

*Upgrading Marginal Settlements: Studies on Li-nong Settlements in Shanghai Old Railway Station Area*

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**Abstract**

Marginal Li-nong settlements have always been considered as the backward, dirty and negative parts of inner city of Shanghai and are in a pressing need of upgrading. The wholesale demolition, which is a generally applied strategy of urban renewal, has been proved to erode distinction of places, exacerbate urban gentrification and inequality, and strip the city of its cheap workforce.

Characteristics of density, diversity, vitality and flexibility have made marginal settlements the most sustainable places for low-income urban residents and migrants, forming an indispensable part of social and economic networks on a larger scale. With a community-based research of marginal Li-nong settlements in Shanghai Old Railway Station Area, multiple upgrading strategies were put forward, which mainly contained minor interventions on upgrading pedestrian system, enabling productive utilization of public space, stimulating active engagements of dwellers with great emphasis on the maintenance and promotion of mixed-use, adaptation, sustainability and dynamism already embodied in the place. Also, the research enables new understanding of informal and ad hoc model of urbanism which greatly transgresses the standardized concept of architecture and city.

Keywords: upgrading strategy, Li-nong settlements, informal, marginal, sustainability, public space

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## Introduction

In Shanghai, a large number of people live in ancient Li-nong settlements. Despite its dirty, crowded and dilapidated characters, Li-nong settlement is a traditional type of residential architecture derived from the force of western colonization and the demand of domestic housing with great density during the period of rapid urbanization in 1930s. Only one-third of Li-nong settlements survived from the wholesale demolition since Chinese reform and opening policy. Most of the remained Li-nong settlements occupy land close to physical boundaries such as waterfronts, city walls or transport infrastructure of freeways and railways. Because of the low financial rewards of property development, these Li-nong settlements are able to survive through eight decades and have turned into marginal spaces within the context of urbanization.



Figure 1: wholesale demolition of Li-nong, photographed by Xi Zi

The academic attention on urban marginal space, sometimes called urban fringe or urban periphery, could be traced back to the studies on urban morphology by geographers at the end of 19th century. The German geographer, Herbert Louts found in his research of Berlin that the previous rural area was replaced by urban construction area and became a part of city. He defined this type of area as urban-rural fringe (Figure 2). Later, the widely accepted definition of urban-rural fringe was came from R.G.Rryor in 1968, who deemed that rural-urban fringe was the “zone of transition in land use, social and demographic characteristics, lying between the continuously built-up urban and suburban areas of the central city and the rural hinterland”.

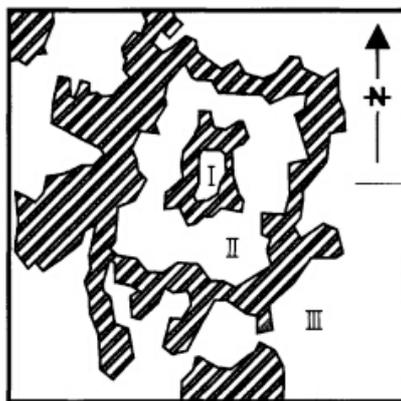


Figure 2: Model of Berlin urban fringes by Herbert Louis (1936)  
I . Old city II . Former Suburb III . Residential Area

According to core-periphery theory, marginal space could be defined in a broader sense. A finite space model is composed of two elements: the core and the periphery, which is similar to the structure of a traditional city. While as urban development pattern shifted from single-core to multi-core over the past years, the clear differentiation of core and periphery has disappeared. The concept of margin showed its hierarchical nature with higher levels of margins existing between urban and rural areas, lower levels of margins appearing in-between construction clusters. Therefore, locations of marginal space are no longer limited in geographical periphery of urban areas, and also might be modified through time.

