

URBANIZATION AND SUSTAINABLE HUMAN SETTLEMENTS*

SHEN Jie(沈 杰)

(Dept. of Architecture, Yuquan Campus of Zhejiang University, Hangzhou, 310027, China)

Received Dec. 12, 1998; revision accepted Apr. 15, 1999

Abstract: The resolution of the problem of Urban Residence is important for realization of Sustainable Human Settlements. Along with the acceleration of urbanization in China, all aspects concerning the problem of urban residence are undergoing gradual changes. This thesis expounds on "The Order Diagram by Expression of Social Requirement to Habitation" and an "External Relationship System of Residence" and also puts forward a series of problems, requiring special consideration in achieving sustainable development of Chinese urban residence.

Key words: urbanization, sustainable human settlements, social requirement to habitation, external relationship of residence

Document code: A **CLC number:** TU - 05

URBANIZATION PROBLEMS

Urbanization can be regarded in its three aspects. Firstly, it involves the changes in the size, density and composition of populations in different areas; secondly, it involves fundamental changes in the economic structure of a society; and thirdly, changes in human behavior. Urbanization in the world today is at a key turning point, and is mainly characterized by: large population crowding into cities, rural areas rapidly transforming into urban areas (it was predicted that urban population would be over 50 percent in the world by the end of this century, and up to 90 percent by the year 2050 (Robert, 1985); mankind's wealth flowing to cities and towns; economic activities being internationalized constantly; transition from technical society to information society, and cities becoming gradually social information centers; many cities, especially those in developing countries, being over-crowded, bringing about shortage of housing, deterioration of environment, and serious social problems; many rural inhabitants in 3rd world countries still living in poverty and backwardness.

Early in 1985, the results of China's "Seventh Five Year Plan" showed that "With the development of the social productive forces, especially

with the flourishing of the rural economy, intensified urbanization and increase of cities will be an inevitable trend." Facts have proved this prediction. From 1980 to 1996, the Chinese urbanization level increased from 19.39 percent to 30 percent, the number of cities increased from 223 to 666, and that of towns from 3521 to 17770. According to experience and the general law of world urbanization, once the level of a country's urbanization reaches the point of 30 percent, a period of accelerating urbanization will follow, and by the year 2000, the Chinese urbanizing level will reach nearly 35 percent, and about 45 percent by 2010 (Chen, 1997).

With the booming of the Chinese economy, the urban development has come into a new period, and at the same time, has brought about many problems, such as population problems, shortage of housing, heavy traffic, pollution of environments, ruining of cultural relics, land speculation, confused construction, increase in private cars, etc. Undoubtedly, what happened in cities in western countries is now appearing in China where it is even more serious. For example, the only 1.2 acres cultivated land per person in China is 1/9.5 of that in America (Wu, 1996). Besides, in the process of urban infrastructure construction, many historical and cultural relics are not well protected, as they

* Project supported by Cao Guangbiao High Science and Technology Foundation of Zhejiang University (No. 223297471035) and Scientific Research Foundation for the Return Overseas Chinese Scholars, State Education Ministry.

should be. Serious pollution is brought about by the development of urban industry and worsening traffic, and the ecological situation is also serious and worrying.

SUSTAINABLE HUMAN SETTLEMENTS

In June 1996, a Habitat II (or called "The City Summit") conference was held in Istanbul, Turkey. The main topic was "Sustainable Human Settlements in an Urbanizing World, Adequate Shelter for All". The problem of residence has already become one of the important human problems at the turn of country; and much attention has been paid to it by the public, and the leaders of many countries.

After the UN "Environment and Development" conference in Rio de Janeiro (Brazil), the Chinese government published a white book "China 21st Century Agenda" and established a sustainable development strategy to protect and utilize the earth's resources scientifically and as best as it can do, so as to guarantee long-term existence and development of human. This strategy includes natural and social resources, ecological and environmental science, urban planning and construction, culture and education and hygienics, etc. It is also the guiding ideology for sustainable urban residence in China.

Urban housing, as the important content of the human settlements, has close relation with urban development, although there are different opinions about the relationship: a. The problem of residence has no connection with urban development; b. The housing problem is a special field, and is in some ways connected to urban problems; c. More attention is paid to the structural relation between housing and city, that is to say, "problem of residence is urban problem" (Jicun, Y., 1988).

