A study on Residential Environment of Chinese Old Residential Area
- A Case Study of the Shezhai residential complex in Shenyang –

Lulu TANG[1], Suguru MORI[2]

[1, 2] Architectural Planning Lab., Hokkaido University, Japan

Abstract

With the full implementation of urban housing system reform in China in the early 1990s, most of urban housing has transformed from public ownership to private ownership. Today, with the massive development and construction of urban housing, the existing residential complexes are obviously old and backward in terms of residential environment. While reconstruction of most old residential complexs is unlikely in the near future, the paper takes Shezhai residential complex for example, which is the employee housing complex of Shenyang Locomotive & Rolling Stock Plant, administers questionnaire survey in addition to site observation to investigate the status quo of residential environment in Shezhai residential complex and discuss the existing issues and creation of a sustainable residential community.

Originally built in 1939 and renovated in 1995, Shezhai residential complex is the first employee housing complex reconstructed with joint investment by the country, the enterprise, and individuals in accordance with regulations with respect to reform of Chinese urban housing system. According to investigation of Shezhai residential complex, the following characteristics are found: (1) Over 80% of the houses in it are privately owned, representing a significant transformation into private ownership; (2) Alteration of balcony is a common characteristic of residents' use of their houses in the complex, tending to make the balcony part of the interior space and part of a kitchen; (3) Low-storey residents have strong sense of safeguarding their property; (4) Interior activity space is not available in the complex, and the outdoor space is most used by elderly residents; (5) The residents do not appear active in interaction within the neighborhood; and (6) More than half of the residents are affirmative about their intention to settle down in the complex. These findings are analyzed and lead to the conclusion that the existing issues with the residential environment of Shezhai residential complex mainly have to do with the design of activity space for the residents.

Keywords: Residential complex; community, Shenyang, Residential environment

1. Introduction

Until the 1990s, China's urban housing was owned by the state, where development and construction were conducted by the state and leased to employees of urban enterprises at low rates. This kind of housing was therefore called public housing. Public housing was a form of state welfare, where the tenants traded the value of their work for the right to use the public housing as an equal value exchange for the right to use the housing. Urban employees were entitled to the permanent use of the public housing after their retirement, and better yet, the right could be inherited by their descendants. That was why living in the "public housing" represented a status symbol for the urban residents at that time.

With the reform and open-up policy and rural population's transfer to the urban area, there was a spike in demand for urban housing. Since 1978, China put in place a battery of housing policies, including raising the rent of public housing, promoting construction of affordable housing, and accelerating renovation of old residential communities, to address the challenging issues of urban housing. In 1994, the state officially initiated its reform within the urban housing system, aiming to commercialize and socialize the housing. Since then, public housing has been gradually replaced by private housing, changing the housing from a co-owned property to a kind of private property, which can be traded freely as commodity.

According to Ministry of Construction in 2005, over 81.62% of Chinese housing became privately owned. The perception that housing is private property has been nationally recognized. In the last few years, however, while

urban construction booms, the new residential communities under construction make the old the residential environment of residential communities look more outdated, with notably backward supporting facilities. Residential communities that were extensively developed in the early stage of housing reform are mostly less than 20 years old. While there are many years before the durable period of these structures is up, the development of new residential communities and the people's increased awareness of dwelling, the old residential communities are now close or exceed their durable period in terms of dwelling functionality. It has not been many years since the construction of residential communities developed in the early stage of housing reform, and thus reconstruction is unlikely in the near future. As for the abounding old residential communities in the cities, they present the key issues of urban development, including how to improve their dwelling functionality, how to govern the residential environment in such communities, and how to make them reassuring, safe, and comfortable.

Studies related to Chinese employees' dwelling houses have been focused on the state's housing policy, the enterprises' (as employers') housing policy, and the trends of the employees' consumption of housing. There have been scant studies that report the effects of housing reform on the residential environment of what are previously known as public housing and few that address the current situation of the residential environment in the employees' residential communities since the transform from public housing to private housing. In light of this, the present study examines the residential environment of the residential complex for the employees of one major state-owned enterprise, looks at the formation of a sustainable residential environment, and seeks to gain helpful insights into the construction of residential complex by investigating the residential environment of the above-mentioned residential complex and understanding the status quo of the residential environment of large urban residential communities in general.

