

## **TRANSFORMATION OF PLANNING MODE IN CHINA UNDER RAPID URBANIZATION: PERFORMANCE-BASED URBAN PLANNING PRACTICE IN SHANGHAI**

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Keywords: rapid urbanization, performance-based planning, residential area, Shanghai

### **Summary**

The rapid economic development and urbanization processes in China put a lot of pressure on its existing urban planning mode and planning regulation system, which are largely based on a prescriptive code system established during planned economy. In this paper, challenges of rapid urbanization on the current urban planning practice and planning regulation system in China are analyzed. Impacts of economic development, globalization and sustainability will also be examined, because of the fact that these issues are interwoven with the impact of urbanization. Prescriptive codes/standards for the planning practice will be compared with performance-based codes/standards in terms of their effectiveness of addressing the aforesaid challenges.

Though rapid urbanization is usually defined as the rapid increase of urban population, the rapid expansion of urbanized area and drastic urban transformation are also important features of rapid urbanization process. New urban development in either old neighborhoods in cities or newly urbanized area on the fringe of cities changes the physical environment of cities as well as challenges the existing social context.

A case study of a 2-square-kilometer residential area in Pudong New District in Shanghai will be introduced to demonstrate successful practice of applying performance-based urban mode in a rapidly populating urban area. Based on the case study, discussion is carried out about the key issues in the transformation of planning practice and planning regulation mode.

### **1. Introduction**

#### **1.1 China's urbanization: Rapid urbanization and rapid urban development**

According to the UN HABITAT report, China's urbanization level in 2000 is 35.8%, and this level is estimated to increase to 60.5% in 2030 (UN, 2004). This 25% increase in urbanization level equals to the projection that urban population in China will increase from 456,247,000 in 2000 to 878,623,000 in 2030, while rural population will decrease from 818,969,000 in 2000 to 572,898,000 in 2030 (UN, 2004). Assuming proceeding at a steady speed, every year in China, there will be more than 14 million urban population increase and 8 million rural population decrease. Along with the urban population increase, urbanized area has been expanding at a striking speed.

China's urban population administrative system (know as "Hukou" system) were designed to limit population flow, especially limiting the flow from rural area to big cities. This control is not as strict as it was. Considerable disadvantages or difficulties to get job, buy or rent apartment, and go to school, for immigrants from rural area to cities have been alleviated, which accelerates the urbanization process in a large scale. Cities in China are under huge amount of pressure caused by the ever increasing population from rural areas.

Because of the limited capacity of big cities to deal with population increase, the number of big cities is increasing in China. There are 118 cities with population more than 750,000 in year 2000 in China, which is more than twice that number in India (UN, 2004). However, the two mega-cities (cities with 10 million inhabitants or more) in China, Shanghai and Beijing, will not continue to gain population as fast as the mega-cities in India, like Delhi and Mumbai. Shanghai and Beijing will keep their population under 13 million, while the population of Mumbai and Delhi will increase to above 20 million in 2030 (UN, 2004) (Figure 1).

Besides concerns about the increase in the total number of mega-cities in world from 20 in 2003 to 22 in 2015, most of which are in developing countries, it also needs to be recognized that the number of cities with 5 million or more inhabitants will increase from 46 in 2003 to 61 in 2015 (UN, 2004). In China, according to the World Urbanization Prospects, there will be two more cities (Chengdu and Shengyang) with population

more than 5 million in 2015 than in 2000 when there're four (Beijing, Shanghai, Tianjin and Wuhan). The cities that are growing the fastest in China are not the mega-cities, but big cities and median-sized cities.