In fact, the urban housing problem is now not merely a problem of architecture. In the process of its resolution, it is not enough to consider only the practical function and aesthetic design (though the Chinese aesthetic problem of urban housing is not satisfactory at present). Modern Chinese architects and urban planners should strive for sustainable development, grasp clearly the intrinsic connection between city and residence; and should look at the problem not only

from the architectural and urban planning aspects, but also consider many other factors, such as social population, economic development, ecological environment, etc., in order to resolve the urban housing problem comprehensively and reasonably.

In pace with acceleration of urbanization in China, all factors of urban residences are undergoing gradual changes. It was reported that China owned 12 million automobiles in 1996, of which 2.9 million were privately owned. But in 1997, individuals owned about 40 percent of China's automobiles. This shows that the structure of automobile consumption has changed greatly. Therefore, the strategy of urban sustainable human settlements should be put smoothly into practice.

The basic idea on how to deal with the correlated factors of urban housing development and its relevant countermeasures can be summarized as follows.

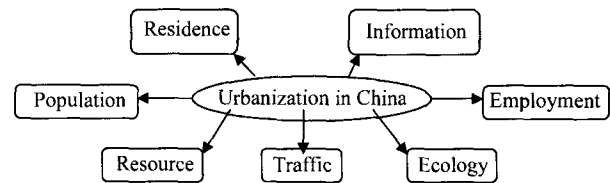


Fig.1 Problems of urbanization in China

Land resources Urban areas are extended, at the same time, farmlands and forests are decreased and lands for construction are increased constantly. As a consequence, the land resources are consumed too quickly. So it is most important for saving lands to define what is reasonable housing density and height (how many storeys).

Social population factors The increase in the number and density of the urban population is caused by the movement of a large number of the rural population to cities, and by the increased day and night population disparities. People that work in the primary industries are reducing in number, but those who serve in the secondary and tertiary industries are increasing in number. So, it is necessary to study the statistics and the age structure, sexual structure, culture and education structure, career structure, and income structure of the population.

Urban living features With the improve-

ment of social living standard, the living conditions of Chinese urban citizens have improved a lot. So, housing design must try to meet as far as possible the demand of modern family life of the citizens.

Road traffic system Private cars have been increasing extensively, and gradually become an outstanding and serious social problem. In planning of neighborhoods, it is necessary to set up a reasonable system and width of roads, reserve necessary parking place.

Ecological environment problem The outer environment of urban residence is not as good as it should be, as there are so many problems, such as over-high constructional density, little green coverage, etc. Therefore, we need to control the density of buildings, to increase the rate of green coverage, to enlarge children's playgrounds, and sports fields, and to install facilities for treating polluted water in neighborhoods, to enhance the study of energy saving housing, and to improve the ecological environment of neighborhoods.

Culture and education facilities The installation of cultural and educational facilities should be considered and emphasized in housing design. Cultural activity infrastructure construction should catch up with the improvement of the economy and material living standard.

The aged problem With the coming of an aging society, the warm home problem for the aged has become more and more serious. When urban neighborhoods are planned, facilities for the aged should be installed for their independent life, cultural entertainment, medical and health needs.

Estate management It is necessary to enhance rationality and systematization of estate management, to improve the capability and quality of the estate management service, and to promote the modernization of community management.

Exploitation and construction of residence

There are some blind investments and bad management problems, so developers and designers should be familiar as early as possible with the needs and desires of housing consumers through friendly conversation with them on the basis of certain flexible designing job-books, so that a new cooperative relation would be formed among them.

Technical problem of construction. Now or in the future, a proper method of industrializing construction is the necessary condition for improving housing building efficiency. Good function, flexibility and adaptability are most important measures of the rationality of construction. Proper use of the technical system of construction components is an effective way to achieve it. As a new approach to an old problem in housing construction, more attention should be paid to harmonization with structure and installation of equipment.

DEVELOPMENT ORIENTATION OF URBAN RESIDENCE

With a large population with relatively low national income, China for a long time in the future produces marketable residence, which represents the main solution to the problem of urban residence in China.

The solution to the problems of public housing has been always focused on the "quantity"; that is to say, "Everybody has his own house." In the former Soviet Union, there were different living space standards for urban citizens in different historical periods: 8 square meters per person in 1966, 10 - 12 square meters per person from 1971 to 1976, 15 square meters per person in 1981 (Platonov, 1980).