2. Overview of Survey Area

2-1. Residential Quarter for Employees of Shenyang Locomotive & Rolling Stock Plant

The survey area of the present study is an intensively inhabited, large-scale residential quarter for employees located in the urban area of Shenyang, China. The residential quarter used to be attached to Huanggutun Locomotive Repair Plant and was later known as staff residential quarter of Shenyang Locomotive & Rolling Stock Plant when the enterprise was renamed. Founded in 1925, Huanggutun Locomotive & Repair Plant was one of the subsidiary companies of the South Manchuria Railway Company. The Plant had its first residential quarter, specifically for its workers, constructed in 1939 and named Xiaoshezhai. After the World War II, Shenyang Locomotive & Rolling Stock Plant established Construction Section, which quickly expanded the residential area for the employees by continuously developing new residential quarters while maintaining Xiaoshezhai year after year. As of 1995, the total land area of employees' residential quarters alone already covered 50 hectares with 12 residential communities, each of which was well equipped with a wide range of supporting facilities such as hospitals, education institutions, entertainment facilities, and dormitories for individual employees. (Fig.1.)

2-2. Impacts of Urban Housing Reform on Employees Housing

After China's reform of the urban housing system in 1994, with inadequate housing funding allocated by the state, Shenyang Locomotive & Rolling Stock Plant took the lead in introduction of a housing construction policy characterized with joint funding by the state, enterprise, and employee. With the new policy, the Plant started large-scale relocation and transformation of its employees' residential quarters gradually from east towards west. Until then, Chinese urban housing had been developed and constructed with the central government funding the enterprise, who in turn took charge of implementation. Shenyang Locomotive & Rolling Stock Plant was the first employer in Shenyang to conduct reconstruction for its employees housing in this independent way. Housing allocation for employees was transformed, with previous criteria including position at work and length of service replaced by family size and income.

With the continuous implementation of urban housing reform, in 1998, residents in employees housing were allowed to purchase the property right, and the housing was officially open to free transaction in housing market after from 2003.