Different from western “residential-oriented” marginal space, Chinese marginal space is mostly “service-oriented” or “industry-oriented”. Multi-core development pattern motivated by the construction of infrastructure has driven to the engulfment of previous marginal space into the grand metropolitan area. A large number of the marginal areas now located on interstitial lands in city core areas have a long history and profound cultural heritage, remaining certain rural characteristics such as informality, autonomy and etc., which transgress the regulations and hierarchy of a well-planned city. They bring about a heterogeneous but common type of urban space, and they also arouse questions about how to identify their roles in the city and how to deal with the great challenge of urban regeneration.

During the last thirty years, Chinese strategy of urban renewal was to totally demolish shanty buildings and disperse residents to cheap land on the new urban fringes, which has gradually been proved to be both a political and economic failure, as it exacerbated urban gentrification and inequality, and at the same time stripped the city of its cheap workforce. Marginal Li-nong settlements accommodate local residents of Shanghai with low income, and are also anchor points to young immigrants as the only affordable housing with easy access to jobs and public transport. Mobile population and informal squatters constructed by Li-nong dwellers all drive to the complexity and ambiguity of buildings’ property rights, making demolition and relocation extremely difficult.

### **Sustainability of Marginal Li-nong Settlements**

Marginal Li-nong Settlement is a high-density, walkable and mix-used habitation with abundant communal vitality and culture. It is composed of ‘Li’, the entity of residential buildings, and ‘Nong’, the laneway systems within blocks. Usually, a block of Li-nong settlement is comparatively large in size, sometimes exceeding 200-meter in length on each side. The laneway system consisting of several main lanes and a series of sub-lanes cuts the block into smaller clusters. The main lanes are the most important public passages which mostly have direct connection with urban roads, often serving as gathering places for various social activities such as playing mah-jong, chatting, buying daily necessities, doing exercise and so on. Perpendicular to main lanes, sub-lanes are semi-public, semi-private places. They bear the continuity of publicity from main lanes and become gathering places for a few households. Since per capita living space of marginal Li-nong settlements is only about 5.8 square meters (statistics in 2011), lots of private activities are forced to spill into public space – the laneways, creating frequent interactions and tight communal networks, which greatly contribute to social sustainability.

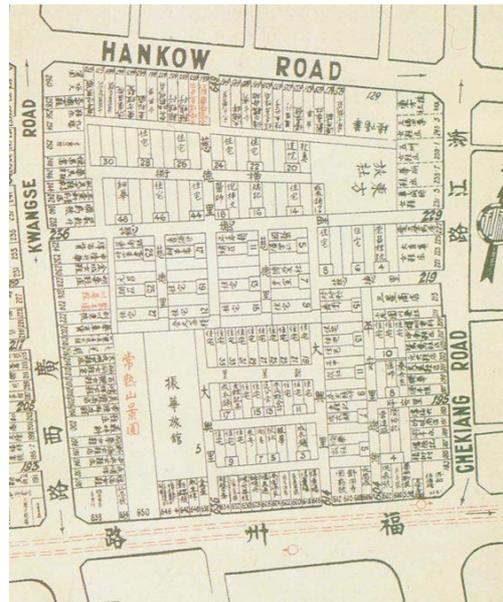


Figure 3: Plan of a typical Li-nong settlement

At the beginning of Li-nong settlements' design and construction, the neighborhood service facilities were not taken into consideration. While under the self-regulation of market mechanism, service facilities emerged along the urban streets on the periphery of Li-nong blocks and then gradually infiltrated into the interior. Many retail stores, entertainment venues, newspaper offices, assembly halls, family hotels and private clinics filled up both sides of laneways (Figure 4). That's why even nowadays some of the old service facilities still have "Li" as a part of their addresses. In the respect, Li-nong settlement could be regarded as an urban complex with the capability of independent operation. It is similar to what John.O.Brow-der addressed during his research on marginal neighborhoods in Bangkok, Jakarta and Santiago that the variety in functions and forms made marginal urban places a polyhedron in terms of economy and sociology, thus such kind of places could not simply be judged based on universal social, economic or spatial standards.