When the public housing policy was first put into practice in Hong Kong, the smallest living space per person was about 2.4 square meters for an average person and was increased to about 3.6 square meters later (He, 1997). In China, the comfortable living standard of 8 square meters of living space for an average person by the end of this century was drawn up in the 1980s.

With the improvement of the social economy and the material living standard, a transformation period from "quantity" to "quality" occurred all over the world. The index and standard, such as the lowest living space per person, one suite per family and the minimum square meters of basic living space per suite, has gradually changed to a basic living space unit with various life service facilities in the neighborhood, such as the health care of women and children, cultural-education and physical, commercial ser-

vice, relaxation and entertainment, real estate management, etc. It is important to have a correct understanding of protection and reformation of the ecological environment. The central idea is to comprehensively consider the characteristics of modern urban life from all aspects and create a reasonable and comfortable "environment of human settlement".

Mankind shall understand the housing issues more deeply as the 21st century approaches. As a kind of existing social material, habitation is the reflection of culture and a part of the social pattern as well. Therefore, in different countries, even inside one country, there might be sharp contrast. The development of urban residence depends on the social demands. The "Ex-

istence - Requirement -Realization" process reflects the relationship between residence and the external world. The architectural space organization of the living environment shows the requirements from the interior structure (population structure and living structure) of the social members and social groups, as well as the demand for certain life styles. On the other hand, social factors, technological conditions and natural environment restrict the architectural space organization.

Basing analysis on the population composition and living structure of inhabitants (individual, family, social group), this thesis sums up in a figure "The Order Diagram by Expression of Social Requirement to Habitation" (Fig.2).

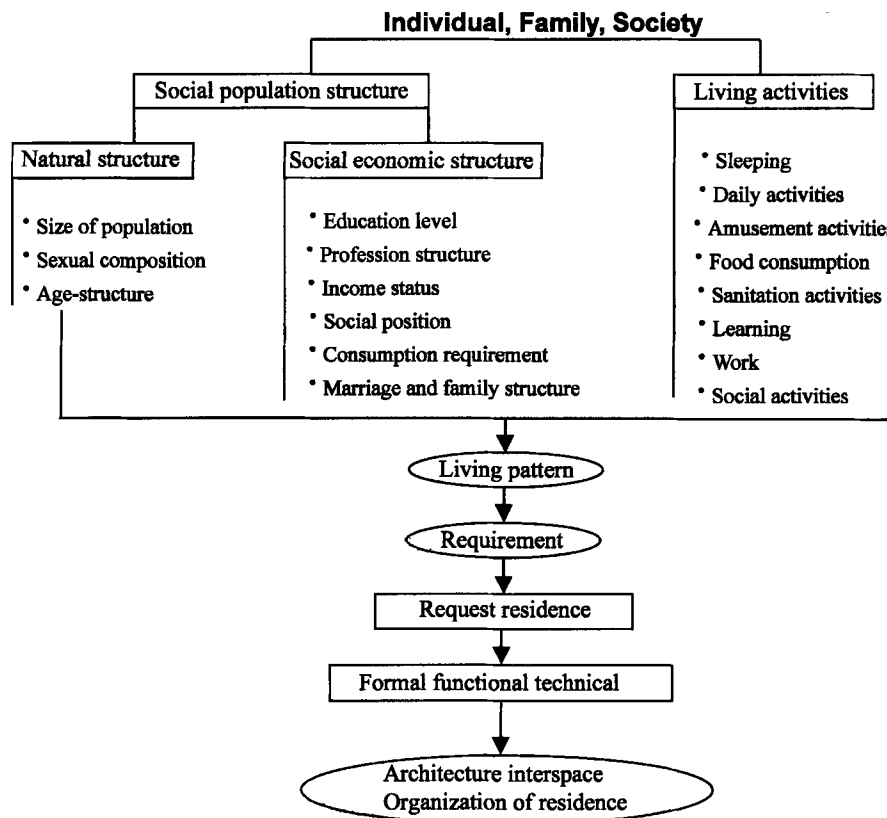


Fig.2 The order diagram by expression of social requirement to habitation

By means of analyzing and drawing a conclusion from the requirement of and influence by society, nature and technique, this paper also puts forward an "External Relationship System of Residence" (Fig.3). It holds that study on modern urban residence should be carried out in accordance with this system.

