
Architectural History 2
ARCH 251

CHU, CHEN
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**Mismatch between Design and Socio-Economic Contexts
Issues of Restoring Courtyards in *Ju'er Hutong* as Communal Spaces**

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April 14, 2015

Introduction

Many traditional neighbourhoods of praised architectural and environmental quality in inner-city Beijing have become old and dilapidated since 1949. Residents therein were suffering from poor environmental conditions and facilities, extreme crowding and lack of privacy (Wu, Liangyong 1999). These neighbourhoods were prone to be demolished and replaced by industrialised, 'standardised' apartment blocks. This would damage the historic urban fabric of the Old City of Beijing. Since 1978, Mr. Wu Liangyong, a renowned professor in the School of Architecture at Tsinghua University, has conducted studies for rehabilitation of traditional neighbourhoods in the Old City of Beijing (Wu, Liangyong 1999). The *Ju'er Hutong* project was the first experiment. Two objectives of the *Ju'er Hutong* rehabilitation project were to preserve Beijing as a great historic and cultural city, and to improve the living conditions of the residents. There were significant improvement in the residents' living conditions after the first two phases of the project were completed in 1990. However, many residents living in the restored neighbourhood of the first two phases of the project showed strong intentions of moving out. In addition, a vibrant neighbourhood was not created as expected.

After the first two phases of the *Ju'er Hutong* project were finished in 1992, the project received favourable reviews in the press and was given the 1992 World Habitat Award (Yan, Zhang and Ke, Fang 2003). Government thus has been constantly showcasing *Ju'er Hutong* project as the first successful inner-city housing redevelopment. However, recent interviews with residents in *Ju'er Hutong* revealed their dissatisfaction of the design. This has not so far drawn much attention from scholars. This paper argues that one of the fundamental reasons of people's dissatisfaction was the mismatch between the design and planning of *Ju'er Hutong* and the contemporary social and economic contexts. This paper focuses on the design of courtyards. Courtyards were envisioned as important communal spaces and were carefully designed to respect, support and enhance residents' attachments to each other and to the spaces. According to a post-occupancy evaluation carried out in 1987, most people approved of the improved physical appearance and decreased crowdedness of courtyards. Nevertheless, the sense of neighbourliness, the most important objective, was not well improved. There was not a significant increase in

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Traditional Courtyard Houses in Beijing

The Old City of Beijing, the street block, the neighbourhood, the Hutong, the courtyard compound, the building, the room are all structured using the same spatial logic (Wu, Liangyong 1999). The layouts at different levels reflect the hierarchy of traditional society and an introverted way of life (Lu, Xiang and Wang, Qiming 1996). For example, a sense of inwardness is present at different scales of the Old City of Beijing. Both the city and courtyard compounds are enclosed by walls and introduce natural environment in a similar manner (Figure 1). To further enhance this, Hutongs are made narrower as they become shorter and closer to the houses so that privacy increases as the living quarters are approached (Wu, Liangyong 1999). Some describe the Old City of Beijing as an enlarged version of courtyard houses while the courtyard house is a miniature of the city (Lu, Xiang and Wang, Qiming 1996) (Figure 2). The urban fabric of the Old City is an integrated and harmonious system. Hence, to preserve the overall appearance and spatial order of Beijing requires the preservation of courtyard houses.

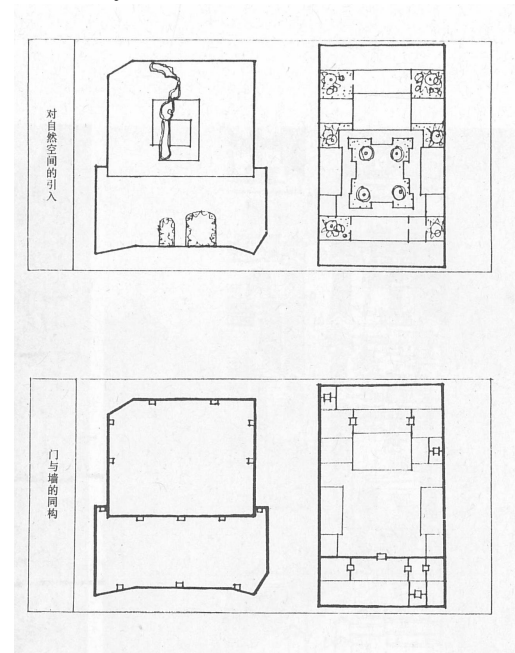


Figure 1. Inwardness of both the city and courtyard compounds
(From Lu, Xiang. 1996. *Beijing Courtyard*)