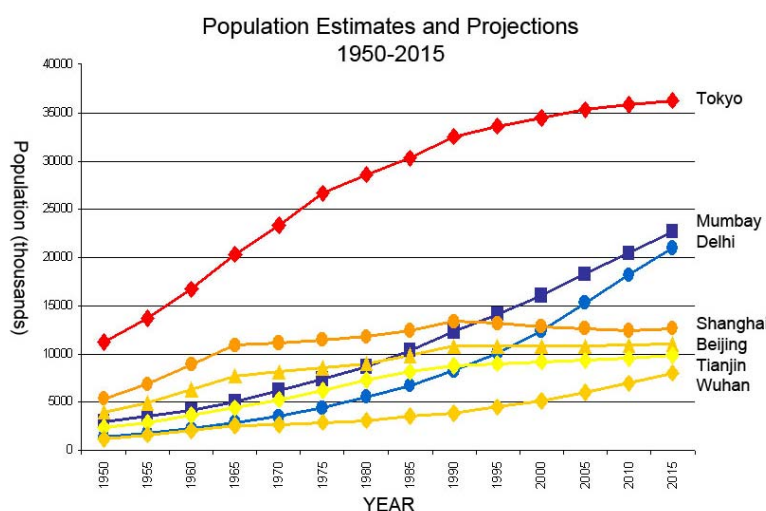


Figure 1 Population increase in 7 cities in Asia (Japan, India and China) (Data source: World Urbanization Prospects: The 2003 Revision)

These fast populating cities are referring to the urban development experience of Shanghai and Beijing, in dealing with challenges caused by increasing population. The mega-cities of Shanghai and Beijing have learned a lot of lessons about economic, social and physical problems accompanying rapid urbanization during the past 20 years. Also a lot of policies and planning strategies have been tested about their effectiveness to deal with these problems. That's why I chose the Pudong New District in Shanghai as my case to discuss competitive and sustainable ways to deal with rapid urbanization and the transformation of planning mode under rapid urbanization in developing countries.

First of all, it needs to make clear that rapid urbanization does not equal to rapid urban development. In China, rapid urban development is happening in cities with advanced economic development, such as Shanghai, Beijing. But these cities are not the ones with the fastest population increase resulted from rapid urbanization. The cities with rapid urban development are now mainly attracting two kinds of immigrants, immigrants from abroad and immigrants from less-developed inland cities in China. Besides immigrants, there is a huge amount of flowing population in those cities, doing construction and service jobs or in the informal economic sector.

## 1.2 Globalization impacts

I believe the impacts of rapid urbanization on transformation of cities in China interweave with the impacts of globalization, and should not be examined individually. In 2003, China was the nation which attracted the largest amount of foreign investment, more than the United States. Rapid economic development of China attracts not only foreign companies but also foreign immigrants. Besides the magnetism of Shanghai and Beijing, with the development of other regions in China, we can expect more and more foreign companies and foreign immigrants.

As we know, globalization brings transnational companies with global standards. There are more and more requirements on Chinese cities' infrastructure system and administration system to create an environment for the operation of these companies and many international economic activities. It pushes Chinese cities to improve both their hardware and software. Additionally, in terms of built environment, space allocation, facilities, and façades are considered as interfaces to reflect the identities of companies. Global consumerism is powerful in changing local people's lifestyle, and so is the western culture, especially that of the U.S. featured by private vehicles, large living spaces, fast foods, and high energy consumption.

Oftentimes globalization impacts are regarded only as the "increasing cultural standardization and uniformization, as in the global sweep of consumerism" (Pieterse, 2002). However, globalization process is based on advanced information technology, which not only introduces standardization but also makes communication possible and easier across and between nations. There will be inevitable conflicts in the communication, which are believed to be difficult to eliminate considering economic contexts and cultural difference. For urban development, increasing differentiation in social structure and the imbalanced distribution of resources make it overtly complicated. Cities in China have increasing multi-culture identities,

because of more and more immigrants from different regions and nations. From the angle of “*cultural self-understandings and empirical evidence*”, I think the “*process of cultural mixing or hybridization across locations and identities*” (Pieterse, 2002) is an appropriate alternative description of globalization. In fact, this hybridization process is also reflected in the transformation of cities’ built environment. As the planning process involves different stakeholders, who might have different nationalities and from different cultural backgrounds, there are demands to create an integrated process and open forum to deal with the increasing differentiation in practice, while paying respect to the requirements of local cultural identity and users’ needs.