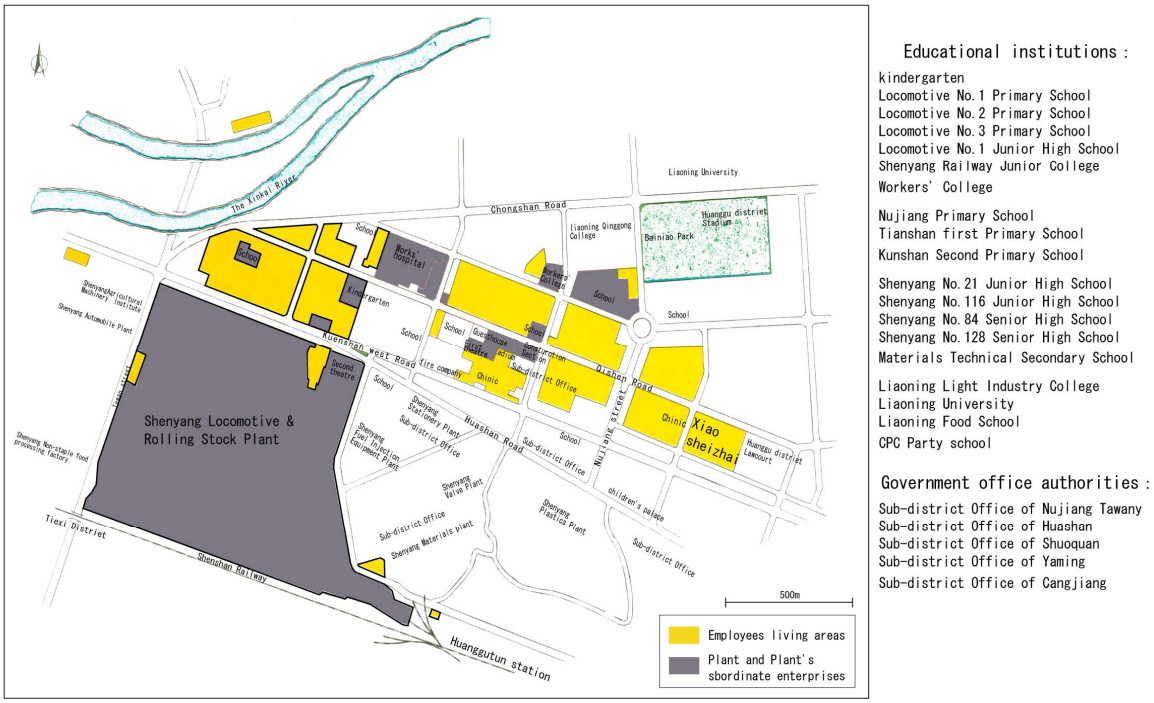

Fig.1. Area map of Land Use
(Based on site plan of 1987 in Chronicle of Shenyang Locomotive & Rolling Stock Plant)

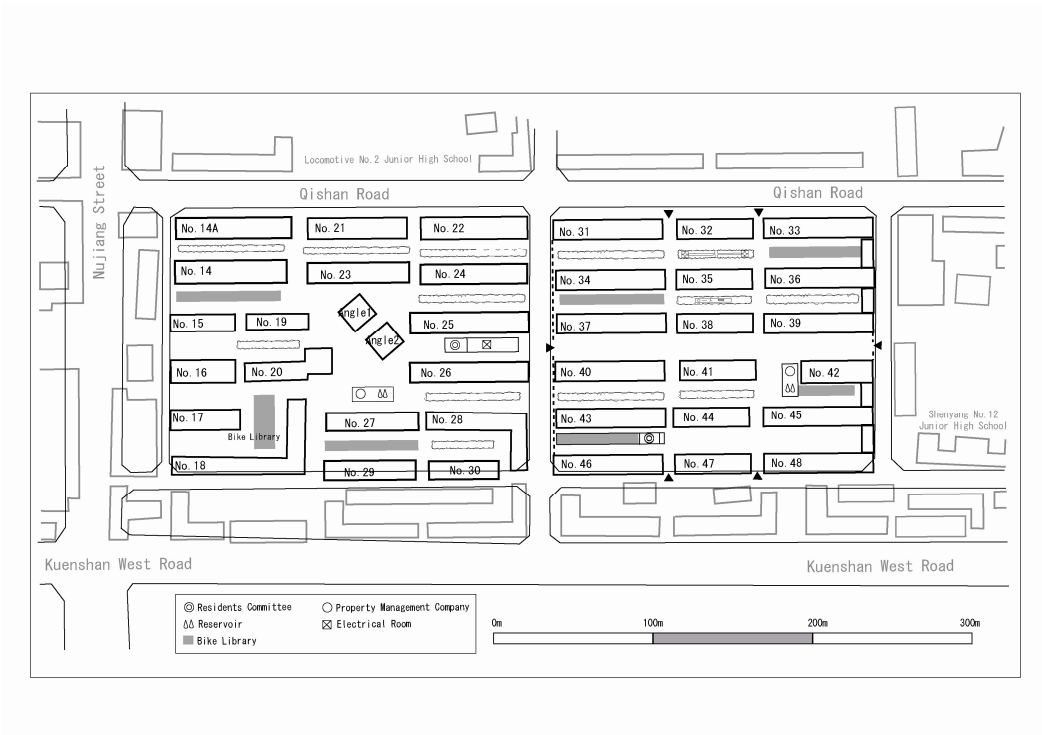

Fig.2. Regional map of Sheizhai residential complex
(Based on Shenyang City land use map, 2008)