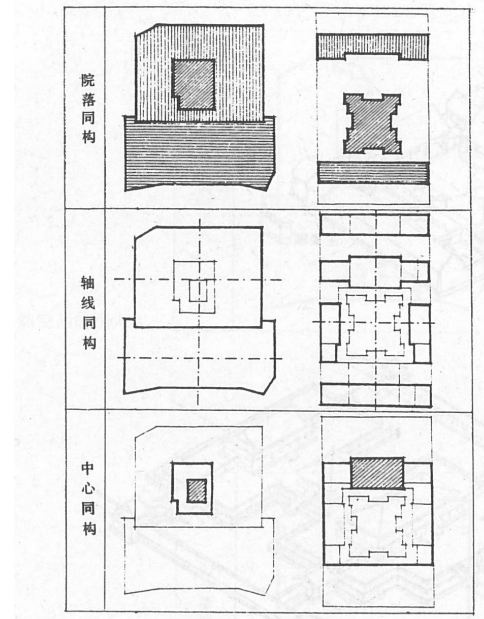


Figure 2. North-South axis of the city and courtyard compounds
(From Lu, Xiang. 1996. *Beijing Courtyard*)

Moreover, the preservation and renovation of courtyards are vital to improving the living conditions of the residents. Courtyard houses are human-made, but nature is introduced in the form of trees, flowers and fish tanks in courtyards (Wu, Liangyong 1999). They provide privacy and peace, making the environment an oasis of tranquility where residents can find relief from the stress and bustle of the city (Donia Zhang 2006). Courtyards can also support a social and cultural life that in many respects cuts across class, ethnic, and occupational lines and is based on mutual respect, help, and sympathy (Wu, Liangyong 1999). For example, Mr. Wu Liangyong (1999) observed that if

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The Design of Courtyards in Ju'er Hutong

In order to preserve the courtyard houses of *Ju'er Hutong* and to improve the residents' living conditions at the same time, courtyards should be properly designed to restore the natural beauty, to create a comfortable public space, and to ensure a high ratio of resettlement so that the previous community bonds would not be weakened.

Firstly, to restore the natural beauty required to maximise the area for both housing and courtyards, while providing satisfactory sunshine and ventilation for courtyard