Figure 4: a drawing of laneways of Li-nong

The old movie 'Shanghai Fever'(1994) told a story about the life conditions of people living in Li-nong under the influence of the outbreak of Stock Market Craze in 1990s. By means of realistic narratives, a vivid representation of life scenarios was unveiled to the audiences. The heroine named Lili and her family were living in a typical Li-

nong settlement. A series of continuous lens was applied to portray their interactions with neighbors on their way from entrance of Li-nong to their own home (Figure 5). In the first screenshot, the spatial relationship between main lane and the external street was clearly shown with surrounding walls, a stone gate and the settlement's name "Bugao Li" on the top. Then, the scene turned to the interior, showing dwellers taking relax, chatting, washing and hanging clothes in the main lane, exposing their private life to the public space. Just in ten seconds, Lili had verbal communications with three people. When she was bargaining with the owner of a barber shop for a discounted haircut, her daughter seized the change to play hide-and-seek with her friends in a little square with hundreds of clothes racks acting as perfect game tools. Just in this very short film section, the spatial layout, business format and public relationship all revealed Li-nong's nature of autonomy and independence, indicating the close social and economic networks.



Figure 5: Movie 'Shanghai Fever'(1994)

Compared with well-planned, designed and controlled districts, marginal settlements may seem undesirable for a range of reasons, while high levels of diversity, flexibility and informality, and also the adjacency to transit nodes enable efficient flows of labor, information and goods, contributing to affordable products, cheap labor force and adaptive utilization of space, which the other parts of city also have strong dependence on. Based on this understanding, the purge of marginal settlements and removal of dwellers from transport and employment would be both a disaster to these dwellers and breakdowns of social and economic networks of the whole city.

There are also cultural and aesthetic reasons to retain the basic morphology of marginal Li-nong settlements. Their morphology is an exotic product from western townhouse with orderly traffic systems and arrays of residential clusters. While, their present appearance shows how elements of informality interact with primitive base grids by the engagement of everyday life that creates a picturesque of freedom, cultural enrichment and nostalgia. Traditional handicrafts such as tinkering, tailoring, sugar painting, paper cutting and etc., which hardly exist in other parts of city are still active in marginal Li-nong settlements, not to mention the dwellers' everyday activities including singing Chinese operas, playing games of go and dialect art, which often take place in multi-functional spaces with every piece of nature and man-made elements including sunlight, shadow, trees and wind becoming parts of the stage background. Walter Benjamin identified the marginal settlements of early 20th-century Naples with the urban quality of 'porosity', where the interpenetrations of

buildings and actions ‘become a theatre of new, unforeseen constellations’. Also the emergence of Li-nong tourism in recent years shows the public’s attention and interest on Li-nong settlements as parts of the city’s heritage. Thus, not only the conservation of morphology, but also the inheritance of life style should be taken into serious consideration.

### **Upgrading Strategies for Marginal Settlements**

Upgrading strategies for marginal settlements such as Li-nong have long been in the center of academic discussion. First of all, as their advantages of social and economic sustainability are primarily based on high density and certain levels of informality, the renovation policy which imposes strict regulations upon any type of activities, or simply moves a part of dwellers away to reduce density for the sake of improving quality of life is in need of further deliberation. Opposing to decreasing density, the ‘Support’ system, developed by John Habraken (1972), proposed a model of three-dimensional infrastructure frames with the infill of dwelling units (Figure 6). By offering only supporting structures and allowing the provision of dwellings, Habraken promoted an indeterminate design that enabled high levels of density, and at the same time allowed for serendipitous outcomes once the framework was activated by actions of its intended inhabitants, inserting their needs, desires, and preferences, creating internal adaptation to changing circumstances.