For China’s cities now facing rapid urbanization, a big challenge is to face the impacts of globalization besides those from urbanization itself. In the urban planning and architecture dimension, it is time to examine the current practice and regulations to figure out ways to fulfill the requirements from both rapid urbanization and globalization

### 1.3 Shanghai’s urban development from 1990s

Shanghai is now trying to solve urban problems caused by urbanization and globalization. Its municipality covers 6340.5 km<sup>2</sup>, which administratively encompasses 18 districts and 1 county. By the end of 2001, Shanghai is the biggest city in China with population of 13.27 million, among which the urban population is 9.99 million (Shanghai Yearbook, 2002). It means that the level of urbanization in Shanghai municipality is about 75%, which is far beyond China’s average urbanization level of 35% at the end of 2001. While according to the Shanghai Floating Population Census 2000, the total number of floating population in Shanghai has reached 3.87 million, which equals to about 1/4 the population of its permanent residents.

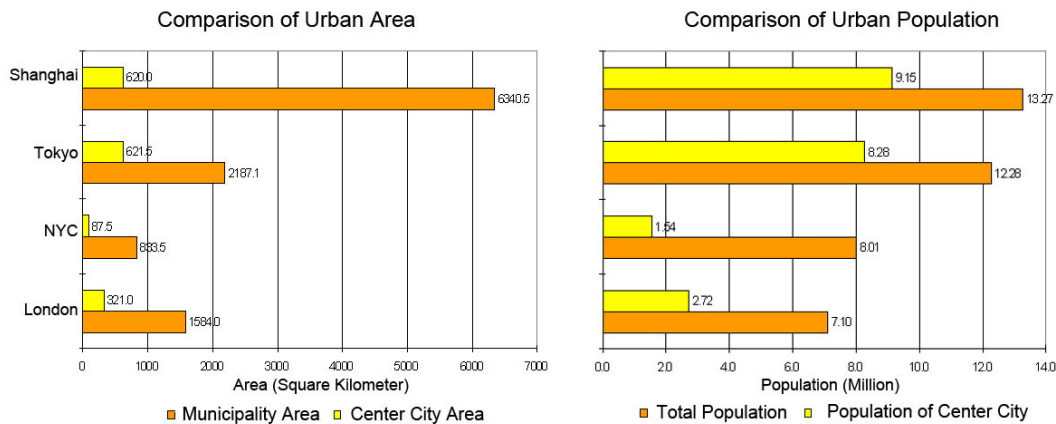


Figure 2 Comparison: urban area and population of Shanghai, Tokyo, New York City and London (2001), Tokyo only refers to the 23 wards while not the metropolitan area, in which the population is about 35 million. The center city of New York City refers to Manhattan. (Data source: Shanghai Yearbook 2002, Tokyo Metropolitan Government, New York City Department of City Planning, etc.)

Accompanying the transition from planned economy to market economy, Shanghai’s drastic urban transformation started with the development of Pudong New District in the 1990s. Firstly, the urban transportation system has been reconstructed to have multi-modes with subway, highway, light-rail and even the world’s first meg-lev train. Secondly, there are business and commercial centers being built. The Lujiazui CBD has been developed since 1992, which becomes the new symbolic landmark of Shanghai instead of the Bund. Thirdly, there are large number of residential areas developed to solve the shortage of housing for local residents and increasing number of immigrants. Fourthly, with the increased public consciousness of environmental problems, Shanghai municipality government has initiated measures to protect urban environment. Urban open spaces, including urban parks and urban waterfront, have been planned and some of them already constructed. After the drastic urban transformation driven by the pressure of rapid urbanization and globalization in the last 15 years, Shanghai’s decision makers are thinking more about issues of sustainability to lead a new way of urban development. Besides lesson learned, some successful experiences can also be referred by other cities in rapid urbanization process.

According to the new Master Plan of Shanghai (1999-2020), in 2020 the city’s planned population (resident) will increase to 16 million, among which nonagricultural population will be 13.6 million. This number is much more than the 12.7 million projected by UN in 2004. Shanghai’s urbanization level will then reach 85%. Because of the obvious shortage of land, urbanized area cannot be expanded without limitation. The US’s sprawl model certainly cannot help Shanghai to achieve its sustainable future. Similar to Tokyo, the

population density of center city in Shanghai is extremely high (Figure 3), which puts a lot of pressure on both the transportation system and housing, as well as on social equity. There are new urban residential areas planned and built around the center city to alleviate such pressure from high urban density. In this paper, I will analyze the change of urban planning mode in new residential area development as a vehicle to solve problems caused by rapid urbanization.