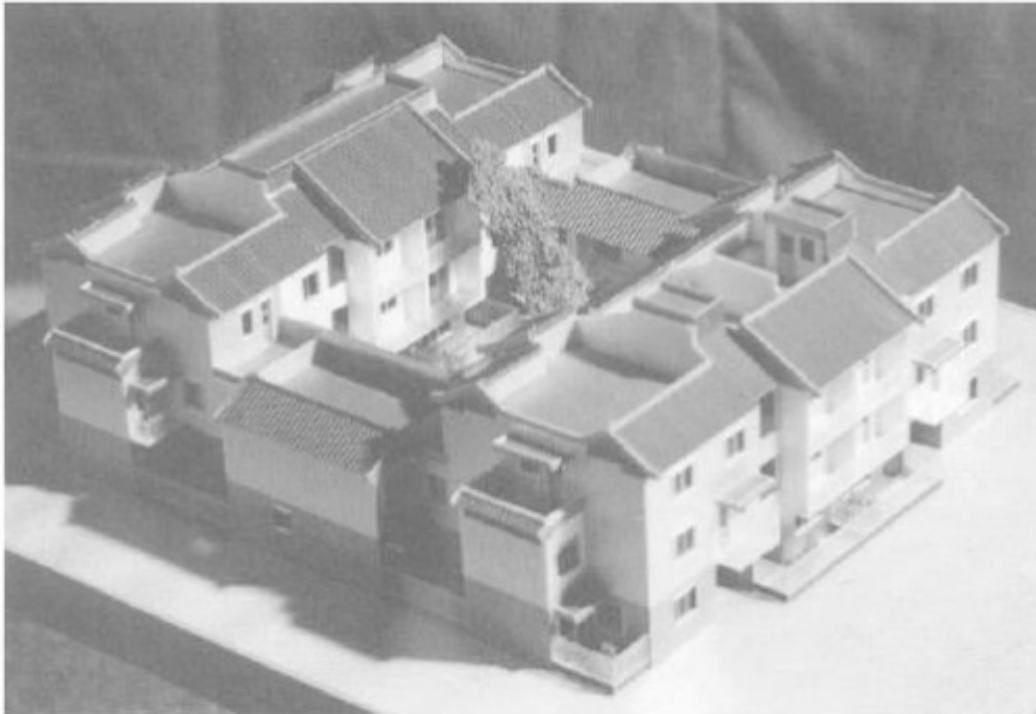


Figure 3. The standard new courtyard house
(From Wu, Liangyong. 1999. *Rehabilitating the Old City of Beijing*)

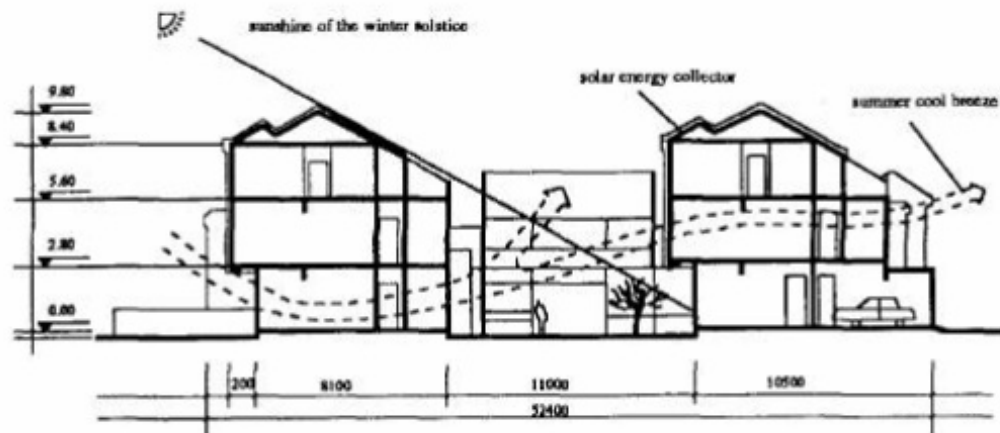


Figure 4. Sunshine and ventilation in courtyards
(From Wu, Liangyong. 1999. *Rehabilitating the Old City of Beijing*)