Nowadays, with the continuous emergence of many trans-century living projects and excellent designs, the comprehensive quality of the living environment must be addressed when we objectively study the urban housing construction situation. We must consciously realize that there are problems in two aspects of housing construction

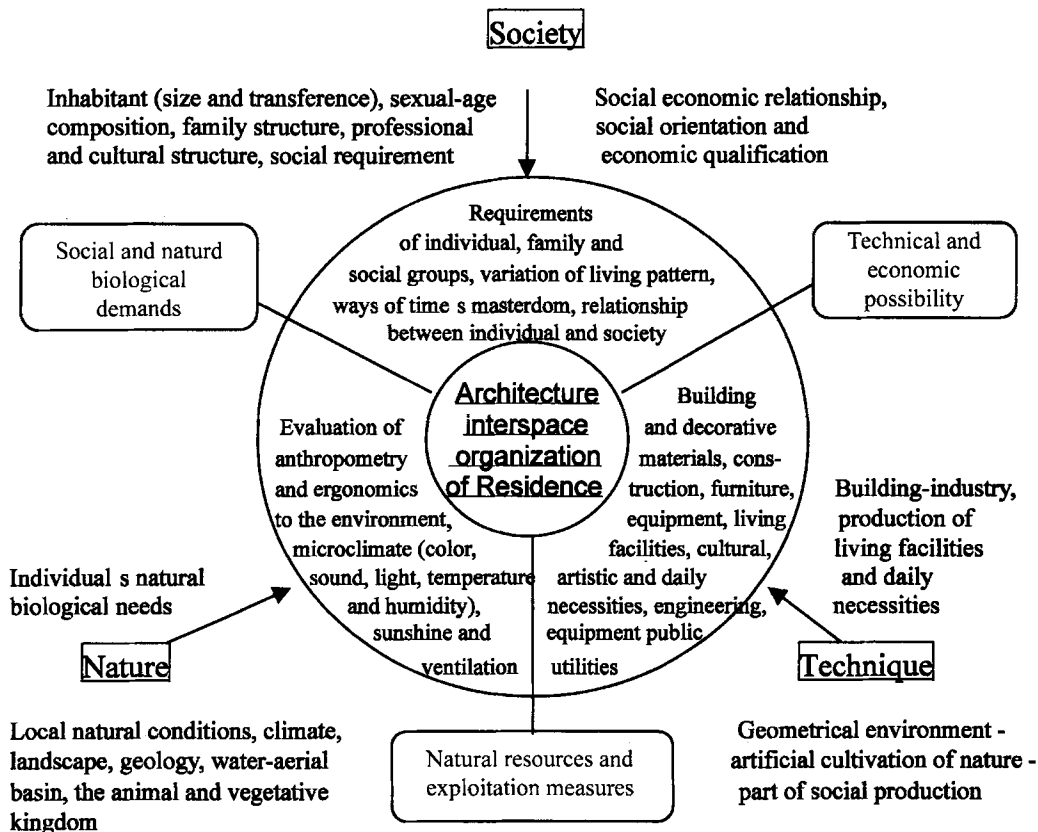


Fig. 3 External relationship system of residence

at present. On one hand, the huge scale of the housing construction usually causes neglect of the quality issues. On the other hand, with the development of reform and the open policy, more examples of what exists outside the country have been seen and designs are diversified. However, what is a really good design is still suspect. It should be started from changing the guide line of the designs, improving the constructing quality, even adjusting the policies and regulations in order to upgrade the quality of the living environment and extend the period of the cycle of "deterioration" and "out datedness" of housing buildings. On the basis of satisfying basic function requirements of houses, a few problems have to be specially taken into consideration such as the development and transformation of urban family living, working and traffic conditions, telecommunications, the aging trend of urban citizens, the real estate management model in the neighborhood, the protection and reformation of the urban ecological environment, etc. The ultimate purpose of these efforts is to create a comfortable and sustainable environment of human settle-

ment.

SOME QUESTIONS

This thesis puts forward the following problems, which require special consideration in studies on the process of sustainable development of Chinese urban residence.