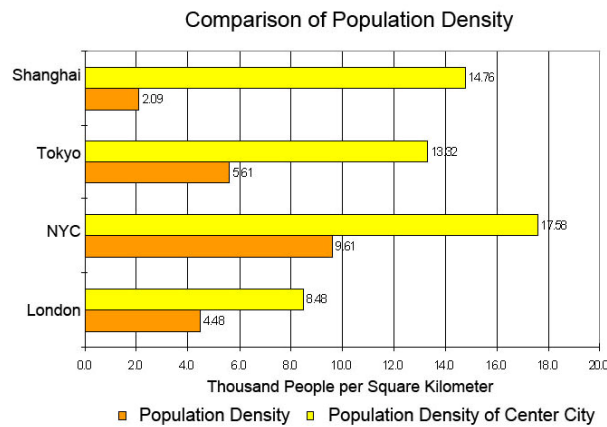


Figure 3 Comparison of population density among Shanghai, Tokyo, New York City and London (2001), (Data source: same as Figure 2)

## 2. Transformation of urban planning practice to meet new challenges

### 2.1 New Challenges

As the most rapidly developing city in China in terms of urban development, economic growth, industrial transformation, lifestyle change and policy implementation, Shanghai, the economic center of China, will provide precious experience and lessons for many other Chinese cities from its own development process and also from the process of seeking for the answers to address problems that have been emerging along the way. In 2001, Shanghai's total GDP reached 495.084 billion RMB Yuan, and the GDP per capita correspondingly increased to 37,382 RMB Yuan, which is about US\$ 4,500 (Shanghai Yearbook, 2002).

Shanghai is the first city in China to transfer "land rights" in order to increase municipal revenue and use it for urban construction. This innovative policy has helped Shanghai to attract a lot of investment from outside. From late 1980s, investment started to come in, including capitals from Hong Kong and Taiwan. At first, these capitals were often invested in office buildings and hotels. Later on, there are also city infrastructures, other commercial buildings, and housing being developed by foreign investment. The users of these buildings and facilities vary from local residents, people from other regions in China, and people from foreign countries. These buildings and facilities need to fulfill multiple requirements from locals and non-locals at the same time. This is a big challenge for the traditional urban planning and architectural design practices.

Though the increase of population in Shanghai is not as rapid as other mega-cities in Asia, such as Mumbai and Delhi or even Tokyo, its urbanized area has been continuously expanding to meet the ever increasing demand of land for development. For Shanghai, rapid urbanization challenges also include expansion of urbanized area to sub-urban area and urban redevelopment of the old city.

Facing rapid urbanization, the shortage of housing is another big challenge. The planning and design of new residential districts and buildings ought to consider the needs of both locals and non-locals. It is urgent for city governors, urban planners, and architects to find an answer for how to achieve a harmonious neighborhood for high-quality city life. Especially at the urban planning level, it is important to consider the need of less powerful population, including local unemployed population, elder population, new immigrants from rural areas, etc., because in cities with rapid urbanization, there is higher possibility of social segregation among population groups with different income. To establish harmonious communities is one of the strategies to alleviate this problem.

### 2.2 Transformation of urban planning practice

Facing these new challenges, the former urban planning system in most Chinese cities is outdated. China is a nation with strong centralized political system. The master plans of big cities, i.e. Shanghai, Beijing, Tianjin, Chongqin and all the capital cities of provinces, need to be approved by the central government,. Shanghai's master plan for year 1999-2020 has just been approved by China central government in 2004, and obviously

this master plan was made and submitted years before. On one hand, this lag limits the effectiveness of master plan in regulating and orienting current urban development. On the other hand, the centralized planning approval system has difficulties to fully represent local needs and changes. Because of these considerations, recently, a lot of cities are now initiating strategic regional plan for future local and regional development. It is an effective way to balance local and regional interests on the city master plan level.

On the detailed development control planning level, especially for residential areas, the old land-use and building function category system no longer fit into the development of mixed-use residential areas. The detailed development control plan is composed mostly of prescriptive codes, though there are certain guiding codes for architectural design. It leads to the result that, in practice, the approval of detailed development control plan only focuses on accord with the rigid prescriptive codes, while ignores the actual results. As there are no performance-based requirements for detailed development control plan, this traditional urban planning practice falls short of guaranteeing the quality of the final delivery, in the residential area case especially when there is a diversity of users composed of both locals and immigrants.