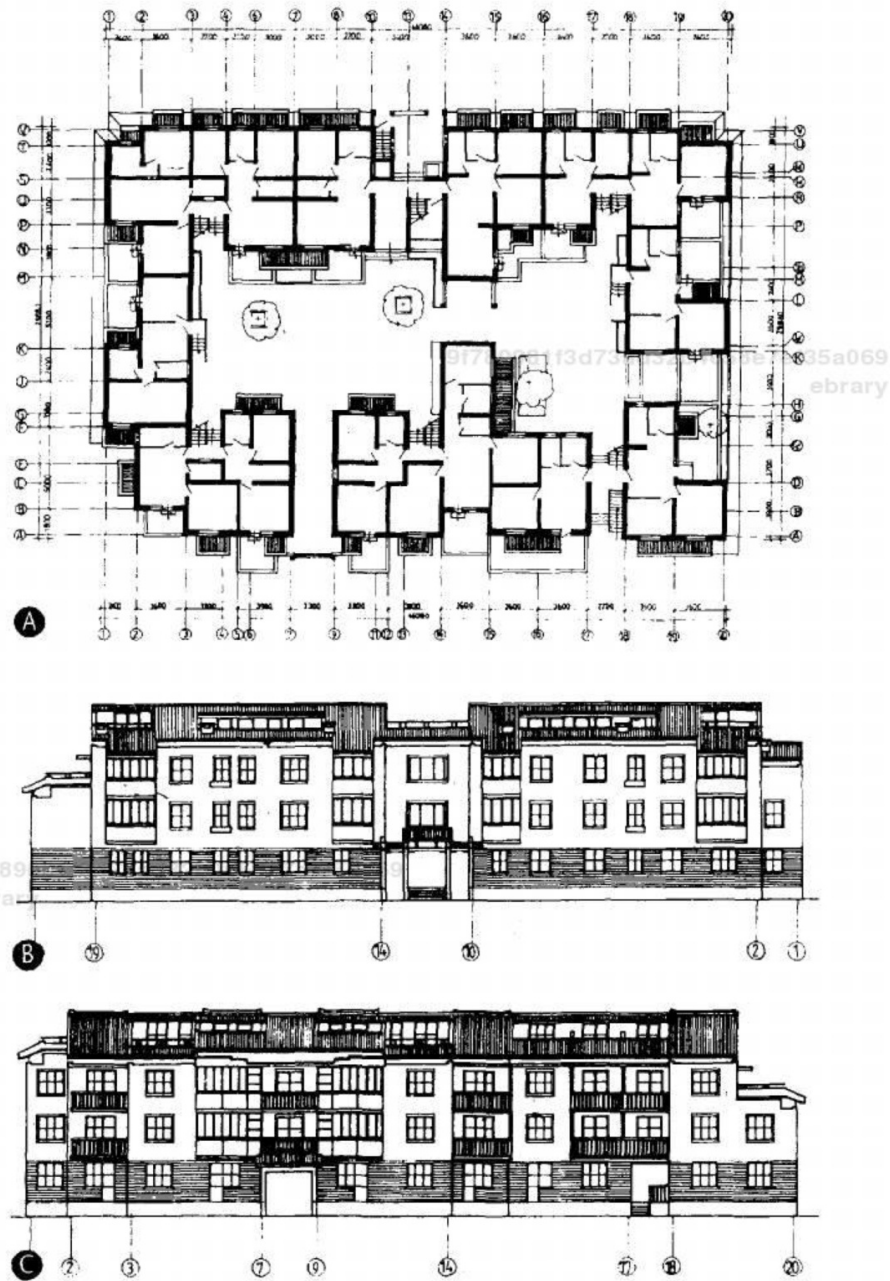


Figure 5. Design of Ju'er Hutong Phase 1: Court B.
 A: Plan of Floor Level 1 B: North Elevation C: South Elevation
 Shape of courtyards became more flexible in Phase 2

(From Wu, Liangyong. 1999. *Rehabilitating the Old City of Beijing*)

compounds. A standard courtyard was formed by replicating the old city buildings on the east and west sides and the three-storey buildings on the north and south sides (Liangyong, Wu 1999) (Figure 3). This allowed both winter sunshine and cool summer breeze into the courtyard (Figure 4). Also, large courtyards were combined with smaller courtyards so that all residents could have equal access to the courtyard (Figure 5). Further, in phase 2, the shape of the courtyard was no longer solely rectangular; instead, a more flexible form was devised to accommodate the location of the entrances and existing trees (Wu, Liangyong 1999) (Figure 5). The project rigorously preserved existing trees and planted new trees of different types to create varied scenery in miniature (Liangyong, Wu 1999) (Figure 6). Apart from shared courtyards, in *Ju'er Hutong* Project, small private yards were created as roof garden terraces, which is allowed by the combination of two- and three-storey buildings. This created more private outdoor space than did the balconies in ordinary apartment blocks, which lied in a row

allowed by the combination of two- and three-storey buildings. This created more private outdoor space than did the balconies in ordinary apartment blocks, which lied in a row (Liangyong, Wu 1999) (Figure 7).

Three strategies were deployed to create a comfortable public space. One main issue of the courtyard design was how to avoid the feeling of being in a well-like hollow that was enclosed and overshadowed by higher-storey houses around. In *Ju'er Hutong*, the use of grey bricks only up to the top of the ground floor, and the use of whitewash above not only improved a sense of spaciousness but also recalled the traditional scale and colour of neighbourhoods in the Old City of Beijing (Wu, Liangyong 1999). One top of that, lanes



Figure 6. Foundation work, showing the efforts to preserve existing trees, to which original residents have emotional ties.
(From Wu, Liangyong. 1999. *Rehabilitating the Old City of Beijing*)