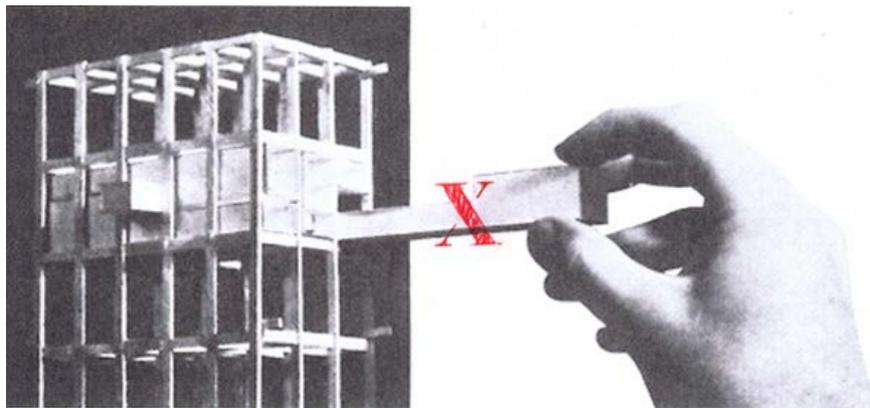


Figure 6: the ‘Support’ system by John Habraken (1972)

As it has been asserted above that any attempt to instantly regulate or formalize marginal settlements should be taken carefully, marginal settlements have their own latent codes and rules of operation which have stood the test of time. However, these codes and rules are necessary but insufficient in several aspects. For example, the sides of a typical Li-nong block could reach 200-meters, which are too long thus less walkable along the peripheral roads compared with the sides of blocks in the earlier concessions which are about 80 to 120 meters. The interior laneway networks are self-contained and are capable of offering all kinds of services to meet daily needs of living, while they could hardly be incorporated into the urban road system and have no relationship with adjacent blocks, driving to the condition of closed isolation. Moreover, rampant and continuous encroachment of open space to maximize personal benefit makes marginal settlements intolerable in environmental and experiential qualities, such as light, space, ventilation, sanitation, etc..

The challenge of marginal settlements' upgrading is to fully understand the existing codes and rules – how marginal settlements are formed, emerge and grow, and how they are inhabited, used and engaged with urban circumstances. Professor Kim Dovey addressed in 'Informalising Architecture: the Challenge of Informal Settlements' (2013), 'any newly formalized codes that emerge need to sustain the productivity, amenity and sociality that is already embodied in the place'. That means that it is unworkable to develop a set of new codes which are subversive to the existing inner structures of settlements. Beginning with incorporating marginal settlements as indispensable elements of the whole city, respecting their development tracks and life style of dwellers, upgrading strategies could then be developed to optimize morphology and network of marginal settlements by promoting their potentials of mix-use, diversity and dynamism, looking for appropriate media to sew the gaps between interior and exterior, and stimulating active engagements within a larger, urban-scale network of social, political and economic activities. Since marginal settlements may differ from place to place, community-based research becomes the key task in building the knowledge base for upgrading strategies.

### Case of Shanghai Old Railway Station Area

Shanghai old railway station area is located in Zhabei District on the edge of city center, where Museum of Relics of old railway station and railway stabling yard which is still in operation occupy a large area of land. The two-kilometer-long stabling yard forms a huge north-south barrier and has in the long term hindered the district's development. Having access to several public transport junctions, the area's advantages in location and public transport make it a favorable place for the gathering of marginal Li-nong settlements. Nowadays, there is still a large number of Li-nong remained, taking over south and east of the district and forming the biggest agglomeration in Shanghai (Figure 7).



Figure 7: satellite map of Shanghai old railway station area

The emergence of Li-nong settlements in this district in 1930s had a close relationship with the establishment of old railway station and the sprawl of concessions. Concessions began to take shape in 1843 in ruined reed lard about ten miles north to Shanghai's ancient walled residences. In the following years, foreign colonists established a new city center, the Bund, in traditional colonial mode and constructed piers along Huangpu River. As concessions flourished and spread northward, two of the earliest railways in China, Songhu Railway and Huning Railway, opened to traffic

in 1876 and 1908, with their terminals located on cheaper lands to the north of concessions. Together with water transports on Suzhou River, railways brought freights and people to and out of concessions through the complete and convenient transportation network. Still belonging to Chinese settlements and only several blocks north to the concession, Shanghai old railway station area enjoyed exceptional advantages in location, transportation and cheap land price, attracting enterprises and migrant workers from all over the country. Surging waves of immigration resulted in explosive growth of population in the area and massive emergence of slums, some of which were later be transformed to Li-nong settlements.