The key difference between prescriptive code system and performance-based code system is that a prescriptive code specifies in detail exactly what detailed land-use functions are to be included and how they are to be laid out, and alternatively, a performance code describes a level of accepted performance to which the plan must conform without specifically outlining how it should be done. Intrinsicly, performance codes allow more freedom in planning than prescriptive. They are also more readily adaptable to new ideas and technology.

In the planned economy, there was no such flow of immigrants as there is today, and housing was allocated. That explains why prescriptive urban planning codes were adequate. However under today's situation, there is constant change. It is time for a transformation from prescriptive codes to performance-based administration to promise the goal of residential area planning and the benefits for its future users.

Besides the consideration of future users, prescriptive codes for detailed development control plan cannot reflect the needs of urban development under globalization impacts. Increasing number of foreign developers brought forward the issue that their different way of project implementation have conflicts with the existing prescriptive planning codes, but actually not inappropriate. There are some dimensions that need to be insisted to promise local interests, however, there are certain part of the codes are outdated, for example, the land-use functions categories. More and more architects and urban designers from abroad are seeking opportunities to practice in China. Also local architects and urban planners are influenced by new design ideas and life style concepts. This is also a phenomenon of globalization. But oftentimes, these positive ideas and new way of doing things does not fit the requirements of prescriptive codes. On the other hand, some inappropriate design or planning ideas may be put to practice because there are no restrictions on them in the codes. Since it is impossible to predict all the changes in the future and exhaust all of them under prescriptive planning mode. Performance-based planning mode is more appropriate as a feasible way to meet the new challenges and provide effective control to urban development.

### 3. Case study: Lianyang new residential area in Pudong

In Pudong, former rural land is now transformed to urban land use when the urbanized area keeps on expanding. Lianyang new residential area, the development case I am examining, is located in former Huamu Town, which was a quasi-rural area 10 years before.



Figure 4 Location of Lianyang New Residential Area in Shanghai

### **3.1 Adjustment of detailed development control plan**

According to the previous detailed development control plan (also known as “regulatory plan” according to China’s Urban Planning Terminology Standards GB/T 50280-98), this 2-square-kilometers area is planned for mainly residential use with some commercial facilities and green land. But without concerning the environment and urban development of surrounding area, the subdivision of land was not reasonable. When invited to do the urban design for Lianyang area in 1999, our team noticed that this apparent deficiency in former plan.

In China, it is very difficult to adjust an approved plan. But based on a careful field study, we believed it to be necessary to discuss the deficiency of the former plan with the government. After presenting to the urban planning department of Pudong and the potential developer, we were appointed to make adjustments to the previous detailed development control plan, in addition to doing the urban design for Lianyang. It is absolutely a new phenomenon in planning practice. In the old days, it is difficult to imagine any adjustment on the already approved plans according to suggestions from urban designers.

The biggest problem of prescriptive planning mode on detailed development control plan level is that it ignored current status of the surrounding environment. The allocation of green space encounters the same problems. In the former plan, green spaces were allocated without concerns about their relationship with green spaces in adjacent blocks and city parks. We adjusted the plan to make green spaces connected for better views and ecological benefits.

According to prescriptive planning codes, there must be certain small-scale commercial facility, cultural facility, education facility and a list of other services in each block. This inevitably brings forward problems of inefficient use of public facilities, as well as negative impacts on the security, cleanliness and quietness required by residential area. Additionally, the former plan defines the specific location of commercial facilities in each block, and the facilities are isolated. In our adjusted plan, we put the isolated and dispersed commercial facilities into the central two blocks to form a district center, which is within the walk distance to all blocks in this residential area. It will decrease the negative impacts of commercial facilities on residents while not sacrificing the convenience of services they need.

Besides requiring little pieces of various services in each residential block, the prescriptive codes, on the other hand, requires a clear division of different functions in a city. There are districts designated for industrial function, commercial function, residential function, and so on. And these districts are separated from each other. With the lifestyle and work-style changes today, there will be increasing demand of certain scale public services, hospitality facilities and even office function to be integrated into residential areas beyond their unitary residential function. The prescriptive planning mode with rigid land-use categories requirements is not suitable anymore for today’s urban development in Shanghai, and many other cities in China. In our adjusted detailed development control plan, areas on the edge of the whole residential area are used for public service, hospitality and office functions. It not only will not have negative impacts on the quality of life for people who will live here, but add vibrant mix-use features.