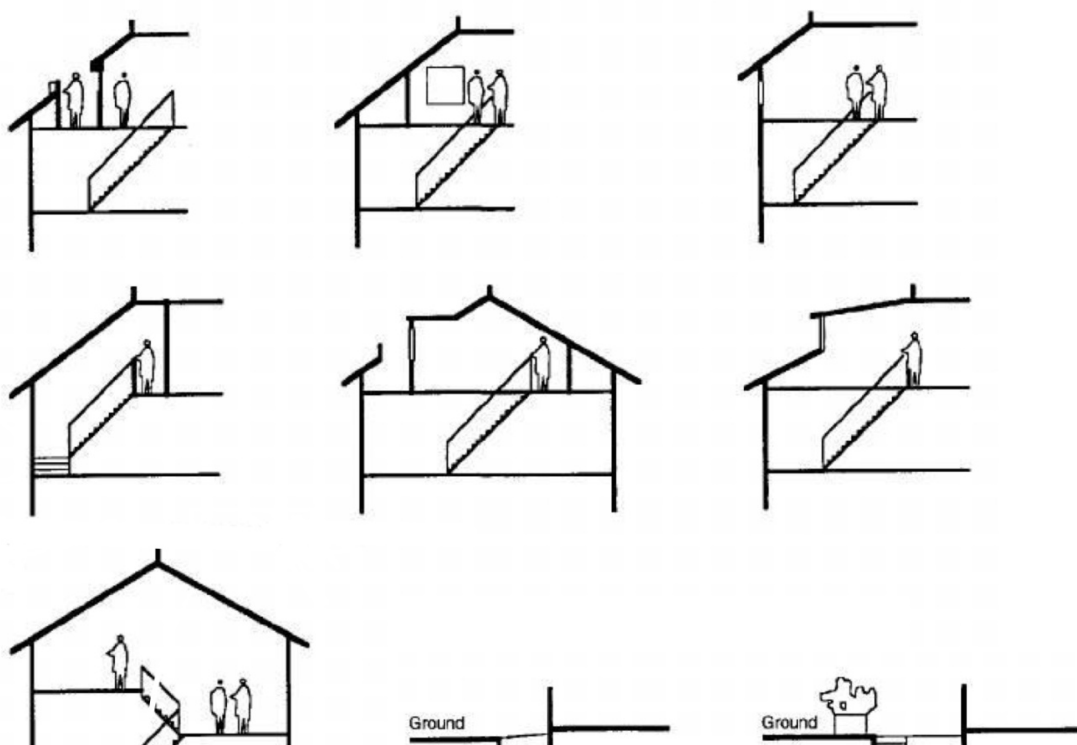
Figure 7. Private Roof Terrace
(From Wu, Liangyong. 1999. *Rehabilitating the Old City of Beijing*)

associated with the circulation of pedestrians, emergency vehicles, and other services within the courtyard complexes were moved outside of the courtyard to avoid traffic disturbance too close to the residences, and also to ensure that activities in the courtyard would not be disturbed (Wu, Liangyong 1999). In addition, careful furnishing with

disturbance too close to the residences, and also to ensure that activities in the courtyard would not be disturbed (Wu, Liangyong 1999). In addition, careful furnishing with trellises, benches, lamps, paving, and patio spaces improved the function of courtyards as outdoor living and social spaces (Wu, Liangyong 1999). As a result, new courtyard houses had intimate spaces in scale with intimate architecture, which reintroduced a sense of peace that had been long lost in modern cities (Wu, Liangyong 1999).

Apart from the physical environment, Mr. Wu Liangyong is also deeply nostalgic about the poetic lives associated with courtyard houses in Beijing (Kong 2015). There were many revitalisation projects where the physical appearance of courtyard houses was preserved, while the original social and cultural geography was transformed, and courtyards could no longer be used as communal spaces. For example, the block of *Shishahai* in inner-city of Beijing was developed as a 'bar district' in expectations of economic returns from investment in business and tourism. This not only failed to help inhabitants improve their living conditions but also generated inconvenience to them (Yue Zhang 2008). Successful rehabilitation requires the continuation of a similar demography. In other words, the renovated courtyard houses should be as affordable as possible to increase resettlement and minimise inner-city gentrification.

