 Shared Spaces Building
- 3栋环卫设施改造
- 3 Sanitation Facilities Reformation

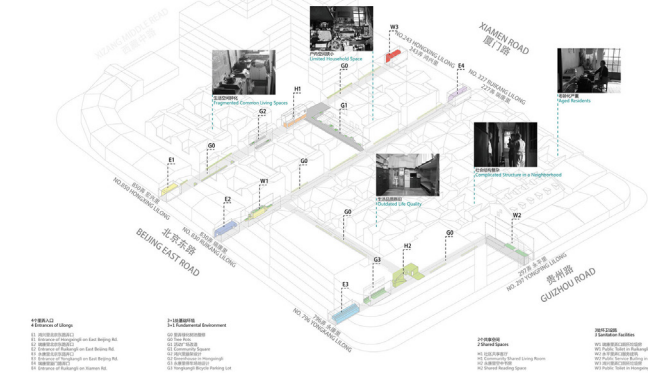


Fig 32. Community Public Living Room



Fig 33. Community Public Living Room

Building scale

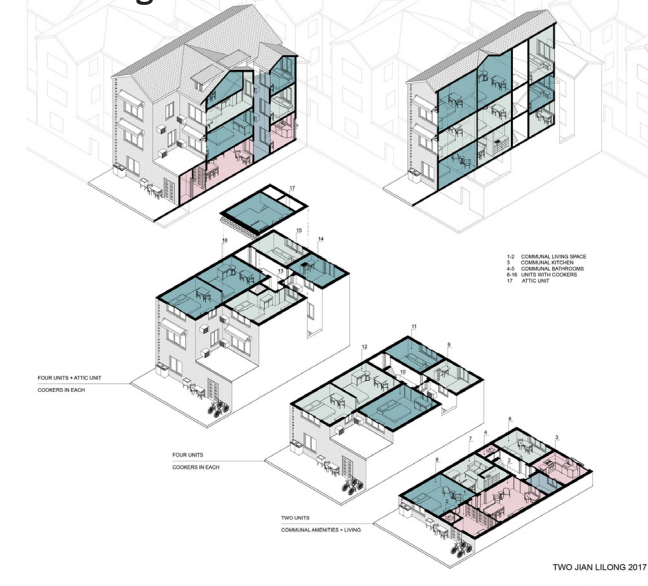


Fig 34. Lilong typology development

REFERENCE

Figure List

Fig 1. photo took by author.

Fig 2-4. created by author. Source: <https://www.populationpyramid.net>

Fig 5-6.

<http://www.nhc.gov.cn/lljks/pqt/202210/e09f046ab8f14967b19c3cb5c1d934b5.shtml>.

Fig 7. created by author, Source: 2021 National Bulletin on Aging

Fig 8-10. created by author, Source: 2021 National Bulletin on Aging

Fig 11. https://www.google.com/search?sca_esv=3532b07490db4deb&sxsrf=ACQVn09G-bVg1RNYyRUgUyqzrimU1yeDXlg:1708411021023&q=%E6%88%B7%E5%8F%A3&tbm=is-ch&source=lnms&sa=X&ved=2ahUKEwiy8aaAp7mEAxWi_7sIHbihDi0Q0pQJegQIC-BAB&biw=1552&bih=816&dpr=1.65#imgrc=LwDbRGYMYjzxdM

Fig 12 created by author.

Fig 13-20. <https://finance.sina.com.cn/tech/2021-02-08/doc-ikftssap4836380.shtml>

Fig 21-22 created by author Source:<https://www.mcgill.ca/mchg/student/lilong/chapter2>.

Fig 23-24 redited by author. Source: <https://www.archilovers.com/projects/253944/contemporary-living-in-a-shikumen-lilong-gallery?2464679>

Fig 25 redited by author. Source:https://issuu.com/alicepontiggia/docs/lilong_identity.

Fig 26. created by author. Source: <https://www.ceicdata.com/en/china/floor-space-under-construction-city/cn-floor-space-under-construction-shanghai>

Fig.27-30 created by author.

Fig 31,33,34. Source: <https://anaclaramunt.com/research>

Fig 32. Source: <https://arch.seu.edu.cn/2022/1204/c9122a430460/page.htm>

REFERENCE

Bibliography

2021 National Bulletin on Aging, Accessed February 14, 2024. <http://www.nhc.gov.cn/lljks/pqt/202210/e09f046ab8f14967b19c3cb5c1d934b5.shtml>.

Cato.org. Accessed February 20, 2024. <https://www.cato.org/blog/anatomy-china-housing-crisis-ending-financial-repression#:~:text=The%20Sources%20of%20China's%20Housing%20Crisis&text=As%20housing%20demand%20increased%20and,new%20regulations%20to%20stem%20speculation>.

“Chapter 2: *The Urban Development of Shanghai and the Generation of Lilong Housing*” Minimum Cost Housing Group, April 6, 2011. <https://www.mcgill.ca/mchg/student/lilong/chapter2>.

BLOOM, DAVID E, LEO M. ZUCKER “Aging Is the Real Population Bomb.” IMF, November 14, 2022. <https://www.imf.org/en/Publications/fandd/issues/Series/Analytical-Series/aging-is-the-real-population-bomb-bloom-zucker>.

Mah, David., Villoria, Leire Asensio, “Chapter 1: introduction,” in *Lifestyled: Health and Places*. Berlin: Jovis Verlag GmbH, 2016.

Pontiggia, Alice. “Lilong Identity.” Issuu, January 19, 2016. https://issuu.com/alicepontiggia/docs/lilong_identity.

Shhuangpu.gov.cn. Accessed February 20, 2024. <https://www.shhuangpu.gov.cn/zw/009001/009001010/009001010001/20220309/4957af75-8b68-4eed-9df5-1e8ea05662ff.html>.

Yao, Shenjun, Jianping Wu, Lele Huang, and Zhehao Ren. Study on spatial distribution of residential care facilities in Shanghai, May 25, 2018. <http://hdsfdxzk.xml-journal>.