Figure 8: an ancient map of Shanghai with concessions in yellow (1939)

Marginal characteristics of Shanghai old railway station area could be examined and summarized from three aspects. In terms of political pattern, juxtaposition of Concessions and Chinese settlements exerted both positive and negative influence on the development of urban morphology and socio-economic structure of this area, as the urban fabric of Chinese settlements was the spontaneous and random extensions of the well-planned, designed and constructed fabric of Concessions, resulting in mega-blocks and fragmented infrastructure networks. In terms of physical space, railway stabling yard forms a huge, linear blank zone, cutting off urban fabric and networks especially the pedestrian system, resulting in the poor accessibility and inefficient utilization of public facilities which gives rise to the damage of public rights and the lack of interaction among different communities. From social and historical perspectives, accumulation of population with low income and inadequate education has led to class-based social segregation, which further hindered the invasion of new companies and creative clusters and brought troubles to industrial reconstruction. In conclusion, the circumstances of social and spatial segregations are often interrelated and reinforcing each other, leading to unpredictable complexity of understanding intrinsic mechanism and formulating strategies.

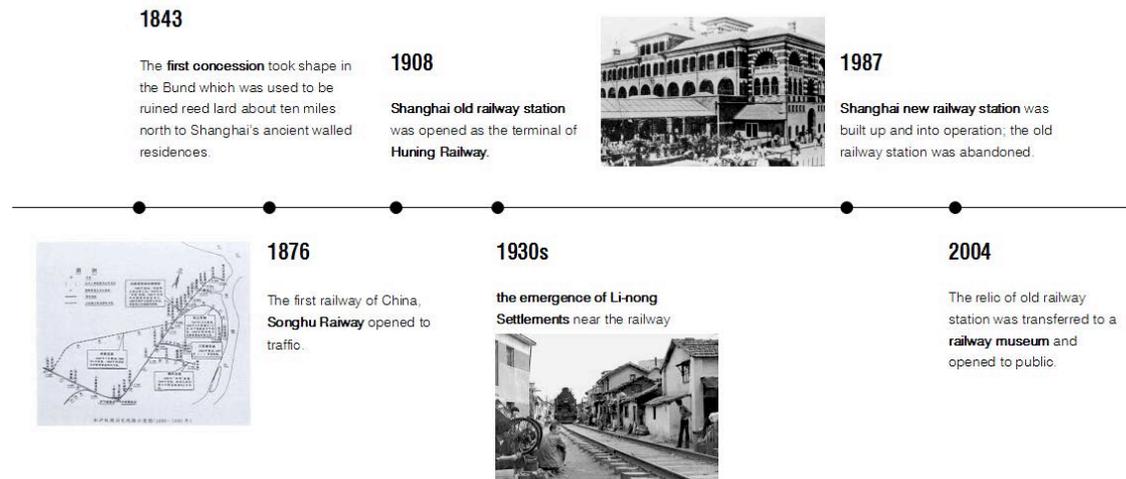


Figure 9: historical change of Shanghai old railway station area in timeline, drew by author

A community-based research is necessary to answer the following questions: what is the condition of public space in the marginal Li-nong settlements in the target area? How does it function and how is it occupied? As informal constructions often transgress boundaries of architectural ideology and enable demand-driven, adaptive and participatory practices, how do they actually interact with dwellers and how do they establish relationships with economic and social networks on a larger scale?