In *Ju'er Hutong*, the cost was lowered mainly by increasing floor-area ratios (FAR). Floor-area ratio gives a building's total floor area divided by the plot size (Jason Barr, Jeffrey P. Cohen 2014). FAR reflects the land use intensity. Lower FAR is usually associated with better environmental quality, whereas buildings with higher FAR generate greater profits (Wu, Liangyong 1999). The maximum building height allowed for the area around *Ju'er Hutong* was nine metres. Renovated houses in *Ju'er Hutong* had a FAR comparable to that of nearby conventional apartment blocks. According to Wu, Liangyong (1999), floor-area ratio of conventional apartment blocks was around 1.30 and the FAR of redeveloped area of *Ju'er Hutong* Phases 1 and 2 reached as high as 1.65. Attics, terraces and basements were designed carefully to be liveable (Figure 8). Sizes of courtyards were also decreased to provide more area for housing. Moreover, the *Ju'er Hutong* project was funded jointly by the state, work units, and individuals. Renovated residential units were sold to the original residents at a subsidised price (Liangyong, Wu 1999). For example, for the first 2 phase of the project, original resident households paid 350 yuan per square metre, while their employers paid 250 yuan per square metre (Liangyong, Wu 1999). The local government also provided some subsidies. Nevertheless, only 24.9% of the original 245 households returned to the renewed *Ju'er Hutong*. Others were relocated to the periphery of Beijing.



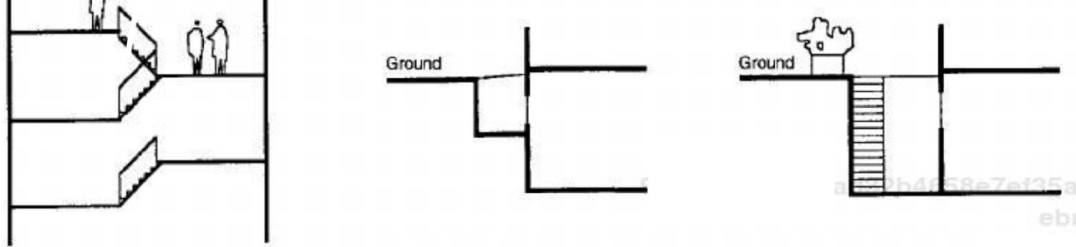


Figure 8. Efficient use of space to improve floor-area ratio (FAR).
(From Wu, Liangyong. 1999. *Rehabilitating the Old City of Beijing*)

Discrepancies between the Design and the Socio-Economic Contexts

Despite efforts of Mr. Wu Liangyong, the physical environment of courtyards turned out to be far from ideal. According to Liang's (Liang, Jialiang and Zong, Shu 2005) interviews with current residents at *Ju'er Hutong*, courtyards were too small, and people were unsatisfactory with the lack of open green space and large sports area for the community. In the following section, I will argue that even if these problems associated with the physical environment of courtyards had been resolved, residents would not have used the courtyards as communal spaces as expected due to the discrepancies between the design and the socio-economic contexts.

Firstly, the most important function of courtyards is that they introduce natural beauty into human-made environments. However, contemporary residents value vegetation much less than before, and they even perceive apartment blocks to be equally attractive in terms of environmental quality (Yan 1995). In apartment housing, a large area of the site can also be attractively landscaped and used for communal purposes (Marcus, C. and Sarkissian, W. 1986). They usually take the form of large parks located at the centre of a housing project and can thus be easily accessed. In courtyard houses, though there is an idyllic environment, it is achieved at the expense of space for housing. In an interview, an old man said: 'These buildings are too close to each other... the little yard is useless ... We do not need something called traditional characteristics. We only need something practical and useful (Fang, Yiping 2006).' In contemporary Beijing, people prefer conventional apartment blocks to courtyard houses, for the former has larger size and up-to-date facilities (Yan 1995). Residents value these more than anything else. Residents' contentment of the aesthetics of the courtyard are further undermined because of its crowdedness. Although courtyard houses and conventional apartment blocks have approximately the same land use intensity, and the latter has higher population density, people tend to perceive courtyard houses to be more crowded (Yan, X Winston and Marans, Robert W 1995). Yan (1995) claims that, the perception of crowding seems related to the availability of open areas in neighbourhoods. Open public areas are located between adjacent high-rise apartment buildings. They have the effect of setting buildings further apart and providing a buffer area, which helps make the neighbourhoods look less crowded (Yan, X Winston and Marans, Robert W 1995). Comparatively, small courtyards in *Ju'er Hutong*, though more beautifully decorated, fail to provide people with a sense of peace and tranquility because of its crowdedness.