The idea of integration or mix-use also concerns the possible difference in lifestyle and work-style among residents to help achieve a harmonious community. Because of the adjustment we made to the detailed development control plan for Lianyang new residential area, now when it has been constructed and put to use, there are not only pleasant neighborhoods, but also convenient commercial, cultural, and entertainment services. The office buildings, high-rise apartments and hotels, including Renaissance Shanghai Pudong Hotel, on the edge of the Lianyang new residential area serve as a transition between the public open space of Huamu administrative and cultural center and the private peaceful living spaces inside Lianyang new residential area.

### **3.2 Urban design guidelines**

After the adjustment on detailed development control plan, we began to make the urban design for Lianyang new residential area. For this 2-square-kilometer area, it is difficult to find a single developer to invest all by itself for such a big project. Lianyang Land Development Co. took the task of transferring “land rights” and attracting potential developers for each block in this area.

Because of the uncertainty of future developers, when making the urban design scheme, it is impossible but also unnecessary to have a very prescriptive plan for the future development of each block. We believe the planning and design procedure of Potsdamer Platz in Berlin is a good example for urban district development with a number of different developers. There is a master planner in charge of the goal of development and the coordination among different developers and architects. In this case, we, the planning and urban design team, were taking this important role with the supportive assist from the land company.

The suggestions we provided to the land company was to coordinate the design decisions among individual developers of adjacent blocks. According to our experiences, without a master plan of urban design, it is difficult to achieve continuous urban images and an integrated community by only depending on the developers' and architects' spontaneous consideration and care for surround environment when each decision of development and design is made. We suggested to Lianyang Development Co. to make design guidelines for each block, which can be used by individual developers and architects who work for individual developers to integrate their design in individual blocks to the master urban design plan of the whole residential area. The guidelines can also provide both developers and architects certain understanding of adjacent projects in design procedure.

In the guidelines, we only make a few prescriptive codes for each block, such as height limits, plot ratio, site coverage, etc. While for the location of open space and the entrances of each block, the guidelines are performance-based. And the performance-based rules also leave sufficient flexibility for architects to create high-standard design scheme. Sometimes, foreign architects tend to ignore the context of projects, or it could be because that it is more difficult for them than it is for local architects. But with the guidelines we established, architects can learn the key features of surrounding projects very clearly, especially those critical features that shape the urban images.

For the main streets in Lianyang new residential area and the main interfaces of this area, we provided an integrated urban design scheme. We do have some prescriptive codes for the façade design and landscape design of individual blocks which have certain façade facing the main streets or serving as the exterior interface of the whole area. These codes give requirements on the color scheme of facade, distance from building to sidewalk, and the width of sidewalk, etc. However, we also provided a lot of performance-based specifications about building style, orientation, materials for façade and landscape design. For example, we suggested that each block need to consider its view towards and from the city park open space. The buildings were suggested to be higher on the north and lower towards south to provide enough scenery views for the buildings in northern part. We do want to encourage innovative ideas of architects here without limiting too much.

## **4. Experience and lessons learned**

### **4.1 Performance-base planning mode**

Performance-based planning mode is different from prescriptive planning mode in the way that the former emphasizes the achievement of goals, while the later designates specific ways to achieve the goals. The new planning mode will be able to provide developers more choices and to provide urban designers and architects more flexibility in practice while still achieving the government's requirement considering more about the development of the bigger region. Under the background of the transformation from planned economy to market economy, and strong impacts from expansion of urbanized areas and globalization, the previous stiff planning mode needs to be changed facing the uncertainty of investment and future users. As I mentioned before, the old land-use categories have gone outdated. Under the former prescriptive planning mode, urban environment built accordingly will be difficult to deal with many very different developers and future users from different origins that have very different requirements. A more open planning mode is needed to attract investors and developers from abroad and other regions in China. Also a performance-based planning mode will be able to give urban designers and architects more space for innovation to come up with better scenario and thus better urban environment.