2-3. Shezhai residential complex of Shenyang Locomotive & Rolling Stock Plant

The foregoing residential quarter named Xiaoshezhai was developed and constructed by Huanggutun Locomotive Repair Plant as its workers' housing quarter, which was the earliest housing for workers of Shenyang Lotomotive & Rolling Stock Plant. The site area is approximately 4 hectares, comprised of 210 bungalows until the reconstruction, as home to 3700 households. Back then, these dwelling houses were plain in design, of inferior

standard, and provided without coal gas, plumbing, or toilets. In 1995, Shenyang Locomotive & Rolling Stock Plant changed its approach to building and started to stimulate renovation of Xiaoshezhai by means of subsidized housing relocation. As a result, comfortable housing project for its employees was realized, turning Xiaoshezhai into the first gated residential complex in Shenyang with the new name Shezhai residential complex of Shenyang Locomotive & Rolling Stock Plant (hereinafter "Shezhai residential complex"). (Fig.2.) The reconstructed Shezhai residential complex was considered as the best employee residential complex across Shenyang City and attracted extensive media attention at that time.

The residents are mainly salaried employees. According to census in 2008, Shezhai residential complex housed a total of 4334 households, 13,147 residents in total, representing a population density of 3286 people per hectare. The community has an aging population, with 792 people aged 60 to 70, and 1081 people aged 70 and above.

Taking Shezhai residential complex for example, the following section explores the status quo and characteristics of the residential environment of residential communities built in the early stage of China's urban housing reform.

3. Findings

3-1. Finings of the Questionnaire Survey

To study the residents' perception of their residential environment, a total of 850 questionnaires were distributed during March 16 and March 29, 2009. A total of 791 questionnaires were collected back, including 619 valid questionnaires, representing a return rate of 72%. Based on results of the survey, some specific aspects are summarized below, covering use of indoor space, use of outdoor space, interaction in the neighborhood, and intention to settle.

3-1-1. Householders and Title to the Housing

Households who resided in the residential quarter prior to relocation and moved back there after reconstruction were termed back-relocated households. There are 413 back-relocated households 68.7% in this community and 163 non-back-relocated households 27.3%.

With respect to transformation from public housing to private housing, the survey indicates 507 households 82% who have experienced the transformation. Among the back-relocated households in the survey, 87.6% of them have purchased title to the housing.

3-1-2. Characteristics of Use of the Housing

The survey suggests that when it comes to use of indoor space, the residents in the community attach much importance to the functionalities of the living room for receiving and entertaining guests. Most residents consider the living room as taking too small a portion and the bedroom too big a portion of their dwelling size.

Characteristics of use of the housing are also demonstrated in how the residents' self-configure it. All households, with exception to 28% of them, have refurbished the indoor part of their housing to certain degree. Focal sections of the refurbishment are living room, bedroom, kitchen, and balcony, in order of significance. In particular, many householders have altered their balcony by transferring the cooking range into the balcony so that the interior space of the housing was made larger and the function of balcony as an exhaust is utilized. The action that makes the balcony part of the interior section and the kitchen is commonly taken in the community. According to results of the questionnaires, 383 households have made this particular betterment of their housing, and that is more than a half of the households covered by the survey.

There is another type of self-configuration for protection against theft and this is mainly done by low-storey residents installing metal fences on their balcony and windows. Residents on the first floor have largely added metal fences on their balcony and/or other open sections for theftproof purpose. For the same purpose, residents on the immediately higher floor have had metal fences installed too. According to the survey, even some of the residents on the third floor have taken the same action.

3-1-3. Use of the Outdoor Space

The survey indicates that the most basic ways of interaction between the community residents currently involve

chatting, physical fitness and exercise, taking children to play games, and participating in recreational activities. Besides, a large part of the residents wish to have more activities available in the community. Such activities that are most interested in and desired include activities for elderly residents, recreational activities, goodwill activities, featured classes, and parent-kid activities. Results of the survey also reveal residents' expectation of additional facilities for indoor activities and temporary caring center(s) for the elderly, sick, and disabled residents as well as some other supporting facilities to make more services available in the community.

3-1-4. Characteristics of Neighborhood Relationship

The survey finds that 22% of the residents visit each other regularly and maintain great relationship with their neighbors. Forty-three percent of residents report that they just greet their neighbors when they come across each other although they do know each other. Among the remaining residents, some say that they simply are not used to greeting people and the others say that they do not know their neighbors. As to how the residents get to know each other, 43% naturally get to know each other because they live near, 12% knew their current neighbors prior to reconstruction of the community, 10% get to know their neighbors through outdoor activities in the community, and 6% through their children. In addition, entrances to buildings, community entrance, and gardens are among the locations where neighborhood interaction is most likely to take place.