Secondly, contemporary way of life is radically different from the social and cultural life that courtyards support. On one hand, courtyard houses fail to provide enough privacy for single generational families; on the other, courtyards are not ideal places for modern socialising events. Courtyard houses were traditionally designed for multi-generational families, whereas the renewed courtyard compounds were used collectively by several single-generational families of three or four people (Yan, X Winston and Marans, Robert W 1995). Traditional families had a more introverted way of living, and they emphasised strong bonds and harmonious relationships among family members of different generations (Xue, Qian 2012). Courtyard houses perfectly met the need of traditional families by providing an enclosed living area and inner courtyards that could be shared

strong bonds and relationships among family members of different generations (Xue, Qian 2012). Courtyard houses perfectly met the need of traditional families by providing an enclosed living area and inner courtyards that could be shared by different generations (Xue, Qian 2012). In comparison, in contemporary China, different generations of families no longer prefer to live together (Yan, X Winston and Marans, Robert W 1995). Instead, they seek independence. It is thus even more difficult to encourage different families to share a courtyard as an outdoor space. This was consistent with a post-occupancy evaluation of *Ju'er Hutong* carried out by Mr. Wu Liangyong. The residents were asked if they would prefer to have their own private, enclosed, small outdoor activity space (small terrace) or to share a relatively large courtyard with a few other designated families. Every resident chose the former (Wu, Liangyong 1999). Besides, even though some households are willing to share a courtyard, it is unclear if their future generations would like to do so. On the other, courtyard houses used to be the fundamental units of the old societal structure of the city. However, they are no longer as important for contemporary ways of socialising (Yan, X Winston and Marans, Robert W 1995). Alexander (Alexander, C. 1987) argues that one's immediate neighbours are less important in modern society than in traditional ones, since people meet friends more at work, at school or at meetings, and therefore they no longer rely exclusively on their immediate neighbours for friendship. Further, the development of telecommunication provides an alternative to face-to-face contact at a physical communal space such as a courtyard (Yan, X Winston and Marans, Robert W 1995). Encounters in a courtyard seem less important in contemporary context.

Another layer of difficulty of restoring courtyards as communal spaces is that courtyards are used differently by people of different ages who have different kinds of social and cultural life. Traditional courtyard houses are favoured by the elders and the young, whereas mid-aged people prefer apartment blocks. With less mobility, the elders and the young have much greater dependence on common spaces within their residential environment for socialising (Yan, X Winston and Marans, Robert W 1995). Figure 9 illustrates how important the courtyard is to a seven-year-old boy and the negative impact of apartment blocks. It shows clearly that the boy's image of courtyard house extends far beyond the boundary of his family's property (Yan, X Winston and Marans, Robert W 1995). The courtyard is so intimate to him that he considers it as part of his 'home' (Yan, X Winston and Marans, Robert W 1995). In contrast, his drawing of his apartment reveals his feeling of being confined and restrained.

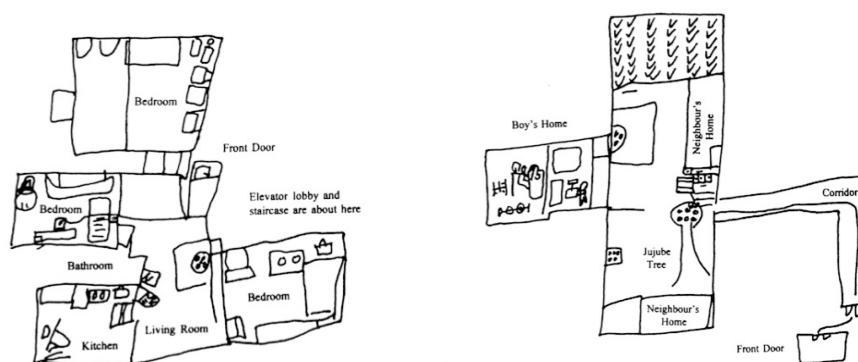


Figure 9. The boy's image of the apartment he is living in now (left) and the courtyard he used to live in (right).

(From Yan, X Winston. 1995. 'Perceptions of Housing in Beijing'.)