Considering sustainability issues, the prescriptive codes on urban infrastructure is facing challenges from fast evolving new technologies, such as the distributed energy supply systems, water recycling systems, etc. Changing from prescriptive codes to performance-based codes will encourage use of new technologies, instead of hinder the process, to promote sustainability in urban development.

In China, good cooperation among government, planner, developers and architects is very important for the success of an urban development project. Prescriptive codes actually put a lot of challenges for this cooperation, since there are regulations to the great detail while leave little flexibility for individual cases and tolerance for change. On the contrary, performance-based planning mode provides an open forum for different stakeholders of a project. It promotes innovations, and makes it possible for the delivery of a project that reflects the characteristics of a specific lot. Since the requirements are performance-based, the final quality of urban projects, in terms of to what extent the users' needs are fulfilled, can be guaranteed.

### **4.2 Reconstruction of living context in new urban development**

During rapid urbanization process, with the quick expansion of urbanized area of cities, new residential developments mostly take place in the former non-urbanized area on the fringe of cities, or by demolishing

former living context and substitute with high density and/or high-rise development solutions in the city. Either way, the previous commercial, cultural and entertainment facilities and urban infrastructure are inadequate for the new development. To establish suitable service for newly developed neighborhoods is very important for their quality.

It is a precious experience in the development process of Lianyang new residential area that we put most commercial service into the center blocks to increase the land use efficiency while still providing convenience for residents. Considering certain disadvantages of mix-use, we put large public facilities into two blocks in the center to decrease their negative impacts of noise and traffic on residence. The distance to the central service block is within walking distance, less than 500 meters, from all the residential blocks. In order to achieve the main street/plaza phenomenon here, Lianyang Land Development Co. made the two central blocks into the heart of this residential area, which approved to be enjoyed a lot by the residents. By doing so, Lianyang is able to keep high quality maintenance of the public facilities for their high quality service. This, on the other hand, accords with the location theory of land economics, while in the common practice of residential area development under the regulation of prescriptive codes the scattered commercial and other service facilities are difficult to maintain, as well as possibly competing with each other.

The location of Lianyang new residential area is in the previous un-urbanized region. Its development drove out the original local residents, and its current residents are mostly middle-class family from Shanghai, as well as from other cities and other countries. However, the old neighborhoods nearby are original residents in Pudong which has low income and low education level comparatively. There are inevitably social problems existed, which doesn't necessarily mean that it is impossible for the two to live harmoniously. The daily service Lianyang new residential area needs and the commercial facilities in its central blocks provide employment opportunities to the local population living nearby.

But still, special attention needs to be paid to the social equity issue to reduce conflicts. For example, the public playground in Lianyang should be open not only to its residents but also to kids from other neighborhoods. In today's China, such action could help decreasing conflicts between different income populations. According to our suggestions, there will be no solid fences around each block to isolate it, which is a common practice for newly developed neighborhoods in former rural area in China. Though this measure will improve the space connection among blocks and their environment, the safety and security issues are still serious with the increasing population flows and large income gap among population groups.

#### **4.3 Environmental issues**

Though in the guidelines, there are suggestions about sustainable design strategies in architecture design, such as water recycling, energy saving features, etc. And we did successfully make sure that storm water reuse strategy will be applied to for all the open green space. There are still a lot of efforts needed to educate the developers about the benefit of sustainable design strategies and persuade them to apply. We also suggested Shanghai government to initiate incentives for developers who adopt sustainable design strategies. The incentives could be in the forms of tax cut and lower price of land right transfer. Practically, we noticed that the regular meetings held by Lianyang Development Co. with developers of individual blocks are good opportunities to explain and promote sustainable strategies.

### **5. Conclusion**

The impacts of rapid urbanization on urban development in China need to be looked at together with the impacts of globalization. Both procedures bring complexity and uncertainty to urban development in terms of who the developers are, where the investment comes from and who the users will be. The traditional prescriptive planning mode under planned economy is outdated and can no longer provide effective regulations. New lifestyle and work-style brings new challenges to planning. Also the fast advancing technology in building dimension also brings questions to the traditional planning mode. In this paper, I suggest to use performance-based codes in the planning practice in China, and in practice, performance-based planning mode needs to be combined with active communication among government, developers, urban planners and architects.

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