1. The practice of economizing excessively and lowering down the building costs played a major role in a certain historical period with respect to the reconstruction, renovation, and rebuilding and new construction of public houses. Such a trend appeared in the former Soviet Union in the 1950s – 1970s and in Sweden at the end of the 1970s, and may be seen sometimes in China, for example, in the construction of moving-back houses and "ANJU" projects in cities. Some proposals to lower building costs should be studied with wide open eyes. As blindly lowering costs may very adversely affect the basic quality of houses. The problem will be more serious if constructors refuse to adopt new technology and

new materials to save the building costs. These new technology and new materials may be adopted during the housing construction to lighten the burdens of real estate management service and improve the quality condition of neighborhood life and give urban citizens a more suitable environment.

2. Today, with the rapid development of the economy and society, changes of residence are rapid. More attention has been paid to the construction of new uptown housing while the housing designs of old towns are only limited to within small blocks or units, and commercial considerations are give more value than harmonization with the surrounding environment. The housing construction of old downtown residential areas and the space organization should emphasize as much as possible the local characteristics and accord with the architectural style of the city so as to keep this area's sustainable development being a bridge between the past and the future.

3. Many 7 or 8 storeys apartments without elevators developed for commercial housing are bringing inconvenience to people's life, particularly to the aged. Meanwhile, they usually disregard the indexes like volume rate, construction density and green coverage rate. All these cause insufficient utilization of very limited land resources. Even in the former Soviet Union with very rich land resources, the over 9 storeys apartments in the 1960s - 1970s and over 15 storeys apartments in the 1980s were developed as the major form of large-scale urban residence. Singapore and Hong Kong have made great achievements on the development of high-storeyed residential building construction. Beijing and Shanghai also have such successful examples. The development of high-storeyed residential buildings might be an important trend of housing construction in large- and medium-sized Chinese cities. It will help guarantee enough square area and number of parks and green coverage, children's playground, sports field, and traffic and parking space and improve the quality of the environment.

4. The design of housing originated from the consideration of people's living style and habits. That is to say, by means of changing the house itself we can adapt the design to the habits of the inhabitants instead of the other way around. Swed architects said that one cannot simply say

that these habits are "good" or "bad", "legal" or "illegal" (People usually unconsciously do so). People should realize that the low utilization of space would lead to uncomfortable consequences to the life habits. The utilization of available space will be easier for houses to meet all kinds of life habits (Swan, D., 1993). It should be noted that the living styles and habits of Chinese urban citizens, particularly the young generation, have been gradually changed in the recent twenty years. One family is usually made up of members of different groups. Everybody must be free to use the mutual environment. The changes happening to the families such as old age and disability shall not force people to give away the houses and districts which they have got accustomed to.

5. In the past, people expressed thoroughly their requirements, desires and dreams on the house design according to their own ideas. With the development of industrialization, the houses are turned into a large-scaled production with a fixed model and a commodity lacking relation with inhabitants. The requirement and the creativity of the users have been replaced by the non-characteristic concept in the mind of builders. In Chinese cities where social economy is developing rapidly, the urban citizens are asking for more and more participation in construction of new houses and in reconstruction of old buildings. Consequently, the investigation and consultation will show more and more importance as a bridge of information exchange among builders (developers), designers and housing consumers.

References

- Chen Jiexing, 1997. Town Development and Urbanization. *Hangzhou Daily*. Dec. 19, (In Chinese).
- He Tao, 1997. Some Suggestions on the Public Housing Policy. *Architectural Journal*. 351: 16 - 17 (In Chinese)
- Jicun Yingyi, 1988. City Encyclopedia. Heilongjiang People's Publishing House, Harbin, p.1472 (In Chinese).
- Platonov, G., 1980. Housing Design and Demography. *Housing construction*. 9: 24 - 26, (In Russian).
- Robert, B. Potter, 1985. Urbanisation and Planning in the 3rd World. St. Marting's Press, New York, p.284
- Swan, D. 1993. Housing Research and Design in Sweden, Translated into English by Zhang Long et al. Architectural Publishing House, Beijing p.254 (In Chinese).
- Wu Liangyong, 1996. The Future of Sustainable Development, *In Proceedings of Wu Liangyong City Problem Research*. Architectural Publishing House, Beijing, p. 376 - 381 (In Chinese).