Thirdly, the intention to forcefully lower the price of houses in *Ju'er Hutong* seems less practical given the extremely high land and housing prices of the Old City of Beijing. In 1978, China embarked on a journey from planned to market economy (Yan, Zhang and Ke, Fang 2003). Two years later, real-estate markets began to emerge in major cities across China (Yan, Zhang and Ke, Fang 2003). After the first two phases of *Ju'er Hutong* Rehabilitation project were completed in 1992, Beijing issued the *Implementation Guidelines for Land Administration Law* which officially allowed the sale of land-use

across China (Yan, Zhang and Ke, Fang 2003). After the first two phases of *Ju'er Hutong* Rehabilitation project were completed in 1992, Beijing issued the *Implementation Guidelines for Land Administration Law*, which officially allowed the sale of land-use rights in Beijing (Yan, Zhang and Ke, Fang 2003). The result of these transformations of the economic context was that the focus of developers and local governments shifted from the use value of buildings to their exchange values (Yan, Zhang and Ke, Fang 2003). Land and housing prices of Beijing skyrocketed. Housing prices in the Old City of Beijing were particularly high. Neighbourhoods in the Old City have lower density, better greenery, and they are also close to CBDs and high-end shopping and recreational area in the city centre. Current market price of used courtyard house at *Ju'er Hutong* ranges from ¥ 70,000 to ¥ 10,000 per square metre, whereas the highest price of a used apartment at *Huilongguan*, a neighbourhood at the periphery of Beijing, is below ¥ 30,000 per square metre. Thus most original residents who returned to the *Ju'er Hutong* have begun moving out and selling their houses to wealthy people. As a result, most residents in *Ju'er Hutong* project are now wealthy businessmen, foreigners, and some government officials who prefer isolation and privacy (Liang, Jialiang and Zong, Shu 2005). It is hard for them to share the courtyards with original residents (Liang, Jialiang and Zong, Shu 2005). The reason why courtyards could be successfully used as a communal space in the past was that residents were usually from the same social classes and could thus have an equal and harmonious relationship with each other.

Conclusion

From the discussion above, it may seem paradoxical to both preserve the physical appearance of courtyard houses and to restore courtyards as communal spaces in contemporary contexts. This could be generalised; in other words, the two objectives of the *Ju'er Hutong* rehabilitation project, i.e., to preserve Beijing as a great historic and cultural city and to improve the living conditions of the residents, are paradoxical, for the latter calls for erection of conventional apartment blocks. Further, Yan (1995) points out implicitly that conservation as such adds burden to the residents. According to Yan (1995), most residents are not intrinsically willing to live in the traditional courtyard houses, but some choose to do so because otherwise the old neighbourhoods will be replaced by high-rise apartments. They tend to understand this as their obligation.

However, this paradox does not imply that courtyard houses in Beijing are obsolete. I endorse the perspective proposed by Lichfield (1997), that is, strategically using courtyard houses in a way to facilitate their adaptation to new uses other than low-cost housing. This adaptation process should be based on two principles: first, retention and preservation of traditional neighbourhoods are the priority; and second, negative effects on original residents should be minimised. In particular, displacement of residents to the outskirts of the city should be minimised. Some experiments have been implemented in line with the Lichfield's proposal. For example, some courtyard houses have been readapted as high-end hotels or restaurants while their facades remain unchanged (Wang, Jun 2012). However, it is doubtful whether these houses will still be powerful at recalling people's memories. Other courtyard houses have been renovated in a less market-oriented way and have been turned in to art galleries. Still, this discourages the resettlement of original residents; gentrification, as discussed before, is likely to take place. These experiments, though unsuccessful, give us meaningful lessons and have the potential to be further developed. Jane Jacob (1961) describes a building that sustains socially and economically for a long period of time by constantly adapting to new uses. It started life as a fashionable athletic club, outlived that and became a school, then the stable of a diary company, then a riding school, then a finishing and dancing school, another athletic club, an artist's studio, a school again, a blacksmith's, a factory, a warehouse, and it is now a flourishing centre for the arts (Jane Jacobs 1961). It adds a vitality and diversity to the neighbourhood that cannot be achieved by large-scale one-age construction. This proves Lichfield's proposal to be feasible. Further studies need to be done in order to realise the social sustainability of courtyard houses. It is important to understand the mechanism of the evolution of historic buildings as described by Jane Jacob. This tells us why some communities are sustainable while some are not. Moreover, it is unclear whether the process of adaptation be planned and designed in a top-down manner, or it is a

communities are sustainable while some are not. Moreover, it is unclear whether the process of adaptation be planned and designed in a top-down manner, or it is a spontaneous process. This implies the different roles of government officials, commercial developers, residents and scholars in this process.

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