During the field survey, photographic recording, target tracing and questionnaire investigation were the three main methods. The focus was primarily on the public space including shops, mobile booths, laneways and the affiliated open space, markets, threshold in-between private and public space, flow of dwellers, and etc.. The field survey showed that main lanes were the most mixed-use, socially and formally dynamic places, with shops on both sides extruding onto pedestrians during certain periods of the day, creating ambiguous space for both traffic and commodity trading covered with canopies made by recycled materials and light structure. By documenting paths of several mobile booths, it was inspiring to find that their services and locations were shifting to cater for actual market demands, and they also little by little influenced the flow of people, freights and information. For example, trace records showed that an old granny selling breakfast with a trolley close to the urban road in the early morning might work as a danner in the afternoon with her working place shifting to a shady corner in the main lane, because the group of no-residents who worked nearby constituted a large portion of customers of her breakfast business, while the target group of darning was limited to local residents whom she was familiar with. People gathered around mobile booths often gave rise to the exchange and promotion of information, gossip and rumors, forming a latent information network which was highly efficient and autonomous.



Figure 10: photographs of the laneways

Upgrading strategies should be made with acknowledge that high levels of informality and encroachment of public space enable efficiency in space utilization and are supremely demand-orientated. Instead of cleaning up illegal occupations of pedestrian, the real factors of congestion and mess have been deliberately questioned and examined. One of the essential factors are about the width of pedestrians on both sides. Since Li-nong settlements were mostly built in 1930s when walk and jinriksha (a two-wheeled vehicle drawn by man) were the only two means of transportation, the average distance between exterior walls of houses on both sides of main lanes was no more than eight meters. While, the current situation is that the eight-meter wide main lane is divided into a five-meter wide two-way motor way and pedestrians of one meter and a half on both sides. The narrow space of pedestrians are almost fully occupied by shops, parking, piles of waste, clothes racks and etc., pushing pedestrians and cyclists to share motor ways with running vehicles and leading to a dreadful chaos. Questionnaires also show that only 15 percent of Li-nong dwellers own private vehicles, and more than half of them have complained about the traffic conditions in main lanes, especially the lack of parking facilities and management in the neighborhood and the unsafe and unpleasant walking experience.

As the phase achievements of this research, multiple upgrading strategies have been worked out. In terms of improving the spatial environment, priorities on street utilization should be given to slow transport; volume and speed of vehicles passing through laneways should be subjected to a certain degree of restriction. Accordingly, the two-way motor ways which are five meters wide would be narrowed to three meters and a half and only allow one-way traffic. Pedestrians get wider and are capable of holding more activities. Informal constructions on pedestrians are encouraged, while the area of land occupied should be limited within designated zones to ensure enough space for the fluent flow of pedestrians.