3-1-5. Intention to Settle

Results of the survey reveal the intention of settlement. Among the survey residents, 57% intend to stay mostly because of the good location of an acquaintance in the community, 20% want to move mostly because of small size of the current housing, and the remaining are those who want to but cannot move out either because of financial restriction or unwillingness to deal with the potential troubles.

The survey also summarizes the issues of living in which improvements are most expected by the residents. Results suggest that they are most concerned about improving security and environmental sanitation in the community. In addition, some residents wish to swap for a different floor or different area size of their current housing in the Community.

3-2. Records of Field Observation

Although it has gained some insights into the residents' outdoor activities, the questionnaire survey does not provide accurate information about the use of the outdoor space. To capture the dynamic outdoor activities in the community that are hardly available through the questionnaire, observations of natural setting were conducted during September 7th and September 13th, 2009 in Shezhai residential complex. A total of 12 observations were conducted in the morning, at noon, and in the evening during this period of time. Location, number of people, and activities are recorded on the topographic map of the community.

The outdoor space and residents' activities are categorized based on the findings from records of field observation. The outdoor space of the community is labeled as greenbelt, walkway, and driveway. The observed activities of the residents are classified as essential activities, optional activities, and social activities. (Table 1.)

Table 1. Residents of the contents of outdoor activities

Categories	Content	Number of people
essential activities	Vending	15
	Buying	6
	Throwing rubbish	53
	Light work	18
	Looking after babies/toddlers	10
	Doing housework	9
	Someing in the repair	6
	Sweeping	20
	Waiting for someone	26
	Cell plone	5
	Bike staying	38
	Subtotal	206
Leisure activities	Sitting for a rest	31
	Watching and looking around	11
	Walking a god	32
	Kid playing	29
	Doing exercise	31
	Subtotal	134
social activities	Chatting	33
	Playing chess or card games	27
	Wathcing people playing chess or card games	21
	Kids playing games	37
	Playing games with kids	19
	Subtotal	137
Total		477

Echoing the findings from the foregoing questionnaire, the observation finds that the residents' outdoor activities mainly include chatting, exercise, chess games and card games, and mainly take place in flowerbeds and around the buildings. Elderly residents gather in and around the flowerbeds, chatting and playing chess games and card games. Playing around the buildings are mainly grandparents and grandchildren.

4. Discussion

Findings from the survey are summed up below followed by discussion about the existing issues with the employees' residential quarter and the possibility of building a desirable community.

(1). In line with reform of housing system, Shenyang Locomotive & Rolling Stock Plant has reconstructed Shezhai residential complex. Over 80% households have now had private ownership of their housing, presenting a significant transformation of employees' housing from public to private.

(2). In using their housing, the residents tend to care more about the overall area, functionality of space, and protection of the personal wealth against theft. These concerns are embodied by their independent turning their balconies into kitchens. The adjustment changes the original spatial function of balcony and maximizes the total utilizable area of the housing. Alteration of balcony across the residential complex tends to make the balcony part of the interior space and kitchen. Furthermore, low-storey residents take precautionary action mainly by installing metal fences on their balcony and windows.

(3). In using the public space in the residential complex, the residents are most actively present around flowerbeds and around the buildings. It is predominantly elderly residents who gather around the flowerbeds chatting and playing chess games and card games. Around the buildings are mostly grandparents playing with their grandson. Besides, with respect to utilization of the public space, the residents wish to see more facilities available for indoor activities and recommend that the community engage them in more activities.

(4). Regarding interaction in the neighborhood, a large part (43%) of the residents perceives that they naturally get to know their neighbors by living near to each other, 12% report that they have known their neighbors before the relocation, and those who get to know their neighbors through outdoor activities or their kids respectively account for less than 10%.

(5). Fifty-seven percent of the householders are affirmative about their intention to settle down here, mostly because they are satisfied with the location of the Complex and a large number of acquaintances. Those with uncertain intention of settling down here are most concerned about security safeguard and environmental sanitation. Some other residents wish to swap for a different floor or different area size of their current housing in the Complex.