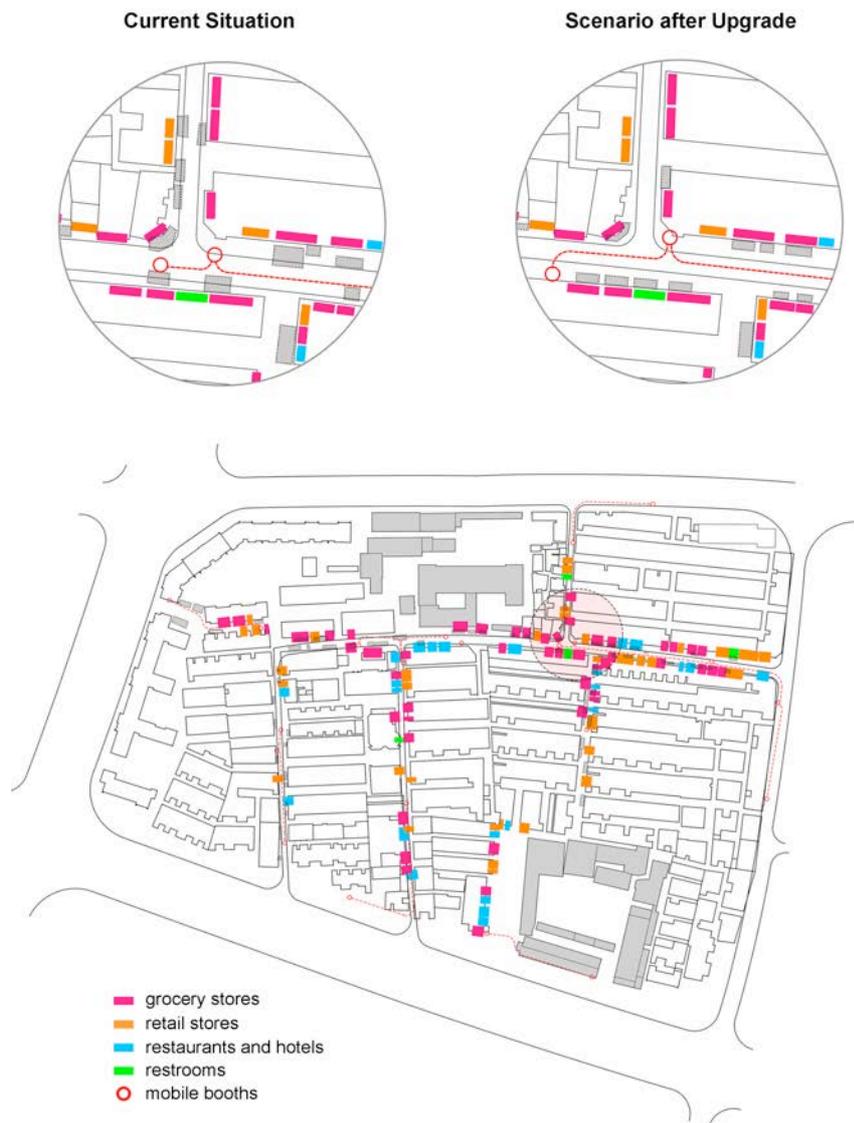


Figure 11: community-based mapping and scenario planning, drew by author

In marginal Li-nong blocks, it is common that several parcels of land along urban roads which obtain higher accessibility and land use value have been cut out and sold to private companies or government organizations during the process of urban development. Buildings located on these parcels of land are mostly gated and separated from their urban contexts, and also are comparatively low in density and lack of vitality. Renewal and reutilization of these parcels give a chance to achieve mixed-use programs in close relationship with the built environment of Li-nong settlements and abundant underground parking open to both the organizations themselves and Li-nong communities. In this way, strict control could be put on the duration and quantity of street parking such as the application of meters on street parking in many Western cities.

Other upgrading strategies may include building a bridge across the stabling yard to sew the fragmented pedestrian network on two sides, developing district-scale cultural tourism with old railway station museum and certain parts of Li-nong settlements included, attracting artists and small-scale cultural media companies with preferential

policy to rent studios in Li-nong settlements, teaching unemployed dwellers traditional techniques, and etc.. All these strategies are aiming at bringing about only minor interventions on the change of existing morphologies, stimulating both top-down operations and bottom-up participation, and constantly keeping self-adjustment based on periodic results and feedback in an incremental way.

## **Conclusion**

The upgrading of marginal settlements has long been a global issue. In western cities, there are many successful precedents that former marginal settlements have been transformed to be the most dynamic, attractive and diverse creative clusters. While, accompanied side effects such as inner city gentrification, unaffordable land price and disagreeable life condition of former dwellers after regeneration should always be the key considerations. During the community-based research on marginal Li-nong settlements in Shanghai old railway station area, the crucial issue in practice is to explore and then celebrate the diversity and dynamism of existing morphology and social networks which have a lot to do with the flourishing of informality through an integrated way of thinking that may cover social, spatial, economic and aesthetic issues. The research also teaches a lesson to transgress the established and fixed disciplinary knowledge and explore a more complicated and critical realm of thinking and practice through which people with various professional backgrounds are able to get engaged with the built environment with idea exchanged and knowledge shared.

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