Based on the survey and analysis of the residential environment of Shezhai residential complex, the author considers the major issues regarding residential environment of the old community mainly have to do with the locations for resident activities and layout of the locations.

For example, in Shezhai residential complex there are four specific locations with stone tables and benches for rest or some recreational activities. The residents' outdoor activities, however, go beyond this sphere to the broader paths within the Community. In particular, many residents' activities take place around the main path near flowerbeds although it is not designed as a specific leisure area. A possible explanation for this is that the points designed for recreation are scattered and not enough to accommodate many residents who typically gather together when they are engaged in outdoor activities. Therefore, adjustment to the layout of recreational facilities will be necessary.

While residents taking up outdoor activities tend to gather in a specific spot, there is no enclosed facility in the Community for collective activities. As a result, their activities in the open field may have certain impacts on the everyday life of low-storey residents. The situation necessitates dedicated space for the residents to enjoy their activities without disturbing residents on any floor in the buildings or invading privacy of low-storey residents.

There is a notably aging population in an old community. The elderly residents are the ones with the most leisure time and they stay within the Community for the most of time. Whether living alone or with their children, the elderly residents are more apt to seek spiritual and emotional satisfaction by means of interaction with the

neighborhood. Besides, children appear to be the main tie for connection within the neighborhood. Communication between children from different households can provide good opportunities for the interaction between neighbors. Hence, recreational facilities in this old community should be designed in such a way that addresses the social needs of residents of all ages.

Well-designed facilities for residents to participate in activities together will not only help improve a harmonious neighborhood but also provide an opportunity for the old and new residents to communicate with each other. With time, that will make people more familiar with each other and thus, in a sense, make it easier to spot strangers and result in an enhanced theft-proof network within the community. Meanwhile, for those residents who wish to swap their houses, increased interaction in the neighborhood means more chance to exchange relevant information.

In addition, design of facilities for activities in a residential complex should also take into consideration the users, possible activities to take place, privacy of the residents around, and region-specific climate, among other factors. Thorough research should be done to gain insights into the environment of a residential complex as well as the characteristics of its residents. Meanwhile, it is also important to review relevant studies at home and abroad, design facilities in a proper and prudent way for residents to conduct activities and increase interaction.

The present survey provides insight into the residential environment of urban employees' residential complex in general as well as the existing issues. However, the statistical results of the questionnaire administered in the survey are subject to certain limitations due to the sample size. To enable more detailed analysis of the residential environment of urban residential complex and explore approaches to build desirable urban residential complex, future studies are required with further investigation of such employees' residential complexes based on the present survey.

References

(1) Chronicle of Shenyang Locomotive & Rolling Stock Plant, 1987, pp.264-268

(2) Zhang LianHuong, Relationship between worker's economic burden and their conscious rebuilding the Company Worker's housing, 1997-2

(3) Housing for the Mixed in come Dwellers: Theevalu Ation and Strategy for Implementation Wenhui Shan, City Planning Review, 2001.2, pp8-11

(4) Tian Ye, Li Dexiang, Bi Xiangyang, Feasibility Study on Mixed Habitation of Inhabitants from Different Strata, Architectural Journa, 2006.4, pp9-15

(5) Lulu TANG and Suguru MORI, A Basic Survey on the Issue of Rebuilding the South Manchuria Railway Company Workers' Residential Areas in Shenyang, China, Proceedings of the 8th International Symposium for Environment-Behavior Studies, Beijing, China, 2008.10, pp.531-537

(6) Yi Zhen, Development of Mixed Income Community and Its Revelation on Housing Construction in Metropolitan China, City Planning Review, 2009.11, pp17-24

(7) Lulu TANG and Suguru MORI, Progress of Rebuilding the South Manchuria Railway Company Workers' Housing Complex in Shenyang and the Residents' Evaluation on Present Living Environment, Proceedings of the Special Forum on Sustainability and Housing Industrialization, China Urban Housing Conference, Hefei, China, 2009.12, pp441-448